

TESI DOCTORAL
DOCTORAT EN DEMOGRAFIA

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**SOCIODEMOGRAPHIC IMPACT OF INTERNATIONAL
MIGRATION INFLOWS IN THE EDUCATIONAL SYSTEM AND
HUMAN CAPITAL FORMATION IN CATALONIA**

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Para Erika, mis abuelos y los que ya no están

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The paths we follow throughout our life are not isolated from others. Sometimes life is certainly full of contradictions and turnovers, but those who cross our way when less expected, who show us how to look on the bright side of life without thinking, are the ones who make things happen. To you, all my love and admiration for making my life different.

And last, but not least: To those who have contributed to this dissertation and my life, whose names are not listed, thank you.

Diana
Berlin, 2012

No one can deliver his labor in a market in which he himself is not present... and the unwillingness to quit home, and to leave old associations, including perhaps some loving cottage and burial-ground will often turn the scale against a proposal to seek better wages in a new place.

Alfred Marshall, 1920.

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Chapter 1

Introduction

The swift growth of the immigrant population during the first decade of the 21st century has moved Spain from being at the bottom places of the list of European countries regarding foreign-born residents to the top ones. During that period, the significance of the inflows have accounted for nearly 50 per cent of the net absolute migration in the European Union (EU), to the extent that the country has had the highest absolute net migration in the EU (with a peak of 920 thousand arrivals in 2007) and the second highest in the world after the USA. The aforementioned growth has been mainly motivated by the economic growth experienced at the beginning of the 2000s, instigated not only by the real estate bubble but by deep demographic changes that have taken place in the Spanish society.

During that time, the Autonomous Community of Catalonia maintained a net receiver position of both internal and international migration thus constituting an attraction node for economic migrants regardless their origin. Catalonia approximately concentrates 16% of the country's total population (7.539.618 persons), composed by 18.7% of foreign-born residents, 1.185.852 persons, and 20.6% born in the rest of Spain, 1.465.742 persons.

The diversity of the inflows that Catalonia received during the first decade of the 21st century could be perceived not only in the sending countries but in the structure by age of the newcomers. Compared to the native population, migrants were concentrated at young working ages and, given the structural composition of the economy, most of them accessed the labor market to fulfill the unskilled jobs in which natives were not interested in.

As we might expect, the foreign population increase was not only related to economic migrants but to tied movers. Families often arrived as a result of family reunion processes, once the pioneer had established and assured the basic living conditions for his or her family. As a result of the arrival of children, as well as the birth of children of immigrant

parents, population at compulsory ages (between 6 and 16 years old) - and therefore the demand for education - experienced an increase of more than 600 percent since 1998. Consequently, international migration has had an impact in policy design and development, leading to the inclusion of the integration concept in social policies. Particularly in those referred to education and family formation.

Subsequent to the intense arrival of inflows from countries considered as less developed –particularly from Latin America and Africa -, the social perception of migration tends to consider migrants as a harm and a direct competitor for public resources rather than an asset for the local society. In some cases, the increased population brought into light the ineffective or delayed policy reaction, as well as the lack of public resources that would directly tackle the overwhelming challenges. Such is the case for educational policies, which have not considered a demand increase among the previous scenarios in which instruments and budgetary allocations were built.

In reference to immigration in particular, education has been often considered as an instrument for social integration and development policies. Early access to education would benefit not only migrants, but natives also, thus contributing to the compatibility between work and family life by facilitating the return or the access of mothers to the labor market. Nevertheless, if policies are formulated without considering social inequalities among the entire population, the educational system may reinforce some social handicaps and the lack of opportunities instead of curtailing them.

Catalonia, as a traditional net migration region with its own language and culture, has used education as an instrument towards the Catalan nation-build project. It has successfully made Catalan the vehicular language of compulsory schooling and has designed integration programs not only for international but for Spaniards migrating from the rest of the country.

International literature has of course focused on this problem, but the results at national and local scale for the Spanish case were scarce during the time the research project was developed. Due probably to the lack of public databases that allow the detailed analysis of the foreign population and their academic and labor trajectories, this deficiency of empirical studies has constrained the sociodemographic analysis until the last years of the 2000s. Before that, researchers had limited the research to ad hoc surveys or the 2001 Spanish Census results. It is only in 2007 that the National Immigration Survey was carried out and came to light as the first Spanish survey entirely focused on foreign population. During that same year, the Catalan Statistical Institute (Idescat) developed the Demographic Survey 2007. Although databases have not been designed for the analysis of

academic trajectories of migrants, both of them offer information to study the differential demographic behaviors of migrants, their families and the migratory project behind. In that sense, both surveys could represent an inflection point in the study of migration in Spain and Catalonia.

All things considered, there is still a lack of resources to address the analysis of the foreign population at schooling ages. Moreover, there is still more to be done in the estimation of the human capital stock of the foreign population at older ages and its potential contribution to the economy and the society.

1.1 Origin and motivation of the research project

Considering human capital as the skills and knowledge acquired during the life through schooling, work experience, and training (Becker 1964), it represents one of the more mobile assets in the economy. However, the study of human capital portability in international migration contexts has shown an imperfect assimilation of the capital formed abroad (Chiswick 1978). In the Spanish context, the diverse composition and motivations behind familiar and individual migration projects implied the arrival of foreign population that, regardless of their previous academic formation, fulfilled the demand of unskilled workers. Accessing the market in the so-called “3D jobs” (dirty, dangerous and demanding) would therefore associate a trade-off between higher salaries with respect to origin and the underutilization of human resources.

Social perception often associates being a migrant to lower educational and socioeconomic levels. More specifically, the term ‘migrant’ (and therefore economic migrants) is commonly used for third-country nationals whereas ‘foreign’ refers to nationals from EU15 countries, the United States of America, Canada, Japan, Australia and New Zealand. Therefore, this perception leaves behind the diverse composition of the population of one same country as well as the motivations that lead to international migration movements, regardless of the nationality.

The main incentives to focus this research on the intersection between migration and education was to understand, first, the effects of migration in the human capital formation processes and, second, to analyze to what extent foreign human capital has been underutilized in Spain. In the international context, several authors have argued that skills acquired at the origin country are less valuable in the destination countries because of their lower quality or the uncertainty surrounding these skills (e.g. Duleep and Regets 1999; Borjas 1994). But, in countries in which legal barriers impede the automatic

assimilation of foreign human capital, to what extent skill transferability is affected by these assumptions? How social perception on immigrants as less skilled and less productive would also influence the educational system and the policies developed for the social integration of immigrants?

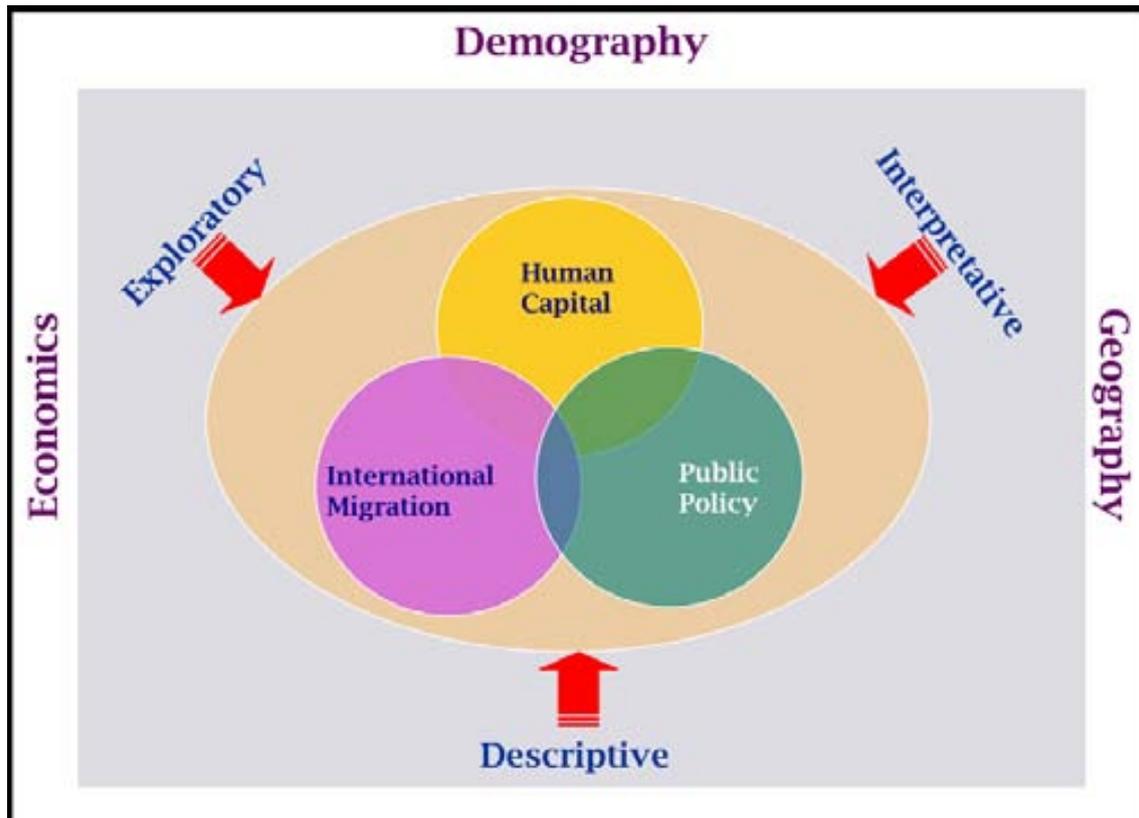
Also, with respect to the younger migrants, there is not enough information on their academic tracks or their access to the labor market. Given that the majority of the most recent inflows are of Latin American origin, the nationality acquisition leads to their statistical invisibility after a relatively short period of time. Even when public opinion and policy-makers have publicly argued that youth of foreign origin do not access neither higher educational levels nor the labor market once compulsory stage is completed, apparently there is no datasource that could show whether this assumption is true or not.

The complexity of the phenomena leads us to develop a multidisciplinary research project that encompasses three axes: demographic, geographic, and economic. The demographic approach would help us understand the differential demographic behaviors, the impact on the Spanish population structure and the mechanisms behind the migration and the arrival of children of foreign origin. The inclusion of the geographical dimension would shed some light in how settlement processes and territorial dispersion relate to access to education. More specifically, to what extent the latent relation between school and residential segregation at spatial level could explain the enrollment patterns of the foreigners. Finally, the inclusion of economic tools would contribute to the research on the socioeconomic determinants of the educational attainment in Catalonia and the mechanisms behind decision-making processes. In addition, three approaches have been considered: descriptive, interpretative, and economic.

Nevertheless, not only the motivation or the questions behind this research project have determined the final result. The lack of public information that allows a deeper analysis of the characteristics of the enrolled population and their familiar background has represented one of the major challenges for the fulfillment of the objectives and the possible inference on public policies. With respect to the territorial dimension and coverage, based on the distribution of competences between the Spanish and the Autonomic governments, there is no national database of the enrolled population. In addition, some of the surveys that could be considered for the study of human capital formation in Spain and Catalonia do not account for a representative sample of foreigners or are restricted for administrative use.

Therefore, the study of the enrolled population was constrained to the Catalan Non-University Enrollment Statistics provided by the Catalan Department of Education. Un-

Figure 1.1: Genesis of the project



Source: Author's elaboration.

fortunately, the database - based on restricted administrative records – is constrained to four uncrossed pieces of information. Despite the efforts of the Department of Education and the Catalan Government to implement a new administrative system to collect other socioeconomic variables critical to research and policy, the information was not successfully recorded. In that sense, the multidisciplinary approach of this research allowed us to include more than one dimension of analysis based on secondary databases that included educational attainment variables and a sufficient sample of foreigners.

To some extent, it is not only the academic production that is being affected. The absence of complete databases would also constrain the effectiveness of specific policies, given the inaccurate knowledge of the target population and their real needs.

1.2 Research questions and objectives

The research questions that promoted this study are motivated by the previous gap in Spanish academic literature referred to education and integration, possibly because of

the unexpected immigration boom and the absence of consistent databases that allow quantitative analysis in a larger scale. In that sense, theories about academic transitions and tracking of the children and youth of foreign origin could still not be contrasted in the Catalan and the Spanish context.

Some of the questions that arise in the current scenario are: What is happening with children of foreign origin after compulsory schooling? Is it true that they leave school in order to access the labor market or they just leave because their education cannot be granted? Could we talk about the existence of differential education transitions among origins? Is the compulsory education system a real integration instrument or does it preserve or promote the segregation among students? How effective are the educational policies directed to fight segregation? How statistical invisibility of naturalized citizens could bias the estimations? To what extent migrants are unskilled or is the labor market underutilizing foreign human capital?

The aim of this thesis is to analyze and measure the sociodemographic impact of the arrival of children of foreign origin to the Catalan educational system not only in terms of the increased demand for education but with its relation to the settlement and territorial distribution processes of the foreign population.

This research has three main objectives according to the involved analytical perspectives, namely:

1. To study the sociodemographic characteristics of the enrolled population by origin.
2. To analyze the spatial distribution, the segregation and the concentration of the enrolled population in the territory.
3. To estimate the familiar and contextual factors affecting the educational attainment of the foreign population.

According to the main objectives, this dissertation relies on three main hypotheses that will be contrasted:

H1: There is an imperfect relation between the weight of the different nationalities on the enrolled and the aggregate populations.

H2: School segregation is the product of the dynamics between inflows, desertion of natives –also known as ‘white flight’-, and dropouts. However, it cannot be fully explained by its residential counterpart.

H3: School transitions are determined by origin, familiar background, and the impact of the international migration process.

1.3 Structure

The dissertation is divided into four main parts and six chapters. The first part comprises the state of the art on international and national literature, and the description of the databases explored. The second encompasses chapters 3 and 4, devoted to the sociodemographic and the geographic analysis of the enrolled population respectively. The third part contains the exploratory analysis of the determinants of educational attainment. And the fourth and last part of this research comprises the conclusions of our research.

Regarding the structure of the dissertation, Chapter 1 is devoted to the literature review on the access and permanence of the children of immigrants in the educational system at destination. In order to provide the legislative framework affecting the access to education and the inflows from abroad, sections 1.3 and 1.4 analyze the evolution of the immigration and education legislation respectively. Chapter 2 introduces the basic characteristics of the databases explored, such as sample size, and the limitations attached.

The third chapter introduces a sociodemographic analysis of the enrolled population in Catalonia during the period between the academic years 2000/01 and 2007/08. More specifically, chapter 3 encompasses the evolution of the inflows from abroad and how the enrolled population has diversified its composition by origin. In that sense, it is the first approximation of the territorial distribution of the population. Finally, the analysis of the enrolled population by educational stage at the school year 2007/08 is included.

Chapter 4 introduces the geographical dimension in our analysis. It is aimed to analyze the evolution of the territorial distribution of the enrolled population by origin and, therefore, the school segregation phenomenon. Directly related to the second hypothesis, the interactions between Spaniards and foreigners will be studied under the spatial assimilation perspective. That is, interactions at spatial level would be a reflection of the contact –and opportunities for future social networks– among origins. In order to analyze the school segregation at different scales, three administrative levels will be explored, namely: Autonomous Community, Province and Municipality. More specifically, the research will consider the Province of Girona and the Municipality of Barcelona in addition to Catalonia.

Chapter 5 is devoted to the exploratory analysis of alternative databases in order to contrast the third hypothesis. The Chapter is divided into three main sections. First, the influence of residential segregation and contextual variables on the school segregation will be explored. Second, the analysis will consider the diverse educational attainment by migratory background. And, finally, the impact of international migration on investments in education.

Finally, conclusions and areas of future research will be listed in chapter 6 prior to references.

Part I

Chapter 2

Education: Pathways and barriers to integration

Education, as well as migration, are life-cycle events which affect and determine future conditions and opportunities of the population involved. As such, they should not be studied as isolated phenomena. They are clearly conditioned and determined by specific policies and regulations, but also by contextual characteristics such as the living conditions and development levels in the country of origin. In that sense, the impact of policies on children of immigrant parents would be double. First, because of family-specific migration policies that could affect their arrival conditions and legal status at destination (e.g. legislation on family reunion or unaccompanied minors). Second, by educational policies on access to education and school continuation decisions for non-compulsory stages.

Immigration laws are directly related to inflows and the presence of foreign population in a host country. However, they could also determine the foreign population's rights and duties. According to Domingo (1995) the legislative framework represents an absolute precondition for immigrants' living conditions, by setting in advance their rights and duties at destination. Education legislation is not only focused on setting the basic infrastructure to guarantee the access to education. It could also define the instruments for local authorities concerning school segregation and, in some cases, the same instruments could preserve the discrimination¹. In particular, by allowing mechanisms implemented by schools as informal barriers addressed to the selection of the families enrolled (i.e. higher 'voluntary' contributions as economic or social class discrimination). As a result, the proportion of human capital stock of foreign origin in receiving countries would be

¹Discrimination understood as stated on the UNESCO 'Convention against discrimination in education': "*the term 'discrimination' includes any distinction, exclusion, limitation or preference which, being based on race, colour, sex, language, religion, political or other opinion, national or social origin, economic condition or birth, has the purpose or effect of nullifying or impairing equality of treatment in education.*"

conditioned by the above.

The relation between immigrant integration and education has been deeply studied as instrument of integration policies and the connection between the immigration process and the local labor market (see for example Heckmann (dir.) 2008; Crul and Vermeulen 2003 or Chiswick 1978). Following Becker's (1964) definition of human capital as the collection of skills and knowledge that would influence future earnings; immigration models considering educational background concluded that expected earnings for migrants and natives with similar human capital allocations would be more or less the same. Therefore, the transferability between origin and host human capital would be complete.

In that sense, Borjas (1985) and Hirschman and Wong (1986) suggest that overrepresentation of immigrants in low-skilled sectors would be a result of their poor educational attainment. Nevertheless, this statement could be affected by the human capital measurements (i.e. years of schooling or maximum academic degree) and the host country specific regulations. Therefore, if similar human capital allocations could not be considered as substitutes in the host labor market due to formal barriers, the assumption would not be applicable. In that case, if individuals' qualifications are higher than required, they should be considered over-educated instead of low-skilled.

Beyond the utility of education as an immigrant integration mechanism, an increase in human capital stock would have direct and indirect benefits for individuals and the economy. In terms of the individual investments in human capital, Varlani and Mare (2005) argue that individuals with higher educational attainment levels would have, on average, higher earnings, more wealth and better health. In addition, better educated parents would also motivate their children to pursue higher educational levels, acting as an intergenerational transmitter of the benefits of education. As such, educational attainment could be considered as a fundamental instrument of social and human capital development. However, as Chapman and Withers (2002) argue, measuring the impact of education on economic growth is not straightforward. The increasing impact of education on the labor force qualification would be determined by both its quantity -measured as higher participation rates-, and its quality -the amount of knowledge obtained at any given school level-. Given data availability, most analysis focus on the former (Chapman and Withers 2002: 17).

The first studies about immigration and education in Spain were published around 1991, coinciding with the foreign population increase. Previously and specially on intercultural education, the research was focused on the schooling of Roma children being 1992 the big turning point towards international migration (García Fernández, 2006). Some of the first results were constrained to the children of Moroccan origin at compulsory

education mostly at national or municipal level. As we will see, the Catalan schooling system was only a part of this studies and the literature about the incidence of immigration in mandatory schooling is still scarce, even though this Autonomous Community concentrates a significant proportion of Spain's foreign population.

The the next sections of this Chapter are devoted to develop a state of the art on the relation between international migration and the integration of the children of immigrants in the host country. The analysis of international literature -especially those from more experienced receiving countries as Germany, the Netherlands or the United States- will allow us to learn from previous experiences and policies. The national literature will also be considered but the studies on migration and education in Spain were first published around 1991 (Aparicio 2001) coinciding with the foreign population increase. Later, as one of the clear determinants of access to education and immigrant integration is legislation, the chapter will also include a revision of the developments in migration and educational legislation and public policies. Particularly, we will focus the analysis in those which directly affect access to schooling of children of foreign origin, such as the mechanisms that affect or determine enrollment, school continuation decisions and school segregation. Given the diversity of the sources and the fields consulted, we have divided the literature review first by its nature and second, by analyzed topic.

2.1 International literature Review

2.1.1 Academic performance and school continuation decisions

The study of education transitions and academic tracking has been –depending on the legal framework- determined by individual socioeconomic background and the decisions according to familiar or individual available income. Individual educational attainment and performance would be affected by the expected returns to education in adult life by individuals, families and their communities (Ogbu 1978). From a sociological perspective, educational success could be explained by Bordieu's (1979, 1977) *Cultural Capital* theory that connects the cultural and structural dimensions of family background in terms of the knowledge, skills, education and advantages a person has. Therefore, cultural capital will give children a status in the society and would act as a mechanism for transferring intergenerational class advantages. In that sense, Bordieu and Passeron (2004) argue that social origin will act as a determinant in school continuation decisions once universal -or compulsory- education stages are overpassed.

Considering that individuals and families determine optimal educational attainment and school continuation decisions based on decision-making processes, the study could be devoted to the entire enrolled population without differentiating by origin. In general, economic literature considers educational outcomes as the result of choices involving costs and benefits of the relevant alternatives. For individuals (or families), the major costs of investments in education are the earnings foregone whilst learning plus other direct costs of education. The major benefits accrue in the form of higher future earnings than would otherwise have occurred. Consequently, economic cycles -and particularly unemployment- might influence school continuation decisions based on the combined effects between youth (positive) and adult (negative) unemployment rates on post-compulsory enrollment. Several authors have found significant evidence that family factors like socioeconomic status or family size are important for school continuation decisions (see for example Lucas 2009; Buchmann and Hannum 2001; Mare 1980) but there is no clear consensus about the results obtained and social and educational intergenerational mobility.

According to Loury (1981), parents are motivated to forego consumption and invest in their offspring by an altruistic concern. As they are of varying abilities and backgrounds, their incomes differ and consequently the training investments they make. As we may expect, investments in education would also be additionally affected by the availability of publicly funded education and their access to capital markets. If parents can borrow and lend at a given interest rate -*perfect capital market*- and disregarding non-pecuniary returns to education, risk and other complications, the *Becker-Tomes Theory* (Becker 1991; Becker and Tomes 1984, 1979, 1976) suggests that parental decisions can be decomposed in two steps, namely:

1. Maximize the joint wealth of the entire family line by investing in the human capital of each child up to the point at which the marginal rate of return is equal to the rate of interest, and
2. Redistribute the resulting maximized wealth among family members so as to maximize the preferences of the altruistic head of the household.

Therefore, redistribution may involve intergenerational transfers in either direction (Lillard and Willis 1993: 4).

Nevertheless, not only economic determinants would affect educational expectations and aspirations. The influence of social background on educational transitions affect the outcome -by decreasing equality of educational opportunities- but also the returns to education as proposed by the *Maximally Maintained Inequality* (Raftery and Hout 1993)

and the *Effectively Maintained Inequality* theories (Lucas 2001). Social background would increase its relevance as pupils reach higher educational stages. On the other hand, the *Maximally Maintained Inequality* (MMI) theory implies that when a level of education is universal, socioeconomically related contestation (i.e. class conflict) would be centered on higher educational levels. If public support for education decreases, social class effects will increase (Hout *et al.* 1993) and as a result, the probability of lower-status children could only be increased when the demand for a certain educational stage is saturated among individuals who are better-off. As a matter of fact, the idea behind the *Effectively Maintained Inequality* (EMI) theory is not only that advantaged social background is associated with increased chances of better placements, but also that the increases are consequential for academically oriented students (Lucas 2001). Given that school strata is organized in discrete locations, if social background can move an otherwise ‘average’ student over a threshold, social background would effectively maintain inequalities. In sum, the effectively maintained inequality theory could be considered as a refinement of maximally maintained inequality. Lucas (2001) found that social background advantages could consistently serve to ‘move’ children (or their predictions of them) from disadvantaged discrete locations to other with better conditions. In sum, even through the increase for social background effects may be small, they observed it to be effective.

Perhaps a more conciliatory approach could be the one developed by Boldrin (2005). According to the author, human capital is the result of a schooling system which can be financed either by private expenditures, taxes, or a combination of both. In a political equilibrium with majority voting, public school funding turns out to be an instrument to solve a ‘free rider problem’. By improving the skills of the next period’s workers, it increases the expected return on physical capital; something which cannot be achieved by means of private expenditure in education only. When financed by a uniform income tax, public schools are also an instrument for intergenerational redistribution. Depending on initial conditions, the model could predict either a poverty trap due to poor societies with scarce educational investments, or persistent growth driven by the accumulation of human capital (Boldrin 2005: 85).

As we might expect, not only monetary strings can determine access to education and academic outcomes. While considering the differences between migrant and native educational attainment, the performance of children of immigrants unfortunately lags in all school-success indicators: they drop-out at higher rates, repeat grades more frequently, and are concentrated in the least challenging educational tracks (Crul and Vermeulen 2003). Crul (2007) proposes three main lines of action for best practices focused on improving the situation of children of immigrants in education: early starting ages, late

academic track selection, and/or second chance options and dual tracks. Early start refers to lowering the age of compulsory schooling or the improvement of pre-school programmes. One of the main advantages linked to this policy would be the early acquisition of the language of the host country. Language proficiency and literacy is an important determinant of human capital accumulation of immigrant families and second generations in the host country. As Djajić (2003: 838) stresses, language skills are not only a productive form of human capital, but they also increase the productivity of other forms of human capital. For parents, language skills would represent a determinant of future earnings -and therefore, investments in their children's education- enabling them of a more productive use of their human capital endowment. Second chance is aimed to provide children of foreign origin with the alternative of late selection by an additional year of primary education in order to delay the track selection (academic higher education, vocational school) in secondary or allowing them to move from lower to middle to higher vocational education. Finally, dual tracks refers to those apprenticeship systems stems -as the ones implemented in Germany or the Netherlands- in order to involve the private sector in the education of youngsters. That should smooth the transition to labor market and would result in a stronger mechanism against youth unemployment and school attrition. In sum, these proposals would benefit the entire population and not only children of foreign origin. Early contact between natives and non-natives would smooth the process of mutual adaptation resulting in a more effective social integration.

2.1.2 Studies on ethnic segregation in schools

School segregation can be defined as the uneven distribution of a characteristic among students across schools (Tauber and James 1982). Despite most of the original studies focused on differences based on race or ethnicity, school segregation can also be extended to socioeconomic characteristics of the enrolled population regardless their origin. Since the publication of the Coleman Report (1966) in the United States, concentration of foreigners or ethnic minorities in schools has been considered a threaten to educational attainment of children. The report - authorized as part of the Civil Rights Act of 1964- pointed out the relevance of socioeconomic characteristics of children and the educational centers' available resources as determinants of academic results. In that sense, lower class non-white students would attain better academic results while studying with middle-class whites. Therefore, racial segregation hindered the educational attainment of non-whites (Tischler 2006: 378). Consequences of school segregation, however, are not constrained to educational attainment. With respect to access to education of non-native children

in the host countries, school segregation would directly affect their integration in the receiving society as well as their future perception of returns to education. International literature on school segregation of children of immigrants has been traditionally developed in the United States, the United Kingdom and the Netherlands². Data availability for these countries could be a determinant for the study of school segregation at aggregated and micro level allowing studies on, for example, income segregation. There is a clear interaction within school and residential segregation but there are other processes and determinants that lie behind explanatory factors. In general, school segregation is a combination of the geographical location of children and their families and the attendance policies determined by school districts (Rivkin 1994). However, social perception could also be a determinant while explaining access to education and contact among groups.

According to Cebolla-Boado and Garrido Medina (2010: 5), there are three main groups of causes that could be responsible of the negative correlation between concentration of immigrants and educational attainment. The main causes and some empirical analysis associated with them are:

1. Micro-interactions: within schools where children of foreign origin are overrepresented. According to the authors, this argument has been incentivized by the literature on social capital-related causal mechanisms in the study of social mobility mainly on the US (Portes and Zhou, 1993; Portes and Rumbaut, 2001). However, if individual level socioeconomic and demographic variables are controlled for, the unexplained variation associated with contextual variables will significantly decrease (Dietz, 2002; Evans, Oates and Schwab, 1992).
2. School effects: specific characteristics of schools where migrants are more highly represented could differ significantly from the rest. That is, in the most deprived environments they might rely on fewer resources representing a less effective learning environment. It may also include classroom-level effects forcing teachers to set different thresholds as evaluation criteria (Duru-Bellat and Mingat 1997).
3. Composition effects: referred to a socioeconomic status composition effect of student bodies across schools. In that sense, cost of housing, the existence of segmented labor markets and the influence of ethnic social networks contribute to the concentration of immigrant families in less advantaged neighborhoods.

²In American literature we can also find the term *desegregation* as the process of ending the separation of two groups usually referring to races after the *Brown v. Board of Education of Topeka*, 347 U.S. 483 (1954) Supreme Court decision. It declared state laws establishing separate public schools for black and white students unconstitutional.

The identification of the causal mechanisms from an analytical point of view and a policy oriented perspective is a complicated but required exercise in order to pursue an efficient solution to the negative correlation between concentration and educational attainment (Cebolla-Boado and Garrido Medina 2010). Nevertheless, we must stress that some of these considerations would be conditioned to the country-specific educational policies. Especially with respect to school effects given the heterogeneous resource allocation among schools, this premise would be directly applicable in countries as the United States where funding is directly related to the neighborhood or influence area. However, in other cases as the Spanish one, resource allocation would not rely on the local resources but in the budgetary constraints established by the central planner. In some cases, schools in the most deprived environments would receive a higher allocation depending on the programs conducted.

Also, not only performance but the spatial distribution of the foreign population is often related to deprived areas, generating a link between migration and poverty. In a recent study, Hamnetta, Ramsden and Butker (2007) show how disadvantaged areas in East London -measured by neighborhood types and ethnic heritage- negatively affect academic results. The authors conducted their study based on the premise that it is important to separate the individual from the possible school composition effects by undertaking an analysis of individual performance given their neighborhood characteristics. Therefore, it should be possible to compare these results with the overall school performance in relation to each school composition (Hamnetta, Ramsden and Butler 2007: 1263). Even though ethnic origin is important in influencing school attainment, the authors show that social background remains the most important explanatory variable. With respect to school social composition, their findings indicate that school performance is related to the affluence of the social mix of the school. That is, attending advantaged schools will represent a better academic performance.

The negative or poor social perception in the receiving countries communities' has an additional effect on school segregation. The use of 'school segregation' is traditionally used for the children of immigrants or the minorities among enrolled population. However, natives could also be segregated and concentrated in specific areas or schools in a spatial unit. Thus, school choice mechanisms are one of the clear determinants of school and, in some cases, residential segregation that must be considered. Gramberg (1998) has focused his research in the 'white-flight' phenomenon in Amsterdam related to the residential changes of higher-educated Dutch families close to their children enrollment ages. As a result of this selective migration, the number of schools with non-native children is rapidly growing; the number of 'white' schools is stabilizing whereas 'mixed' schools are

decreasing. According to the author, the relation between residential and school segregation varies according to the educational stage. For primary education, school segregation has a lot to do with residential segregation although there is an extra effect. For secondary education it is also determined by residential segregation (to a lesser extent) but is also related to the educational level of the different population groups. Improving the educational status of ethnic minorities making the relationship between ethnicity and achievements less stronger would be the only effective mechanism to fight against school segregation (Gramberg 1998: 563).

On the other hand, Karsten *et al.* (2003) analyze how school choice has influenced ethnic stratification in Dutch primary schools. As school choice is a complex decision-making process where local factors and diverse actors may influence parents, authors distinguish not only determinants such as information, influence of others, and positive motives for choice, but also the reasons parents give for rejecting particular schools. They find some examples of schools that tried to "keep out" particular groups of parents and children by, for example, asking for a very high parental fee, using waiting lists for certain groups of pupils, limiting the number of children who do not speak fluent Dutch or only admitting pupils from a certain catchment area. As a result, 6.2percent of all 7,000 elementary schools in the Netherlands have populations that significantly differ from their neighborhood. According to the authors, ethnic segregation in elementary schools in the Netherlands is caused mainly by a combination of residential segregation, parental choice and the gate-keeping practices of school principals. In a later extension, Karsten *et al.* (2006) explored the most important aspects of school segregation in the urban context. The authors emphasize that there have been policies that have influenced segregation and policies that are related to the effects of segregation (freedom to provide education and policies on eliminating educational disadvantage and educational opportunities). One of them, parental freedom of choice have definitively facilitated the white-flight phenomenon in the major Dutch cities and has reinforced school segregation even more.

Combining data from the 2001 Annual Schools Census and the 2001 Census of Population, Burgess, Wilson and Lupton (2005) measure the levels of segregation experienced by secondary school age children at school and at residential level. The authors find important differences between ethnic groups and between residential and school segregation in England. On average, school segregation is greater than the segregation of the same group in the surrounding neighborhood. With respect to the differences among the ethnic origins considered, results were conclusive for children with Black Caribbean, Indian, Pakistani or Bangladeshi ethnicity, and less true of children with Black African heritage. Another important finding is that the ratio of school to neighborhood segregation increases with the population density of the area. Later on, Johnston *et al.* (2006)

studied the composition of both schools and small residential areas across England's Local Education Authorities. Their results that could also be considered as an extension of Burgess, Wilson and Lupton (2005), show greater segregation in schools -especially for primary schools- than in neighborhoods and more accurate for all ethnic minority groups. In London, however, it is less for the white population.

International evidence has not yet provided homogeneous results on the linkage between residential and school segregation. The existing relationship between them has been studied at different levels. Most of the studies confirmed their positive relation but have not already proved the causality between both variables. Recently, Rangvid (2007) finds that low residential segregation in Copenhagen does not necessarily translate into moderate school segregation when school choice options are available. With respect to the determinants of the minority share at schools, the results suggest that an important part of the gap seems to be ethnic segregation more than differences in socioeconomic background. Despite most of the studies in the literature are limited to public schools, the author stresses that omitting private schools underestimates school segregation levels. One of the main contributions of Rangvid's (2007) study is the use of data at individual level for both the school catchment area where they live and the school they attend. This allows to calculate segregation indices for the same base -the school catchment and its (public) school- and relevant age group. In that sense, data availability is important for achieving full comparability of the level of residential and school segregation, because smaller units typically produce higher index values because they are more homogeneous (Massey and Denton, 1988). Also, because calculating segregation indices for the whole population instead of children enrolled may only produce misleading results if some ethnic groups have more children than others (Rangvid 2007).

During the last years, one of the most relevant datasource is the one based on the Programme for International Student Assessment (PISA) results. Conducted by the Organization for Economic Co-Operation and Development (OECD), PISA is an evaluation of 15 year-old students' scholastic performance across member countries. It is performed every third year since 2000 and is aimed to provide information in order to improve educational policies and results across countries. As we may expect, one of the main advantages of the PISA outcomes is the comparability of data across countries. However, several voices have criticized the sample design, the questionnaire itself and the representativeness of minorities that would result in a bias source. On a cross-national perspective, Jenkins, Micklewright and Schnepf (2007) analyze England's school segregation based on data from the 2000 and 2003 rounds of the PISA results for 27 industrialized countries. Their results are an extension of the research developed by Gorard and Smith (2004) based

on the 2000 PISA round for EU-15 countries. Jenkins, Micklewright and Schnepf (2007) argue that segregation is mostly accounted for by unevenness in social background in the public school sector. The authors find that the prevalence of parental choice of school varies depending on the school sector (public or private) but it is not strongly associated with differences in levels of social segregation across countries. In contrast, higher level of segregation are found in countries with a higher prevalence of selection by schools.

With respect to the different methodologies used in segregation studies, the most extended calculations are Duncan and Duncan's (1955b) dissimilarity index or the Hutchens' (2004, 2001) square root index as indicator of the distribution of social diversity across schools or at residential level³. The homogeneous use of this indices (or some decompositions of them) allow the comparability and possible extensions of the results in the existing literature.

2.1.3 Longitudinal studies of educational attainment

As we have mentioned before, education and migration are part of the life-course. They are not isolated events and how they affect people's lives depend on their previous history and subsequent decisions. Therefore, their longitudinal studies allow the linkage between early and later life experiences.

At international level, longitudinal studies on education of the children of immigrants has been mostly treated as part of immigrant integration research. Zhou (1997) defines the category of second generation in its widest meaning including both the children of foreign origin born in the host country but with at least one parent born abroad, and those born abroad independently of the age at which migration took place. According to Zhou (1997), the success at school of the second generations is a crucial step toward successful assimilation. However, as Ravecca (2010) points out, it is necessary to observe that there is no absolute correspondence between degree of integration of the second generations in the receiving societies and school achievement, which rather indicates the level of adaptation of children to the school's requests.

Longitudinal studies for the US (Portes and Rumbaut 2001; Borjas, 1999; Portes and Zhou, 1993;) or Germany (Gang and Zimmermann, 2000) suggest the positive effect of ethnic networks in foreign children's educational attainment. Social capital, understood as "the norms and social relations embedded in the social structures of societies that enable people to coordinate action to achieve desired goals" (Grootaert 1998), could be thus seen as the engine behind the positive results in ethnic enclaves. Therefore, social networks can be a powerful asset, not only for individuals but for the community itself.

³The index will be explained in the methodological section of Chapter 4.

Most longitudinal studies find what has been defined by Portes and Zhou (1993) as segmented assimilation. Socioeconomic integration patterns are ethnically or culturally diverse and, in some instances, integration entails under-achievement (Borjas 1999; Kao and Tienda 1995; Perlmann 1988;). Since education plays a central role in the process of human capital accumulation, a key aspect is to what extent educational achievements of immigrants differ as compared to natives, especially for investments in post-compulsory schooling (Aina, et al. 2008). Some European studies about the relationship between education and immigrant integration show that academic success is higher in those households that are more assimilated (Haisken-DeNew et al. 1997) and in those with a higher human capital stock (Crul and Vermeulen 2003). However, we must take into account that ethnic discrimination, stronger in periods of high immigration, may influence educational outcomes at well (Haberfeld et al. 2000; Coenders and Scheepers 1998). It might be related to the negative social perception from natives, particularly when immigrants compete for scarce resources as educational vouchers.

In an effort to perform an international comparative research on the second generations, the *Effectiveness of National Integration Strategies towards Second-Generation Migrant Youth* -EFFNATIS- project was conducted from 1998 to 2000 in eight European countries. It was mainly focused on the relationships between national policies on integration and the outcomes for the second generation. Field surveys were carried out in Germany, France and England using a common questionnaire, while country reports were drawn up for Sweden, the Netherlands, Switzerland, Finland and Spain based on secondary analysis of existing data (Crul and Vermeulen, 2003). As the project focused on different ethnic groups and their diverse migration history among countries, there is little on how ethnic groups fared in different settings or contexts. Cross-national comparisons were therefore limited. Within their results, researchers find that school careers of second-generation children exhibit startling differences across Europe, but the only feature of the national systems that specifically relates to migrant children is the second-language training.

Later on, in 2005 *The Integration of the European Second generation* -TIES- project was focused on the descendants of immigrants from Turkey, Ex-Yugoslavia, and Morocco in eight EU-member states. The definition of 'second generation' used on the study, refers to those children of immigrants born in the host country, having followed their entire education there, and being at the time of the study between 18 and 35 years old. Considering that immigration is mostly an urban phenomenon, the study was focused on fifteen cities. The main advantage from this project is that it is centered on the second generation Turks in thirteen from the fifteen analyzed cities. With respect to the school

system, the authors find that there is a direct relationship between the attained levels of education of children of foreign origin and the years they spent together with peers with native-born parents (Crul and Schneider, 2009). Starting school at an early age will then directly reduce the gap between national and non-national pupils. Also a quarter of the second generation Turks made it into higher education, a huge accomplishment considering the low socioeconomic background of the parents and the high drop-out rate across Europe.

Longitudinal studies of post-migration educational investment at international level have found a negative relationship between age and post-migration education that could be also affected by economic cycles and visa categories (Hansen, Lofstrom and Scott, 2001; Cobb-Clark, *et al.*, 2001; Rooth, 1999; Chiswick and Miller, 1994). Depending on the determinants of migration (i.e. economically incentivized migration, tied movers, refugees) economic cycle variations will affect more the investment decisions on post-migration education. In that sense, Rooth (1999) finds four factors to be important in determining post-migration educational investment for Sweden refugees: age at migration, pre-migration schooling, year of immigration, and country of origin. On the other hand, visa status will matter somewhat in terms of post-migration human capital investment, but pre-migration education is a more reliable indicator of post-migration behavior (Hansen, Lofstrom and Scott 2001).

2.2 Literature review on Education and Migration in Spain and Catalonia

2.2.1 Education and immigration: Access to education

One of the major concerns of the society since the beginning of the migratory boom of the 21st Century has been the access to education of children of foreign origin. During the last years the debate has been mostly focused on the distribution of students within -mostly public- schools and how their enrollment affect performance. Apparently, one of the major concerns with respect to access to education of children of foreign origin is focused on those who arrived from countries or regions often categorized as ‘poor’ or ‘underdeveloped’ with respect to Spain. Their incorporation in the schooling system is often considered as an obstacle of academic performance of Spaniards but if they are also concentrated in certain educational institutions their presence is considered as a ‘problem’ of first order in the political agenda and the public debate (Alegre 2005). In

that sense it is not difficult to find references or generalizations with respect to children of immigrant origin in the scientific literature as an obstacle to performance because of their poor economic background or their ‘lower cultural level’ in some cases misunderstood as cultural capital in the sense of Bourdieu (1986, 1979). As García Castaño and Granados Martínez (2002) point out, interculturality in Spain is selective and mostly referred to population labeled as ‘immigrant’. For those from developed countries, the concept is not applicable -they are often not considered as economic migrants- and have not been considered as a target for cultural mediation, integration policies or diversity.

As we have mentioned before, legislation and educational policies are determinants for the access and permanence of children of immigrants in the educational system. Aja *et al.* (1999) analyze the legislation behind access to education for foreign children as well as the cultural differences, their integration process, the student’s diversity of origins and the Spaniards perception of them. Cuesta Azofra (2000) analyzes the education and immigration legislation. The research also included an *ad hoc* survey not only in Catalonia but in the rest of the Spanish territory in order to analyze the incidence of these policies in the effectiveness of the integration process. The second part of this research conducted in 2002 Martínez Álvarez (2002) also considers the expectations and future plans of children, specifically referred to their accommodation project and the academic degree that they would like to earn. In that sense, the authors point out the determinant role of legislation. Spanish immigration law gives children of foreign origin under 18 years of age –regardless of their legal status- the right of access to education. However, as compulsory stage compels between 6 and 16 years of age, education can not be guaranteed for them in the remaining stages. With similar results, Equipo de Investigación FEDE-UGT (2001) propose a new inclusive educational model, that also extends the integration process and actions to the host society. As integration is a process of mutual adaptation, an inclusive model should be more effective instead of addressing policies only to the newcomers.

With respect to the relation between education and the integration process, Alegre *et al.* (2006), Alegre (2005) and Martín Rojo (2003) study the integration process of students of foreign origin and their experience. Alegre *et al.* (2006) and Alegre (2005) focused their research in the Catalan schooling system, where children of foreign origin are often classified as students with special education needs because of their arrival once the academic course has already started⁴. On the other hand, Martín Rojo (2003) analyzes

⁴According to the *Decret 252/2004, d’1 d’abril, pel qual s’estableix el procediment d’admissió de l’alumnat als centres docents en els ensenyaments sufragats amb fons públics* -Decree 252/2004 that establishes the admission process of children to public funded schools-, a student with special education needs is defined as:

“ 16.1 Es considera alumnat amb necessitats educatives específiques, a l’efecte de la seva

the integration process under the multilingualism and multiculturalism experienced in the Community of Madrid, emphasizing the analysis of the different policies and programs that have been developed. Siques (2008) analyzes the Catalan Newcomers program (*Aula d'acollida*) results on language proficiency. According to her results, the author concludes that the program is a good instrument in order to increase their language skills that will allow their integration in the schooling system but without mentioning the incidence on academic attainment.

As one might expect, a direct consequence of this phenomenon is the research conducted under the pedagogic perspective. Garreta (2006), Essomba (2002), Santamaria (2002, 1994) and Carbonell (1998) analyze the relationships of students of foreign origin inside the classrooms and their integration processes in terms of the networks constructed. As a counterpart, Essomba (2003, 1998) and Ferrer *et al.* (2005) explore the challenges behind the inclusion of students of foreign origin and the effectiveness of Catalan educational policies under the teacher's perspective. On the other hand, Palaudàrias and Garreta (2008), Palaudàrias (2002), Crespo (1997) and Palaudàrias and Feu (1997) focus their research on the analysis in the challenges faced in policy design in Catalonia. The authors agree on the lack of collaboration and coordination between political and social agents for the efficient implementation and design of educational integration plans.

As Aparicio (2001) stresses, research on the effect of children of foreign origin for schools and their educational achievement have failed to draw a distinction between immigrant children and children born in the host country. However, the distinction has not been included in policy design, considering all children holding a nationality other than Spanish as newcomers regardless age or place of birth. Along the same line, Carabaña (2004a, 2004b) argues that the only difference between a foreign-born child who arrive in Spain at the age of 6 and one native born is language proficiency. Similarly, while considering internal migrations between Spanish Autonomous Communities with different vehicular languages, children would be affected to the same extend.

Anthropology and more specifically, the ethnography of the students enrolled in mandatory schooling as well as the multicultural debate have been deeply studied by Carrasco (2003, 2004, 2007, 2008). Carrasco (2003) offers a comparison between foreign and Roma

admissió en els centres docents, el que per raons socioeconòmiques o socioculturals requereixi una atenció educativa específica, el de nova incorporació al sistema educatiu, en el cas que per la seva competència lingüística o pel seu nivell de coneixements bàsics requereixi una atenció educativa específica, i aquell que té necessitats educatives especials, es a dir, l'alumnat afectat per discapacitats físiques, psíquiques o sensorials, o que manifesta trastorns greus de personalitat o de conducta..."

children in Spanish schools. She points out the implicit bias of education statistics due to common mistakes while enrolling children in schools as well as the different immigration categories classification depending on local sources. Also, registration is not homogeneous in time due to legislation changes thus limiting the comparability and consistence of the available data.

2.2.2 School segregation

“In some cases, school segregation is reproduced by the action, and others by the omission, of educational policies. It is also true that in certain municipalities, there is something of an underusage of educational policy instruments. The rare application of ratio reductions by segregated schools, the low utilization of opening reservations for the effective distribution of students with specific educational needs or the seldom-used school attachments to reevaluate them and fight the segregation phenomenon are clear examples.”

Síndic de Greuges (2008: 209).

Regardless the most numerous migratory inflows arrival since the beginning of the 21st Century, the school segregation phenomenon in the Catalan educational system is not new. As Aparicio (1999) points out, the first studies about the education of children of immigrants dealt with their possible concentration in certain school areas (Bergère Dephazi, 1992; Colectivo Ioé, 1996; Juliano, 1996). The authors conclude that was that there was no evidence to show a generalized process of ghettoization in schools. However, the process was still observable in certain districts or suburbs both in Madrid and Barcelona. The arrival of immigrant children at compulsory schooling ages during the last decade affected the social and ethnic composition of the enrolled population. School segregation partly occurs because immigrants tend to concentrate in some areas where they can find cheaper housing, and is aggravated by the withdrawal of natives, on the grounds that the presence of immigrant children lowers school standards. In terms of policies, segregation concerns date since the late nineties, when local authorities asked for an official role in 'local school maps', involving an enrollment policy which distribute students into schools formally committed to an educational area (Valiente and Rambla 2009). However, the analysis of the spatial distribution of the foreign population in Spain and, consequently, the effects on the educational system has been left aside until recently.

On regard to legislation, Aja *et al* (1999) analyze how school enrollment is affected. On one hand, it guarantees schooling without considering place of birth or citizenship. On the other, legislation also influences the “natural” and “artificial” segregation of children depending of their parents' school choice. In that sense, the authors consider that

the artificial segregation -and hence the *ghettoization* of some schools- main cause is the Autonomic legislation on education because it is not strong enough in order to prevent these conflicts. In the same line, the '*Educació i immigració extracomunitària*' (1999) -"Education and non-EU migration"- report explores the artificial concentration of students of foreign origin mostly in public schools. According to the authors, the phenomenon has been produced in some educational centers because, given that local parents have enrolled their children in other private or public schools in the surroundings, those were the only ones with available places. As a result, newcomers could only enroll their children in schools where natives have 'flown' at the same time that the local residents saturated the peripheral supply. Instead of covering the available places in public schools, authorities have in some cases incentivized the increase of private places thus preserving the generated school segregation and the so called 'white flight'⁵ phenomena.

However, concerns on school segregation are apparently selective, focusing only on nationals from countries socially considered as underdeveloped or poor. As Fernández Enguita (2003: 246) stresses, the first nationalities that created highly concentrated educational centers are the ones from the richest countries who study in private international schools. In Catalonia, as in other Autonomous Communities traditionally governed by conservative and nationalist parties, private schools have had a special treatment from government and society, whereas public centers enroll three or four times the number of foreign students from private schools. There is differential enrollment of children of foreign origin based on preferences according to nationality. Schooling would then be divided in three parallel channels (Fernández Enguita, 2003: 249). On one side, the market, where strictly private schools are offered for those who can pay their tuition, avoiding *social and cultural promiscuity*. On the other, the State, where public funded schools offer education to those unable or unwilling to finance their children's education with the counterpart of cultural and social mixture. In the middle, an agreement between market and State, the state-sanctioned or charter schools for those who pretend to receive -what they consider- the best from the two models explained before under a partially subsidized model. In the Spanish case, this stratification directly affects compulsory education.

One of the first studies about the distribution and composition according to nationality of the enrolled population is the one of Colectivo Ioé (2002). The authors consider not only the yearly education statistics offered by the *Ministerio de Educación* -Spanish Education Ministry- but the births of children of foreign origin and their trends. More recently, Benito and González (2007) analyzed the effect of school segregation and school

⁵At school level, 'white flight' occurs when schools are deserted by native or White parents if they find their children outnumbered by pupils with an immigrant background or from ethnic minorities.

policies through the implementation of surveys on a sample of Catalan municipalities and enrollment data. Later on, Sánchez Hugalde (2007a) studies the effect of the interaction between school segregation and policies in educational outcomes in Catalonia. Results suggests that the presence of immigrant students negatively affects their classmates' individual academic results. The impact of their concentration would be higher in the foreign enrolled children than in their native peers. However, results are not conclusive in terms of supporting the distribution of pupils of foreign origin in order to decrease the differential outcomes of natives and foreigners.

The increased presence of children of immigrants in the educational system leaves behind two direct effects in terms of the spatial distribution of the enrolled population and the segregation measurements. The higher proportion of students of foreign origin would be reflected in lower segregation indices even if their distribution is not homogeneous. While studying 158 Catalan municipalities⁶, Valiente and Rambla (2009) show that decreased segregation indices were accompanied by increased isolation measurements. Even though educational centers experienced a generalized growth of the proportion of foreign children enrolled -regardless school's funding system-, the number of students enrolled in those with the higher proportion of foreigners also increased. A third -and indirect effect- that could be linked to the arrival of foreign children at schooling ages is 'white flight'. For the Catalan case, Sánchez Hugalde (2007b) concludes that there is enough evidence to show that Catalan families leave schools once immigrant children are enrolled. According to the author's results, private schools would be the most preferred destination for natives, whereas non-nationals could not be considered as active participants in the selection process.

Based on the policies designed to fight against school segregation in Catalonia, and the related complains presented to the institution, the Síndic de Greuges -the Catalan Ombudsman's Office- (2008) deeply studies the school segregation phenomenon. The report alerts of a growing risk of social fragmentation within the educational system incentivized by urban segregation itself and immigration among other phenomena. According to the report, urban segregation have segmented settlement and localized social groups into certain enclaves. The results show that school segregation is more accentuated than urban segregation. At micro level, despite the differences in the social composition of the analyzed districts, school segregation throughout the city of Barcelona is attributable in 76.9percent of the cases to the internal inequalities of the districts (less contaminated by urban segregation) and in 23.1percent by the inequalities existing among the districts (clearly caused by urban segregation) (Síndic de Greuges 2008: 208). On the other hand, immigration has led to an increase of the school-age population with specific educational

⁶Sample does not include Barcelona and the smaller municipalities.

needs, giving rise to an unequal distribution of this population group among schools, and a reaction in the educational demand. In that sense, school segregation is also a product of the convergence of two phenomena. First, the concentration at some schools of population at risk of social exclusion. Second, the ‘flight strategies’ of other families which, despite they often reside in the same territory, decide to seek alternatives to the more stigmatized and sometimes more ghettoized educational centers. The ghettoization or school segregation phenomena, as they may translate into inequalities in the educational opportunities enjoyed by children, and consequently into potential social inequalities, constitute a violation of rights that must be the subject of analysis as well as intervention by public administrations (Sindic de Greuges 2008: 205). The report leads to the conclusion that a good educational policy oriented toward fighting school segregation must begin with appropriate planning of the educational supply. While it is true that the spatial distribution of social groups has effects on school segregation it is not a decisive factor as a well-designed educational policy should be. The development of balanced school maps, the establishment of school districts that favour social heterogeneity, the opening of schools and classes to compensate inequalities, or the use of the ratio or place reservation instruments are policy instruments available to the education administration to fight against school segregation.

With respect to the instruments already implemented, Alegre (2008) analyzes the different mechanisms of redistribution of immigrant students in the schooling system and their effect on school segregation. The author also presents three models of delimitation of catching areas according to school strata distribution based on the study of Benito and González (2007)⁷. Although Benito and González (2007) originally focused their models on equity levels of school composition of Catalan municipalities, their classification can be extended to the entire Spanish territory (Alegre 2008). Later on, Alegre, Benito and González (2008) analyzed the impact of school zoning policies on segregation and polarization of the school network in ten Catalan municipalities. Among their results, we must stress that the model that assigns a single school for each catchment area reproduces residential segregation in the school network whereas allocating diverse centers will encourage its reduction. The research combines the analysis of school segregation with socioeconomic background and parental education.

Following an ethnographic approach, Carrasco *et al.* (2009) study the formal and informal dynamics of students’ separation within schools. As the authors point out, it is not only necessary to pay attention to the school segregation and the social processes that impact on educational inequalities, but on the available opportunities inside the educational

⁷The models will be described in section 1.4.6.

institutions to understand the processes and effects of intra-school segregation (Carrasco *et al.* 2009:3). As Alegre (2007) stresses, the school segregation within Catalan public and state-sanctioned educational centers do not avoid the social segregation -based on social background- of pupils within schools. Valiente and Rambla (2009) estimated the trends of school segregation in Catalonia between 2001 and 2006 considering an ‘intersectional approach’ between class and ethnic divisions, suggesting that school segregation responds to strategic parental choice and informal policy arrangements. Apparently foreign working-class students have been concentrated in a few public schools in some large cities in a system that allows a division for more comprehensive public and selective private schools in a variety of towns. According to their findings, the local scale should not be neglected any longer in terms of policy impact and lobbying strategies.

2.2.3 Academic performance and school continuation decisions

Given the characteristics of the Spanish educational system, the first source of selection in terms of education can be observed at upper secondary school. Completing this level of education –the first academic track of post-compulsory education- involves a choice that has a higher opportunity cost, making an important investment on education at the expense of immediate income. Is at this stage where we can expect that familiar socio-economic characteristics strongly affect the decision to pursue post-compulsory education (Roig and Recaño 2006; Mare 2006, 1980) and therefore, the higher the level of education, the stronger the selection effects among students (Impicciatore 2005). In that sense, the poor results obtained at post-compulsory stages compared to other European countries could be explained by the incidence of social segmentation processes in the educational system. Thus, if the system is not able to neutralize the reproduction of original inequalities, the early drop-outs of children from families with educational deficits would be increased (Subirats 2010). Consistent with socioeconomic determinants of school trajectories, Alonso and Sosvilla-Rivero’s (2006) estimation of human capital in Spain shows that low educational attainment can be explained for the percentage of working population by cohort. Their study, based on the Labor Force Survey (*Encuesta de Población Activa, EPA*) data showed that for some cohorts the percentage of population with lower than compulsory education is over 60percent. For those cases, we can infer that the opportunity and financial costs of studying overpassed the future benefits of obtaining a higher education degree.

With respect to school continuation decisions and labor market conditions, Petronlongo and San Segundo (2002) find evidence of a positive effect of youth unemployment on

the demand for higher education, alongside with a negative effect of adult unemployment. However, in quantitative terms, parents' education is apparently the main determinant of post-compulsory enrollment, producing a sort of intergenerational persistence in the Spanish stock of human capital. The estimation considered three cross-section samples of the second quarter of the 1987, 1991 and 1996 Spanish Labor Force Survey. Considering that in 1990 the length of compulsory education was increased from 8 to 10 years, therefore postponing the decision to drop-out or continue education, the research could estimate the initial effects of the new educational policy. As the authors' stress, policies that increase the educational investment of a generation would have long-term effects on the future accumulation of human capital by younger cohorts (Petronlongo and San Segundo 2002: 356).

During the last years, the relationship between international migration and academic performance has been one of the preferred topics in Spanish academic literature. Although the OECD *Program for International Student Assessment* (PISA) has been designed for measuring how well students can apply the knowledge and skills they have learned at school to real-life challenges (OECD 2009), several voices have blamed immigration for the 2006 Catalonia's PISA results. However, they confirmed the need for investments in education given the urgency to cut out the share of secondary level drop-outs and its mid and long-term economic consequences regardless students' nationality. Considering the PISA 2003 evaluation outcomes, Prats (2006) argues that the Catalan educational system has reached minimum the schooling requirements for the whole population but is still far from an optimal level. On average, the results obtained by children of foreign origin are lower compared to native students among the countries evaluated. Nevertheless, the debate has been centred on the (negative) relation between the increase of non-native students and the aggregate academic performance. Compared to the rest of the countries evaluated, the Catalan and the Spanish students' results are on the average of the distribution but it is important to point out that the Catalan foreign students' sample is not statistically significant for the PISA 2003 edition (Alegre 2007). If language is considered, foreign-born children whose mother tongue is Spanish have better results than the rest of their non-national peers but their results are still behind those from their native counterparts (Carabaña 2004b).

While analyzing the data of the first three editions of the PISA results, Carabaña (2009) confirms that Spain is on the average of the OECD countries. The author stresses the difference between the effects of migration on a country's average and on natives individual results. The research focused on the aggregate effects of migration showing that immigration do not explain -just modify- the differences between Autonomous Communities. With respect to individual characteristics, neither the *index of economic, social and*

cultural status (ESCS)⁸, the language spoken at home nor the country of origin explain more than maybe half of the differences between immigrants and natives (Carabaña 2009: 43). Nonetheless the rest of the effects could not be attributed to educational systems or schools. The impact of schools on immigrants provides a measure on the effectiveness of educational systems, its organization and practices. If differences between countries are indeed related to educational systems, natives and second generation children should also exhibit the exact same differences given that they have received the same education. Therefore, immigration could have an effect on newly arrived pupils depending on the school's reception programmes but it should be neutral for those who were born or raised in the country. However, the empirical evidence show that same schools have different effects on children from native and foreign-born parents. A clear sign that familiar effects –like sociocultural condition- could be even more important than educational centers (Carabaña 2009: 43).

Sánchez Hugalde (2007a) or the Colectivo Ioé (2003) for Spain and García Alegre and Moreno Torres (2007) for the Catalan case, focused their research in the effects of children of foreign origin in academic achievement. The authors agree in the negative correlation between the number of students of foreign origin and the aggregated academic achievement. On the other hand, although their concentration has a negative effect in achievement, its correlation is higher related to them than Spaniards. In any case, achievement is not homogeneous when controlling by place of origin. However, empirical evidence is not consistent among the different studies. The previous results diverge from the ones of the recent study of Cebolla-Boado and Garrido Medina (2010). Exploring data from the National Survey for the Evaluation of Primary Education 2003 produced by the National Institute for the Evaluation and Quality of the Educational System (*Instituto Nacional para la Evaluación y Calidad del Sistema Educativo*, INECSE), the authors found no effect on achievement of the concentration of immigrants, once social individual characteristics are controlled for. Therefore, we could assume that more than ethnic origin or nationality, the differential results among the enrolled population are related to the household's socioeconomic characteristics rather than the origin itself.

Due to the social and cultural barriers -like Catalan language- that migrants have to face in this Autonomous Community, internal migration can be studied using the theoretical and analytic instruments traditionally find in international migration literature. The study of internal migrants' educational attainment in Catalonia has been carried by

⁸According to the OECD (2002), the ESCS is based on the following variables: the International Socio-Economic Index of Occupational Status (ISEI); the highest level of education of the student's parents, converted into years of schooling; the PISA index of family wealth; the PISA index of home educational resources; and the PISA index of possessions related to "classical" culture in the family home.

Recaño and Roig (2003). Based on the 1991 Spanish sociodemographic Survey, the authors show that being of non-native origin in Madrid, Catalonia or the Basque Country has a negative impact on educational attainment once socioeconomic characteristics are accounted for. Their results are consistent with the ones obtained for the Italian region of Novara by Aina *et al.* (2008). The authors argue that if the society as a whole fail to provide immigrants with an adequate level of human capital, the speed of their integration may be consistently reduced. This can be applied to the assimilation of immigrants from abroad, but it is still important also for the integration of internal migrants, especially in countries such as Italy or Spain, which experienced and still experience massive flows from less to more developed areas within the same country (Aina *et al.* 2008: 16). With respect to language proficiency of immigrant population in Catalonia, Rendon (2007) find evidence of what he defined as ‘the Catalan premium’. Using Census data from 1991 and 1996, the author find that speaking and reading Catalan increases the probability of being employed by 3 to 5 percentage points, whereas writing Catalan increases the probability of being employed by between 2 and 6 percentage points. The study is limited to language returns to employment probabilities since Census data does not contain information on earnings. Recently Di Paolo and Raymond (2010) estimated the differential monthly earnings of proficient individuals in Catalonia. Their results suggests that only more educated individuals (with more than eight years of schooling) receive an earnings return to language proficiency. Meaning that for low-educated individuals, language proficiency may have a limited impact on their labor market outcome and therefore on their economic integration.

One of the problems that researchers have to face while studying human capital formation and university enrolment in Spain or Catalonia is that there is no specific or national public database for this purpose. The lack of datasources do not allow to measure educational disadvantage (Cebolla 2008; Carrasco 2008, 2003) or the returns to education in Spain (Alba-Ramírez and San Segundo 1995). As Carrasco (2003) stresses, the available data on immigration and education does not allow to estimate the effects of educational policies applied to different cohorts or to calculate indicators of academic success rates. In that sense, the estimation of the demand for higher education in Spain has been studied using statistical sources different from enrollment databases. Given the scarcity of the data, most of them based their estimations in alternative data such as the Labor Force Survey despite its limitations. However, the greatest challenge arises under the central planner perspective. The absence of a database that captures a clear reflection of the enrolled population would constraint the ability to identify and solve problems and needs effectively (Serra and Palaudàrias 2009).

2.2.4 Is international migration a new phenomenon? Second generations in Catalonia

International migration in Spain has been dealt in the scientific literature as a relatively new phenomenon however, there is enough evidence that shows that the presence of foreign population in the country is not as isolated as it has been described. According to Carreras and Tafunell (2005: 94) the longest continuous series of foreign resident population are the residence permits statistics published by the *Ministerio del Interior* -Ministry of the Interior-, which began in 1953 with 61,000 foreigners. It is clear that their representativeness over the total population is not the same compared to the massive inflows from the last decade. However, we must admit the earlier presence of some migrations and the enrollment of children of immigrants in the Spanish educational system for more than one decade. In that sense, it is not migration itself but its intensity what constitutes the novelty of this phenomenon.

One of the first studies on the so called ‘second generations’ was carried out by Siguán (2003, 1998). The research analyzes the academic trajectories and access to labor market of children -mostly Moroccan- in Madrid and Barcelona in two stages. The first study from 1998 was focused on school continuation decisions of children between 8 and 14 years old, whereas the second considered those between 14 and 18 years old. Despite it could not be considered as a representative sample, the studies represent one of the first attempts of longitudinal studies made in Spain. The research considered pre- and post-migration education as well as children’s aspirations and expectations. The research showed that early access to education in the host country is a key to language proficiency. It would also influence school continuation decisions preventing early drop-outs and promoting effective labor market insertion, consistent with international literature -see for example Crul (2008) or de Valk and Crul (2008)-. In a similar research, Gabrielli (2010) studies pre- and post-migration education for Gambian and Senegalese children in Catalonia, two of the nationalities with the longer migratory tradition to Spain. The analysis considered also parental expectations and behaviors and the results confirmed the intergenerational transmission of educational attainment expectations. Gambian and Senegalese children are language proficient, have the Spanish citizenship and their job expectations are focused on skilled jobs just as their Spanish peers.

Aparicio and Tornos (2006) and Aparicio (2007) analyze access to education and the labor market of the second generation of children of Moroccan, Dominican and Peruvian origin. Based in a survey⁹ addressed to children between 14 and 25 years of age, in order

⁹This research was conducted under the framework of The Integration of the European Second Generation (TIES) project. www.tiesproject.edu

to verify the existence -or absence- of intergenerational social mobility. Sample included children either born in Spain or who had arrived before the age of 9, and whose parents were Moroccan, Dominican or Peruvian residents in Spain. Immigrants from these groups have spent long enough in Spain to have had children or to have educated them in the country to the stage where they are now becoming independent as they enter adulthood. Findings in educational achievement show that the children of immigrants tend to leave school earlier than their native counterparts. With respect to intergenerational transmission of educational expectations and aspirations, the authors find that when parents' educational level is low, children's educational attainment is slightly better. However, the higher the educational level of the first generation, the less likely the second generation is to supersede it, and most reach only similar or even lower levels than their parents. This pattern is particularly noticeable among Peruvians, thus authors see that many children of immigrants from Morocco and the Dominican Republic fail to go beyond the level of compulsory education. Despite it could be considered as a better educational outcome with respect to their parents for children of Moroccan origin, most of their Dominican peers experience very little -if any- progression if not a regressive result. Compared to the educational attainment of native Spaniards between the ages of 16 and 24, schooling outcomes are generally much higher than those of their parents. Results would suggest that children of immigrants do not have access to the educational system in the same way as their native peers (Aparicio 2007: 1177). Consequently, being of foreign origin -notwithstanding being born or having spend most of their lives in the country- could be an impossibility in terms of social and economic mobility.

Recently Portes et al. (2010, 2009) presented the results of the first stage of a longitudinal research on the second generation children in Spain. The definition of 'second generation' included children born in Spain of at least one foreign-born parent and those who arrived in Spain at a very early age, the so called '1.5 generation'. The sample was focused on the cities of Madrid and Barcelona, but unlike Aparicio (2007) and Aparicio and Tornos (2006), it considered students aged 12 to 17 years over 60 nationalities enrolled in both public and private schools. During this first stage, the authors examined the determinants of educational and labor aspirations and expectations among children of immigrants. Demographic factors, parental socioeconomic status, language skills, and what used to be called 'significant other influences' (Haller and Portes 1973) emerge again as key determinants, fostering early upward mobility and better chances for adult achievement in the second generation.

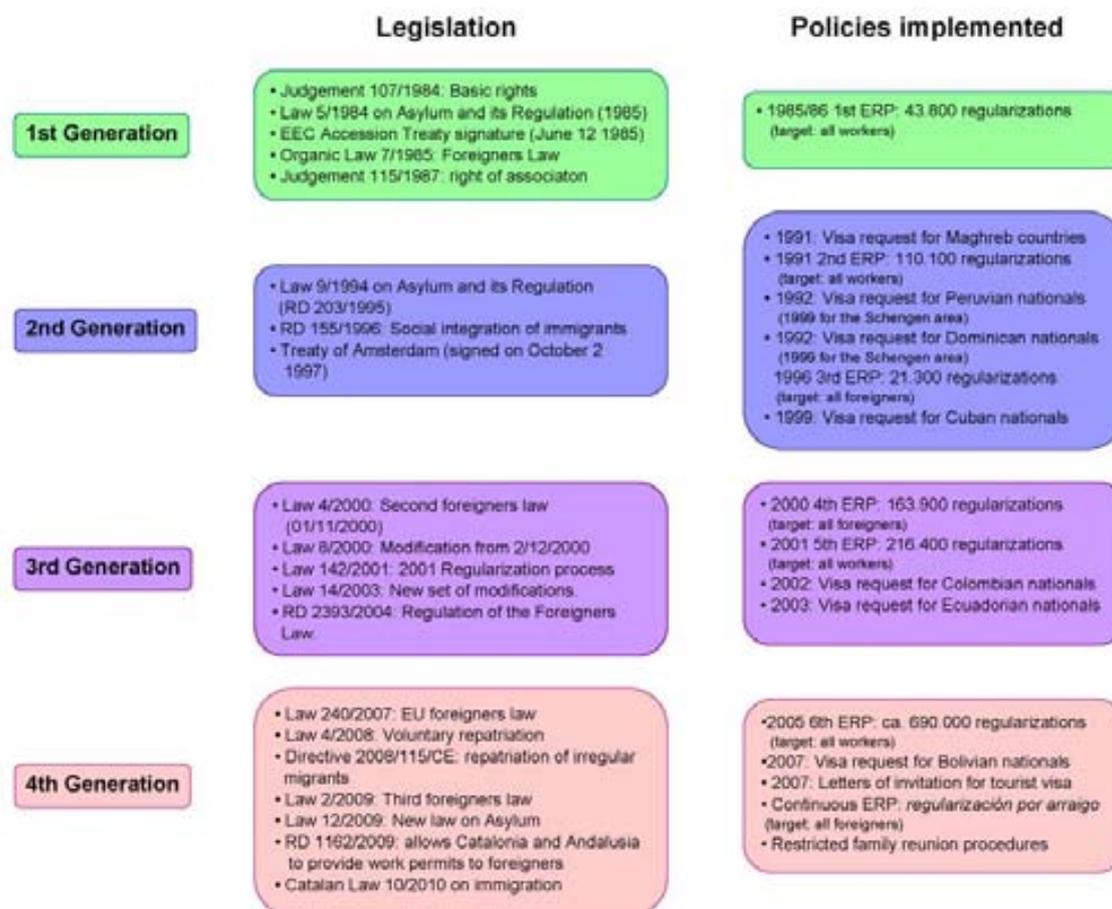
2.3 Legislation on migration and integration policies

As we have mentioned before, one of the determinants of access to education is legislation. Even if legislation on migration is mainly focused on controlling labor force inflows, children on schooling ages will also be affected by the rights and duties determined by the different acts and regulations. More specifically and given that the majority of children arrive to the country after their parents, they will be particularly sensitive to family reunion's definition and legislative framework. The legislative system will then determine the immigrants' permanence in the country as well as their migratory project. After the first visible signs of the shift from being a country of emigration and labor exporter to a destination, Spain approved the first Foreigners Law during the middle of the 80s. The aim of this section is to analyze the development of Spain's migration regulation and policies in order to understand to which extent they can affect or determine the access and/or permanence of children of foreign origin in the educational system in Catalonia. Given the decentralized Government's system structure, migration laws are determined by State authorities whereas integration policies are carried out by Autonomic and local authorities.

2.3.1 Immigration policies

According to Bruquetas-Callejo *et al.* (2008) the evolution of Spanish immigration and integration policies until 2004 can be divided into three different phases or generations, each corresponding to major legislative events. Based on their classification, we have divided the immigration and integration policies into four main generations that include the most recent extraordinary regularization processes as well as the latest Immigration Act reforms (see figure ??).

Figure 2.1: Evolution of Spanish immigration policies



NOTE: ERP refers to Extraordinary Regularization Process.

Source: Author's elaboration based on Bruquetas-Callejo *et al.* (2008), Krieger and Minter (2007) and Bedoya (2006).

As we can see on figure ?? from the mid-1980s until the early 1990s, the initial period produced a first generation of laws that included the first Foreigners Law. Covering most of the 1990s, the second stage witnessed the birth of the next generation of immigration laws and the simultaneous adoption of the first policies on immigrant social integration. Later, the period from 1999 to 2004 characterized a third stage that brought significant changes to the immigration legislation and a new turn in integration policies (Bruquetas-Callejo *et al.* 2008: 7). Finally, the period from 2007 onwards constitutes the fourth generation on immigration and integration policies marked by the economic downturn of the Spanish economy.

First generation of regulations

Key measures implemented:

- Judgement 107/1984 - Basic rights
- Law 5/1984 on Asylum and its Regulation 1985
- EEC Accession Treaty signature (June 12 1985)
- 1985: *Ley 7/1985, Orgánica de Derechos y Libertades de los Extranjeros en España* - First Foreigners Law of the Spanish democracy.
- 1985/86: First extraordinary regularization process - Around 43,800 persons
- Judgement 115/1987 - Guaranteed the right of association

The inversion of Spanish migratory flows together with the entrance in the European Economic Community¹⁰ (EEC) gave birth to the first generation of regulations in immigration. The first regulation on migration approved during the 80s was the *Ley 5/1984, Reguladora del Derecho de Asilo y de la Condición de Refugiado* -Law Regulating the Right to Asylum and the Condition of the Refugee of 26 March 1984- and its implementing regulation -*Reglamentos de desarrollo*¹¹- in 1985.

One of the most important contributions on the legal framework of immigration policies in Spain during this period is the ‘Judgement of the Constitutional Court 107/1984 of 23 November 1984’. It clarified the basic rights that would be enjoyed by foreigners according to the new constitutional system of 1978. Regardless of their legal status, some fundamental rights such as right to life, freedom of expression and judicial guarantees were granted to foreigners. However, political rights as right to vote or to participate directly in public affairs and responsibilities were not applicable given the prohibition settled by Article 13.2 of Spain’s Constitution. The only exception was the right to vote in local elections in case of reciprocity agreements with home countries. The remaining rights were subjected to the legal status and what has been subsequently regulated by the Foreigners Law.

¹⁰Diario Oficial nºL302 de 15/11/1985

¹¹A regulation is a form of secondary legislation which is used to implement a primary piece of legislation appropriately

The *Ley 7/1985, Orgánica de Derechos y Libertades de los Extranjeros en España* - Organic Law of Rights and Freedoms of Foreigners in Spain, of 1 July 1985- best known as the Foreigners Law or *Ley de Extranjería*, and its corresponding regulation -Royal Decree 1119/1986 of 19 November 1986- represented the first regulation on migration of the Spanish democracy. Coinciding with Spain's full incorporation in the European Economic Community (1986) after the signature of the Accession Treaty (12 June 1985), this legislation was aimed to specify the conditions of stay for foreigners and also introduced opportunities to restrict entrance. With respect to family migrants, legislation introduced for the first time family reunion procedures, consistent with the European framework procedures. Additionally, the Second Transitional Provision of the Organic Law 7/1985 considered a regularization process for '*insufficiently documented aliens*' which have not incurred in criminal conviction that may justify their expulsion, establishing that:

“la situación de los extranjeros que se encuentran en España insuficientemente documentados, en la fecha de entrada en vigor de la Ley, podrán ser regularizados, salvo que hubieran incurrido en causas de expulsión previstas en los apartados c), d), f) del artículo 26.1 siempre que los extranjeros o los empleadores en su caso así lo soliciten, presentando la documentación necesaria dentro del plazo de tres meses a contar desde la fecha indicada”

Furthermore, the Organic Law 7/1985 established that those foreigners who were previously exempt of a labor permit must obtain one within a six-month period. As for the magnitude, more than 40,000 immigrants regularized their legal status during the first process.

The Foreigners Law encouraged the notion of temporary policies in residence permits and defined the birth of the first generation of immigration legislation. With respect to procedures, the Foreigners Office handled entry visas; the Home Office (i.e. the police department) controlled the entry of migrants and work permits, and the Ministry of Labor (now Ministry of Labor and Immigration) granted these permits. Regarding access or permanence of communitarian citizens, the *Real Decreto 766/1992, Sobre Entrada y Permanencia en España de Nacionales de Estados Miembros de las Comunidades Europeas* -Royal Decree on Entry and Residence of Citizens of the Member States of the European Communities- of 26 June 1986 was the first regulation introduced.

The second important Constitutional Court judgement that has affected the immigration legislation design was provoked by the National Ombudsman. The Judgment of the Constitutional Court 115/1987 of 7 July 1987 found that some articles of the Foreigners Law did not conform with the Spanish Constitution. Although there was no general

prohibition, the exertion of the right to form associations and the right to demonstrate by foreigners were subject to prior authorization by public authorities. As a result, the Constitutional Court ruled partially in favour of the Ombudsman's position and some specific paragraphs of the law were declared void.

In sum, the first generation of immigration legislation was aimed at emphasizing the control on migration inflows and the formal requirements to enter and stay in the Spanish territory. Most foreign residents were obliged to conform to new legal stipulations and the irregular presence or immigrants became a reality. According to Domingo (1995), the 1985 Foreigners Law occasionally left foreign workers in irregular conditions opposed to the desired effect. The aforementioned law was focused on economic migrants, implicitly considering foreigners as merely workers while neglecting other personal aspects of their life. At the same time, police control procedures were more relevant than other elements of migratory policy, distorting the perception of the existing problems (Aparicio and Tornos 2000). Beyond this general rule of thumb, both European Community citizens and asylum seekers enjoyed a privileged status provided for in specific legislation. The privileges of asylum generated a significant flow of applications from specific immigrant groups. However, within a few years, the restrictive interpretation of the asylum regulations by national authorities shifted this trend (Bruquetas-Callejo *et al.* 2008).

Second generation of regulations

Key measures implemented:

- 1991: Second extraordinary regularization process - Around 110,100 persons
- 1991: Visa request for Maghreb countries
- 1992: Visa request for Peruvian nationals
- 1992: Visa request for Dominican nationals
- 1994: EU Recommendation 1236 (1994) on the right of asylum (Council of Europe: Parliamentary Assembly).
- 1994: *Ley 9/1994 de modificación de la Ley 5/1984, reguladora del derecho de asilo y de la condición de refugiado* and the *Real Decreto 203/1995, de 10 de febrero, por el que se aprueba el Reglamento de Aplicación de la Ley 5/1984, de 26 de marzo, reguladora del Derecho de Asilo y de la Condición de Refugiado, modificada por la Ley 9/1994, de 19 de mayo* - Modification of Law on Asylum and Refugee Status and its Regulation

- 1996: *Real Decreto 155/1996, de 2 de febrero, por el que se aprueba el Reglamento de Ejecución de la Ley Orgánica 7/1985* (valid until August 1, 2001) - Focused on social integration of immigrants. Includes family reunion procedures, unaccompanied minor immigrants and basic social rights. Autonomous Communities are responsible for the integration of immigrants.
- 1996: Third extraordinary regularization process - around 21,300 persons
- 1999: Visa request for Cuban nationals

One of the first measures from the second generation of regulations was the second extraordinary regularization process of 1991. It was based on the *Resolución de 7 de junio de 1991, de la Subsecretaría, por la que se dispone la publicación del Acuerdo del Consejo de Ministros de 7 de junio de 1991 sobre regularización de trabajadores extranjeros* – Resolution of June 7 1991, which authorizes the publication of the Council of Ministers Agreement of 7 June 1991 on the regularization of immigrant workers. The objectives of this so called "exceptional" procedure were the full integration of the immigrant workers - or potential workers- in the Spanish society and to decrease the number of illegal residents. However, as it was linked to an "attachment" idea, the regularization procedure was also directed to undocumented relatives of irregular migrants. According to Krieger and Minter (2007) there were around 120,000 applicants.

The first renewal of the residence permits obtained during the second regularization process was regulated in 1992 by the *Resolución de 9 de julio de 1992, de la Subsecretaría, por la que se aprueban las instrucciones para la renovación de los Permisos de Trabajo y Residencia tramitados al amparo de lo establecido en el Acuerdo del Consejo de Ministros de 7 de junio de 1991, sobre regularización de trabajadores extranjeros* -Resolution of July 9 1992, of the Secretariat, by approving the instructions for the renewal of work and residence permits processed under the provisions of the Agreement of the Council of Ministers on June 7 1991 on the regularization of foreign workers-.

Also during 1991 and as a result of the Conference on Security and Co-operation in the Mediterranean (CSC) consistent with the EEC foreign and security policy, the country imposed a visa request for Maghreb nationals. This was the first of the visa impositions from the period between 1991-1999. Later, on 1992, Peruvian and Dominican nationals were also submitted to the same measure. However, it would not be until 1999 that the visa requirement for both nationalities should be extended for the entire Schengen area.

After political debates at national and European level, the 'General Office for Migration' dependent on the Ministry of Labor was created in 1993. The Office was aimed

at transferring the management of migration policies and instruments from the police department to another institution which could deal more effectively with the complex necessities of migration (Aparicio and Tornos 2000). Thereafter, a first version of integration policies were included in the so-called *Plan Interministerial para la Integración de los Inmigrantes* –Interministerial Plan for the Integration of Immigrants- of December 2 1994. It was aimed to serve as reference framework for the administration, an action proposal for Autonomous Communities and local governments, and a channel for the active participation of the society in the integration of immigrants. Within this framework, immigrant integration must be achieved by facilitating their gradual access to basic social and civil rights, but not political.

As part of the Schengen Agreement on the Accession to the Schengen Convention, on March 26 1995 entered into practice the abolition of border controls between Belgium, Germany, France, Luxembourg, the Netherlands, Spain and Portugal. Thus allowing the freedom of movement between national borders and the abolition of controls at internal frontiers, fundamental for the development of the internal market. The abolition of border controls was the best moment for a new regulation reform adapted to the Schengen criteria. The regulation on the Foreigners Law of 1985 was subsequently modified in 1996 by the *Real Decreto 155/1996, de 2 de febrero, por el que se aprueba el Reglamento de Ejecución de la Ley Orgánica 7/1985* –Royal Decree 155/1996, of February 2, which approves the Regulations for the Implementation of the Organic Law 7/1985.

The Third Transitional Provision of the regulation stated in the Royal Decree 155/1996 established a second extraordinary regularization process of foreigners. The regularization has been proposed as a solution to the "illegality" (*irregularidad sobrevenida*) since the enactment of the Foreigners Law regulation (May 26 1986). It contemplated two possible regularization vias named work and residence, or residence. Therefore, the second regularization process considered not only the economic links to the host society, but the social attachment to Spain at least under a wide perspective.

Later, the Treaty of Amsterdam (signed on October 2 1997) entered into force on May 1 1999, amending and renumbering the European Union. The Treaty formally delegated powers over migration and asylum to the European Community. It inserted a new title on visas, asylum, migration and other policies related to free movement of persons. In 1999 the European Council meeting in Tampere adopted the first multi-annual program in the field of a common EU asylum and migration policy, a European area of justice, a Union-wide fight against crime and stronger external action. During that same year Cuban nationals were also subjected to obtain a visa for the Schengen area.

During this period, the first national strategies on immigrant integration were developed. The *Plan para la Integración Social de los Inmigrantes* –National Plan on Social Integration of Immigrants- of 1994 was aimed to fight against the barriers in order to ensure the social integration of immigrants in Spain. The Plan included the creation of the *Observatorio Permanente de la Inmigración, OPI* –the Permanent Observatory on Immigration- and the *Foro para la Integración Social de los Inmigrantes* –Forum on the Social Integration of Immigrants-. The OPI was conceived as an instrument of evaluation and study of the migratory movements. Among others, it has attributed the functions of collection, analysis and diffusion of migration data. On the other hand, the Forum’s main objective was to promote the participation and social integration of immigrants. It was designed as an organ of consultation and advice for the government. The Forum was constituted by political and social representatives, as well as non-governmental organizations and immigrant associations.

Third generation of regulations

Key measures implemented:

- 2000: *Ley Orgánica 4/2000 sobre derechos y libertades de los extranjeros en España y su integración social (BOE, de 12 de enero)* - New migration law. Defined the quota system and labor market policy, immigrant rights and basic social aspects.
- 2000: *Ley Orgánica 8/2000, de 22 de diciembre, de reforma de la Ley Orgánica 4/2000, de 11 de enero, sobre derechos y libertades de extranjeros en España y su Integración Social (BOE, de 23 de diciembre)* - Modification of the migration law 4/2000. Rights were denied for immigrants without residence permit.
- 2000: Fourth Extraordinary regularization process - Around 163,900 persons
- 2001: Fifth extraordinary regularization process - Around 216,400 persons
- 2003: *Ley Orgánica 14/2003, de 20 de noviembre, de Reforma de la Ley orgánica 4/2000, de 11 de enero, sobre derechos y libertades de los extranjeros en España y su integración social, modificada por la Ley Orgánica 8/2000, de 22 de diciembre; de la Ley 7/1985, de 2 de abril, Reguladora de las Bases del Régimen Local; de la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común, y de la Ley 3/1991, de 10 de enero, de Competencia Desleal.* - Second modification of the migration law 4/2000.

Starting on 1999, the third generation of regulations has been characterized by a political turmoil and government changes coincident with the arrival of international migration inflows from the beginning of the century. As we can see on the above listing, two immigration laws were approved during 2000. At the beginning of the year, the first migration law was approved as the Organic Law 4/2000. It intended to modify the quota system as migration policy instrument. It also recognized basic social rights such as access to education, public health, social benefits and assistance to all non-national *de facto* residents. Furthermore, legal residents enjoyed a substantial number of additional rights.

After the victory in absolute majority of the *Partido Popular* (PP) –People’s Party–, the government approved a second modified law on December of that same year. Even though it still recognized some basic social rights for documented migrants, legal provisions became more restrictive. Sanctions against undocumented foreigners or people collaborating with them became harsher. The migration law reform was severely criticized and was challenged nine times before the Constitutional Court for the violation of fundamental rights by the Parliamentary Group of the *Partido Socialista Obrero Español*, PSOE, –Socialist Party– and regional parliaments. One of the most relevant was the unconstitutionality appeal number 1707-2001 lodged by the Parliament of Navarre contesting twelve points of article one of the Organic Law 8/2000¹². The appeal was partially accepted and as a result, the articles that denied the rights of assembly, association and the right to join unions to irregular migrants were declared unconstitutional. In the meantime, the Organic Law 14/2003 introduced a set of modifications to the immigration Organic Law 4/2000. It established sanctions, visa requirements and the government’s right to detain undocumented foreign citizens in specific centers (*Centros de Internamiento de Extranjeros*).

With respect to undocumented migrants, the First Transitional Provision of the Organic Law 4/2000 considered an extraordinary regularization process. Consequently, requirements and procedures were settled in the *Real Decreto 239/2000, de 18 de febrero, por el que se establece el procedimiento para la regularización de extranjeros prevista en la disposición transitoria primera de la Ley Orgánica 4/2000, de 11 de enero, sobre derechos y libertades de los extranjeros en España y su integración social* –Royal Decree 239/2000, of January 11, on the establishment of the procedures for the regularization of foreigners as foreseen in the First Transitional Provision of the Organic Law 4/2000. The fourth regularization process was related to the attachment criteria considering that applicants should demonstrate that they have had -or at least applied- for a work permit three years before applying. It also considered: a) asylum seekers; b) relatives of *regularized* residents;

¹²Constitutional Court Judgment No. 236/2007, of November 7 2007.

c) relatives of foreign residents with legal status; and, d) relatives of Spanish citizens. As a result, there were approximately 163,900 regularized persons (Krieger and Minter 2007).

The fourth extraordinary regularization process of 2000 was severely criticized because of the legal gaps with respect to the procedure and the documental proofs of the length of stay. Consequently, the Government implemented the fifth extraordinary regularization process also known as "*repesca*" –repechage-. The legislation behind it was settled on the *Real Decreto 142/2001, de 16 de febrero, por el que se establecen los requisitos para la regularización prevista en la disposición transitoria cuarta de la Ley Orgánica 8/2000, de 22 de diciembre, de Reforma de la Ley Orgánica 4/2000, de 11 de enero, sobre Derechos y libertades de los extranjeros en España y su integración social* –Royal Decree 142/2001, of February 16, establishing the requirements for an adjustment under the fourth transitory provision of the Organic Law 8 / 2000 of December 22, amending the Organic Law 4/2000, of January 11, on the Rights and Freedoms of foreigners in Spain and their social integration. We must stress that this was not a *stricto sensu* regularization but an evaluation of those rejected applications from previous process.

With respect to European foreign policy, Colombian and Ecuadorian nationals were subjected to obtain a visa for the Schengen area in 2002 and 2003 respectively. On September 2003, the *Ley Orgánica 11/2003, de 29 de septiembre, de medidas concretas en materia de seguridad ciudadana, violencia doméstica e integración social de los extranjeros* –Organic Law 11/2003, of September 29, on specific measures relating to public safety, domestic violence and social integration of foreigners- was enacted. It modified the penal and civil codes with respect to foreign residents. The Organic Law 11/2003 was aimed at securing the expulsion of foreigners who are accused or have been convicted of a crime.

During that same year, on November 2003, the immigration law was again modified under the *Ley Orgánica 14/2003, de 20 de noviembre, de Reforma de la Ley Orgánica 4/2000, de 11 de enero, sobre derechos y libertades de los extranjeros en España y su integración social, modificada por la Ley Orgánica 8/2000, de 22 de diciembre; de la Ley 7/1985, de 2 de abril, Reguladora de las Bases del Régimen Local; de la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común, y de la Ley 3/1991, de 10 de enero, de Competencia Desleal* –Organic Law 14/2003, of November 20, amending the Organic Law 4 / 2000, of January 11, on the rights and freedoms of foreigners in Spain and their social integration, as amended by Law 8/2000, of December 22; of Law 7/1985 of April 2, Regulation of the Local Government, of Law 30/1992 of November 26 on the Legal Regime of Public Administrations and Common Administrative Procedures, and Law 3/1991, of January 10, on Unfair Competition. The article 36.3 of the Organic Law 14/2003 introduced the

possibility of the "individual regularization" for those foreigners victims or witnesses who may assist the Administration against exploitation (Bedoya and Solé 2006).

The 2003 amendment of the immigration law also determined the new requirements for family reunion processes. Legal residents initiating a sponsorship should fulfill the following requisites outlined in Section 18, namely: 1) the sponsor's residence permit should have been renewed and extended for at least an additional year; 2) the dwelling should be adequate to accommodate all family members; and, 3) the sponsor should perceive a salary that allows to support the total household expenses. However, there are no mandates regarding the adequacy of the dwelling nor of the amount of money a potential sponsor should earn in order to request a family reunion procedure.

Regarding kinship, people likely to reunite fall into four basic categories with respect to the sponsor: 1) spouse; 2) offspring (including adopted children, as long as they are underage, unmarried or have a disability); 3) people underage or with a disability if the sponsor acts as their legal tutor; 4) first degree ascendants, as long as they are economically dependant and there are reasons to justify their residence in Spain. Besides the Government Sub-Delegation family reunion approval, its beneficiaries must obtain a visa issued at the Embassies of their countries of origin in order to enter into Spain.

Not only are the requisites to reunite the family or to be reunited important, but some legal conditions for the reunited members of the family. Section 17 of the Law estates that spouses must remain married (i.e. not separated legally or by agreement) and that under no circumstance can there be more than one spouse (directly addressing polygamous families). In case of more than one marriage, the right to reunite will be extended only to the spouse that at that moment is married to the person requesting the reunion and his/her relatives. This will hold, as long as there is legal proof that specifies the negated status of the former spouse and his/her offspring regarding dwelling, spouse allowance and family support for the underage offspring.

The person to be reunited would obtain a residence permit linked to the one of the sponsor. The person to be reunited will not be entitled to work until a year elapses since his/her arrival. To counter frauds in the so-called "chain family reunions", foreigners who have entered into Spain by means of a family reunion procedure may not become sponsors until at least a year has elapsed since their arrival and once their independent legal residence has been granted. The above mentioned restrictions directly affected reunited offspring deserting the educational system. As their residence permit did not allow them to legally access the labor market, their job opportunities would be limited to accessing the submerged economy thus being in higher risk of exclusion and future irregularity.

In sum, it could be said that the migration policy designed during the third generation was also focused on economic migrants. To some extent it also promoted the social integration of migrants and their families by regulating family reunion processes but left behind their possible contribution to the economy while restricting their access to work permits. In that sense, it promoted the quota program consistent with the labor market demand of specific sectors, but it left behind the economic integration of family migrants.

Fourth generation of regulations

Key measures implemented:

- 2005: Sixth extraordinary regularization process - Around 690,000 persons
- 2007: *Real Decreto 240/2007, de 16 de febrero, sobre entrada, libre circulación y residencia en España de ciudadanos de los Estados Miembros de la Unión Europea y de otros Estados parte en el Acuerdo sobre el Espacio Económico Europeo* - New regulations on EU citizens' residence permit.
- 2008: *Real Decreto 4/2008, de 19 de Septiembre, sobre abono acumulado y de forma anticipada de la prestación contributiva por desempleo a trabajadores extranjeros no comunitarios que retornen voluntariamente a sus países de origen* - Voluntary return program for non-EU citizens.
- 2009: *Ley Orgánica 2/2009, de 11 de diciembre, de reforma de la Ley Orgánica 4/2000, de 11 de enero, sobre derechos y libertades de los extranjeros en España y su integración social* - Modification of the migration law 4/2000
- 2009: *Ley 12/2009, de 30 de octubre, reguladora del derecho de asilo y de la protección subsidiaria* - New law on asylum

After the 2004 elections, a new regulation of the immigration law was adopted under the *Real Decreto 2393/2004, de 30 de diciembre, por el que se aprueba el Reglamento de la Ley Orgánica 4/2000, de 11 de enero, sobre derechos y libertades de los extranjeros en España y su integración social* -Royal Decree 2393/2004 of December 30 on the Implementation Rules to the current Organic Act 4/2000 of January 11, on Rights and Freedoms of Foreign Citizens in Spain and their social integration. The implementation rules included a new regularization process as well as a new approach based on a flexible and continued regularization scheme through which irregular migrants can access legal status (Domingo, Sabater and Franch 2010). The main objective of the sixth extraordinary regularization

process was to reduce the stock of irregular migrants working in the informal economy. To accomplish this task, employers were given responsibility for ‘normalizing’ foreign workers (except in the case of independent domestic workers).

The new regularization scheme considered four channels to qualify for legal status for those who entered the country without inspection or overstayed a tourist or student visa. These mechanisms only apply to those who have lived in Spain for at least three years, have no criminal records -both in Spain and the country of origin- and can demonstrate labor attachment, social attachment, family attachment or other specific circumstances that justify their permanence in the country (Domingo, Sabater and Franch 2010). The sixth regularization process also considered domestic workers, relatives of EU or Swiss citizens from third countries and freelance workers from the recently joined EU countries (except Malta and Cyprus).

Thus the continuous regularization program implemented can be briefly described as:

1. Labour attachment: for those who can show the existence of a labor relationship of at least one-year duration.
2. Social attachment: for those who can provide a work contract of at least one-year duration when application is submitted, and either family links in Spain (spouse or civil partner, direct descendants or direct relatives in the ascending line) or the establishment of social links within the local community.
3. Family attachment: only applies to descendants whose parents were originally Spanish.
4. Special circumstances: under the protection of the Law on the Right to Asylum and Refugee status. A temporary residence is also granted for humanitarian reasons based on discrimination practices, for victims of trafficking, domestic violence and for those who suffer from an illness which cannot be treated at the country of origin. In addition, special circumstances also include collaboration with administrative, fiscal, police and judicial authorities on national security and/or public interest. The latter is generally requested by authorities rather than by applicants themselves.

The previous regularization processes are commonly described as necessary steps following the goals and objectives defined by the EU immigration policy agenda (Arango and Jachimowicz 2005) whereas according to Solanes (2005), the attachment-based regularization programs are ordinary mechanisms of providing legal status to irregular migrants.

However, we must stress that attachment-based regularization programs do not represent a right to request but a faculty of Administrative discretion.

On 2007, the main regulation for EU citizens was developed under the *Real Decreto 240/2007, de 16 de febrero, sobre entrada, libre circulación y residencia en España de ciudadanos de los Estados Miembros de la Unión Europea y de otros Estados parte en el Acuerdo sobre el Espacio Económico Europeo* -Royal Decree 240/2007 of 16 February, on the entry, free circulation and residency in Spain of citizens from member states of the European Union and other member states of the European Economic Area. Its basic purpose is to outline procedures that EU citizens and their families have to follow to be legally identified while living in Spain and eliminated the existence of a physical foreigners identity card for this nationals. On 2010, the Royal Decree 240/2007 was partially amended because some of the articles could be considered as contrary to the interests of EU directives.

The year 2007 was characterized by the foreign policy against illegal migration especially after the increase of the arrival of precarious refugee boats (*pateras* or *cayucos*) to the Spanish coast. The country increased its participation in the European Agency FRONTEX and signed bilateral agreements (some of them of co-development) with sending countries. As for legislation, the *Ley Orgánica 13/2007, de 19 de noviembre, para la persecución extraterritorial del tráfico ilegal o la inmigración clandestina de personas* -Organic Law 13/2007 of November 19, for the extraterritorial persecution of trafficking or illegal immigration of people was amended. The Law 13/2007 added the offense of illegal immigration or clandestine trafficking of persons on the high seas. Also a secondary measure was released to guarantee the legal status of tourists with the *Orden PRE/1283/2007, de 10 de mayo, por la que se establecen los términos y requisitos para la expedición de la carta de invitación de particulares a favor de extranjeros que pretendan acceder al territorio nacional por motivos de carácter turístico o privado* -Order PRE/1283/2007, of May10, establishing the terms and conditions for issuing the letter of invitation for foreign individuals wishing to enter the territory for tourism or private purposes. It settled the requirements and conditions to consider valid a letter of invitation and is also a requirement in order to obtain a visa for family purposes.

Given the economic downturn, the government first launched the *Plan de Retorno Voluntario* -Voluntary Return Program- in 2008¹³. By advancing unemployment benefits to unemployed non-EU workers, Spain sought to assist foreign workers that had ‘contributed to Spain’s economic growth’ to return to their home country. In order to qualify for the

¹³See www.planderetornovoluntario.es

Program, the applicant should comply with the following requirements: 1) have legal residence in Spain, either permanent or temporary; 2) be unemployed as a consequence of an employment termination; , 3) be registered at the Public Office of Employment; 4) be entitled to receive unemployment benefits; 5) have not incurred in any of the actions that prohibit exit from Spain under Spain's Immigration Law; and 6) be a national of a country that has signed a bilateral agreement on social security matters with Spain. By agreeing to the Voluntary Return Plan, applicants commit to return to their country of origin within 30 calendar days from the date of receipt of compensation and to remain there for a period of 3 years. The bar on return is specific to labor or professional activities, suggesting that immigrants that committed to this program may travel to Spain for family visits (Pabón and Davis 2010).

In 2009, the foreigners law was subsequently amended by the *Ley Orgánica 2/2009, de 11 de diciembre, de reforma de la Ley Orgánica 4/2000, de 11 de enero, sobre derechos y libertades de los extranjeros en España y su integración social* - Modification of the migration law 4/2000 -Organic Law 2/2009, of 11 December, amended from Organic Law 4/2000 of 11 January, Rights and Freedoms of Foreign Citizens in Spain and their social integration. It introduced modifications in the areas of rights, family reunion as well as new immigration offenses and sanctions to fight against illegal immigration. The amendment guarantees foreigners the fundamental human rights of assembly and speech, association, unionization and strike, education, and legal counsel regardless their legal status, also consistent to the previous Constitutional Court appeals. With respect to family migration, the Organic Law 2/2009 restricts family reunion procedures, especially for ascendants. At the same time, it establishes to facilitate this procedure to those foreign-born who have already obtained the Spanish citizenship. In terms of law enforcement, it defines a maximum of 60 days detention instead of the former 40 days for undocumented migrants. Nevertheless, this was just the formalization of a measure that has been applied in the past.

2.3.2 Citizenship and Naturalization

Citizenship acquisition is often seen as a result of the successful integration of newcomers into society. According to Aparicio and Tornos (2000), as full citizenship is the cornerstone of Spanish ideas on integration, it is not surprising that emphasis is placed on opening up the ways an immigrant can acquire citizenship. It would lead to their full participation as it provides with the full range of rights and duties, including the right to vote. Besides the influence of migration legislation and policies on the inflows, it is important to analyze the legislation and procedures behind citizenship and naturalization processes.

The incidence of legislation on naturalization of children of foreign origin could be a determinant not only of the integration of those children in the society and in some cases of their permanence as legal residents in the country. There are two major concerns with respect to the impact of citizenship acquisition on children of immigrants. First, in terms of data, not all the children born in Spain of foreign-born parents can be directly accounted as a foreigner (Álvarez Rodríguez and Observatorio Permanente de la Inmigración, 2006). The effect associated to the population composition in official statistics would lead to foreign population decrease once nationality is assumed as the main criterion. Consequently, children with immigrant background would be underrepresented in official data. For those who were born abroad, citizenship acquisition could be numerically estimated as the difference between third country nationals and Spaniards. However, once children were born in the receiving country their ‘invisibility’ in official records is evident. Furthermore, given the incidence of the economic downturn in future expectations and the familiar migration project, we must consider that some of the children returning to their home countries are in fact Spaniards. Consequently, the number of Spaniards at mandatory schooling ages would be affected by return migration.

The second concern that arises is, to what extent rights and duties would be guaranteed once the Spanish citizenship is acquired? Would they be able to access the same opportunities as children with native parents once socioeconomic background is controlled for? The incidence of educational and labor market opportunities would determine their future trajectories as well as it would reflect the effectiveness of policies in real terms.

In the Spanish legislation the terms citizenship and naturalization are mostly synonymous. The Spanish nationality is based primarily on the *ius sanguinis* model than in the *ius soli*. The *ius sanguinis* or right of blood model determines citizenship by those of the parents. In Spain, the *ius soli* criterion applies for the persons of indeterminate nationality the law of the place of habitual residence is applied as the personal place of residence. Then, those children who were born in Spain whom countries do not recognize them as nationals, would be considered as Spanish citizens, consistent with The Convention on the Rights of the Child, of November 20 1989, and ratified by Spain on November 30 1989 (Álvarez Rodríguez and Observatorio Permanente de la Inmigración, 2006). This process, also known as ‘nationality by presumption’ applies to those children born in Spain whose parents are from any of the following countries: Argentina, Cape Verde, Colombia, Costa Rica, Cuba, Guinea Bissau, Panama, Paraguay, Peru, Portugal, Sao Tomé and Príncipe and Uruguay. Parents must either come from the same country or from a combination of them. We must stress that nationality by presumption is admitted when countries do not automatically apply the *ius sanguini* criterion once their citizens are living abroad. For example, in order to be recognized as a Colombian national, parents must register their

child's birth in the consular office or their home country. Thus, this additional procedure entitles their child to acquire the Spanish nationality *ex lege*.

Until 2008, the principle was also applied to parents from Brazil, Ecuador and Chile¹⁴ and until 2007 to Bolivian nationals after their Constitution was modified. Nationality by presumption can also be applied to Palestinian if they are considered 'stateless' and to children of Moroccan mothers if they are married to a citizen of the above mentioned countries.

According to the Civil Code, foreigners may acquire the Spanish citizenship by origin, option, naturalization or residence. Article 17 estates:

- By origin, by all those adopted by a Spanish citizen before the age of 18 and also by all those born in Spain,
 1. When one of the parents is a Spanish citizen.
 2. When both parents are foreign but one was born in Spain, with the exception of those in the diplomatic or consular services.
 3. When parents are stateless or the legislation of their country of origin does not attribute their nationality to the offspring.
 4. When parents are unknown.
- By option, by all foreigners, born in Spain, when one of the parents is a Spanish citizen and by the foreigners who are subject to the paternal authority or the protection of a Spanish citizen.
- By naturalization patent, by all foreigners over 18 years old, or over 14 if assisted by his/her legal representative, when exceptional circumstances may be considered.
- By residence, by all foreigners over 18 years or emancipated, who can document legal and continued residence in Spain during the time required by the law (1 year for applicants born in Spain, 2 years for nationals from Latin America, Andorra, Equatorial Guinea, Philippines, Portugal, Sephardi Jews; 5 years for refugees; 10 years for all others).

From this review of the main aspects of the citizenship and naturalization law, it can be said that the norms favour the naturalization of children of immigrants. For migrants coming from countries historically attached to Spain the legislation behind is also liberal but not free from bureaucracy and delays.

¹⁴ *Circular de 16 de diciembre de 2008, de la Dirección General de los Registros y del Notariado, sobre aplicación del artículo 17 nº 1, c) del Código Civil respecto de los hijos de extranjeros nacidos en España.*

2.4 The Catalan educational system and policies

The aim of this section is to explore the legislative framework and the basic policies carried out by the Catalan educational system. As our research will be focused on compulsory education, we will constraint the legislative framework to those affecting this stage. We will also introduce the specific regulation on the access and schooling of immigrant children at the same time that integration policies are presented.

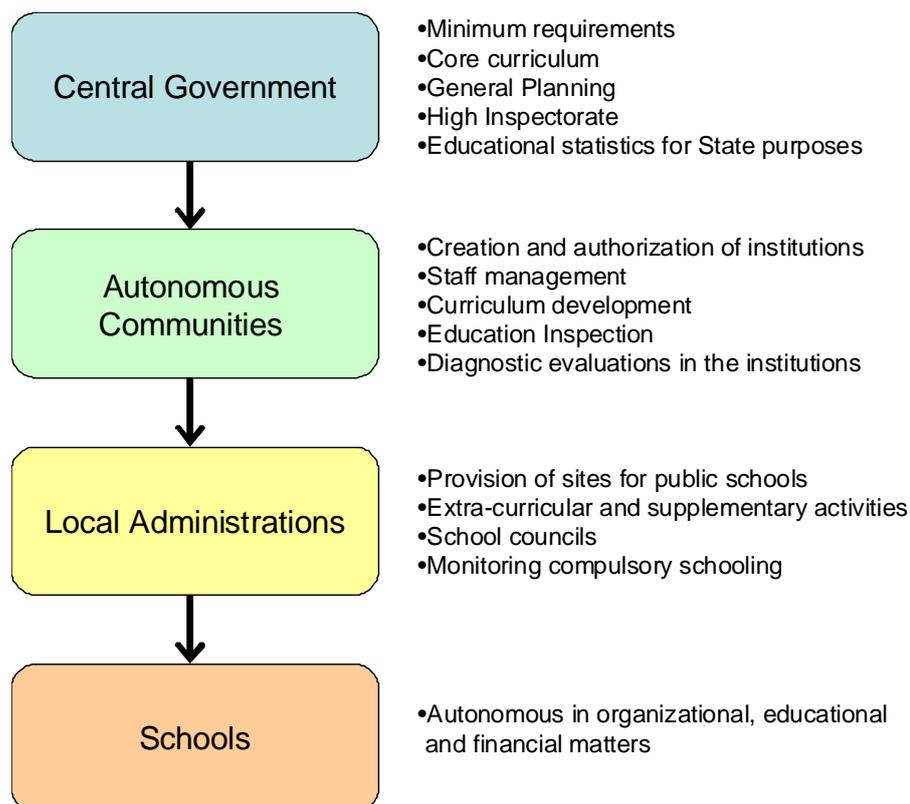
2.4.1 Organization

Spain has a decentralized model of education administration which distributes responsibilities among the State, Autonomous Communities, local administrations and schools (see figure ??). The *Ministerio de Educación* -Ministry of Education- is in charge of the general organization of the educational system and the general planning for education. It coordinates the *Alto Inspectorado de Educación* -High Inspectorate- whose duty is to monitor the observance of minimum requirements for education set by the State for the entire country. The Ministry regulates the minimum core curriculum that is 55percent in Autonomous Communities with their own language such as Catalonia, the Basque Country and Galicia –65percent elsewhere- while Autonomic Ministries are given freedom to develop the remaining materials.

Since 1979, the Catalan Government (*Generalitat de Catalunya*) has full decision-making competence in educational policies through the Catalan Department of Education (*Departament d'Educació*). The Department is in charge of developing the State regulation regarding core curriculum and the regulation of levels, branches, grades and specializations. It is in charge of schools' creation, administration and staff management. With respect to evaluation, the technical inspections carried out by the *Inspecció d'Educació* (Education Inspectorate) are aimed to provide guidance and support for educational centers and to evaluate the educational system. Also, the Autonomous authorities should provide the State with necessary information and data in order to elaborate national and international statistics. Local administrations (municipalities) are usually responsible for the provision and maintenance of public funded school buildings and its maintenance. They are also in charge of the creation of School Councils within their municipality and overseeing compulsory schooling and public services.

Schools are autonomous in organizational, educational and financial matters within the framework of current legislation. At school level, the School Council –comprising representatives of the teaching staff, one Municipal Council member, parents and students-

Figure 2.2: Distribution of main responsibilities in non-university education in Spain



Source: Author's elaboration based on Eurydice 2010.

is responsible for electing the head teacher (or school principal), and for school discipline, student admission, financial management and assessment of the establishment's general programme and extracurricular activities. With respect to funding, educational institutions may be owned by the Autonomic government or a private party either a person or a legal entity. Private schools may be state-sanctioned (*escuela privada concertada*) or financially independent (*escuela privada*). State-sanctioned institutions -also called charter- are run by foundations or cooperatives and are granted with public funds according to the terms and conditions agreed with educational authorities. They are allowed to charge some fees, whose average share represent 30percent of their total income (Valiente and Rambla 2009). Except for international schools -which are by definition private-, they offer the same basic minimum core curriculum, as they are governed by the same education law as public centers are. International schools regulated by the *Real Decreto 806/1993, de 28 de mayo, sobre régimen de centros docentes extranjeros en España* -Royal Decree 860/1993, of 28 May, on the legal framework of foreign teaching centres in Spain-, could combine the Spanish core curriculum and that of the country they represent or foreign studies exclusively. The last option would only allow foreign or dual citizenship

students enrolled (Art. 18.2). International schools must be registered and recognized by the Spanish Ministry of Education who will regulate the proportion of the Spanish syllabus taught.

With respect to tertiary education, universities are autonomous in academic, management, financial matters, recruitment and student's admissions. Their competencies include the creation of educational institutions and distance learning procedures, foundations and other corporate bodies for achieving their aims.

2.4.2 Legislation on non-university education

In this section we will introduce the basic legislation on education from 1970 onwards. It will be constraint to National and Autonomic laws concerning right to education, the educational system structure and access to education of children of immigrants.

Ley 14/1970, de 4 de agosto, General de Educación y Financiamiento de la Reforma Educativa, LGE -The General Education Act of 1970- was aimed at providing an education for all Spaniards between the age of 6 and 14 years of age. It structured the compulsory education (*Educación General Básica*, Basic General Education) or by its Spanish acronym EGB in three cycles corresponding to compulsory primary education and compulsory lower secondary education. Under the LGE the system was divided into four educational levels: pre-school, Basic General Education -EGB-, *Bachillerato Unificado Polivalente* or BUP (General Unified Baccalaureate) and *Curso de Orientación Universitaria* or COU (University Guidance Course). Despite not being considered a formal educational level, vocational training, together with BUP, was also a part of the so-called *Enseñanzas Medias*. The educational system also included adult, specialized and special needs education. Due to the social, political and economic changes during the 1970s that include the incorporation of Spain into the European Economic Community, the General Education Act soon became obsolete.

Constitución Española -the Spanish Constitution- from 1978 recognizes the right to education as one of the fundamental rights that must be guaranteed to every citizen by public authority (art. 27). The Constitution also regulated the process of administrative decentralization in order to adapt the educational system competencies to the Autonomous Communities.

Ley Orgánica 8/1985, de 3 de julio, Reguladora del Derecho a la Educación, LODE -Organic Law on the Right to Education- from 1985 gives Autonomous Communities the right to administer their own educational centers. As LODE was the first

educational reform law promulgated after the dictatorship, it required schools to respect the different languages and cultures of Spain. It also provided for an increased social participation in the Spanish educational system and for the economic funding for both public and private educational centers.

Ley Orgánica 1/1990, de 3 de octubre de 1990, de Ordenación General del Sistema Educativo, LOGSE -Organic Law on the General Organization of the Educational System-. One of the main contributions of the LOGSE was raising the maximum compulsory age from 14 to 16 years of age. The effect of this policy that was later reflected in an improvement on the Spanish aggregated human capital stock. With respect to the educational system, the LOGSE divided it two branches: the general education system and the special education system. The general education system included pre-school, *Educación Primaria Obligatoria* -compulsory primary education-, *Educación Secundaria Obligatoria, ESO* -compulsory lower secondary education-, *Bachillerato* -Baccalaureate, upper secondary education-, vocational training at intermediate and advanced levels, and university education. The special education system encompasses arts and languages but would also include adult education, special needs education and compensatory education programmes.

The LOGSE was also aimed to increase the quality of the educational system by including periodic evaluations and the establishment of general educational objectives for the enrolled population. It also considered the improvement of the teacher's education and a more flexible curriculum model for a decentralized educational system.

Ley Orgánica 10/2002, de 23 de diciembre, de Calidad de la Educación, LOCE -Organic Law on the Quality of Education. One of the most important changes proposed by the LOCE was the redesign of the lower secondary structure in four academic courses. The main difference with respect to the previous structure was the introduction of scientific, humanistic and technologic itineraries -which students may choose according to their interests- during the last two years of basic secondary. The new proposal also included course repetition in case two or more subjects were failed. There were important arguments between social partners and education authorities given the modifications proposed. Social partners especially claimed against those articles referred to the educational character of the pre-school grades, the compulsory lower secondary education, the Baccalaureate General Test (*Prueba General de Bachillerato*), the access to university studies or religion in schools. After the 2004 presidential election of José Luis Rodríguez Zapatero (Socialist Party), the new government paralyzed the application of the Law. However, those measures already implemented -like student's evaluation and assessment criteria- as well as others whose modification have not been considered as free early childhood

education (from 3-5 years) were not revoked.

Ley Orgánica 2/2006, de 3 de mayo, de Educación, LOE -Organic Law of Education- offers the legal framework to provide and assure the right to education for all. It establishes that education is compulsory from 6 until 16 years of age regardless students conditions or circumstances. Provisions for students with special educational needs are governed by principles of normalization and inclusion and will ensure non-discrimination and real equality in the access to the education and continued attendance, allowing flexibility in the different stages of their education when necessary. As immigrant children mostly arrive once the academic course has started, they are considered as children with special educational needs. The LOE also applies this definition to those who require, certain support and specific educational attention due to disability or serious behavioral disorders, either for a period or throughout the whole of their schooling (Art. 73). With respect to integration programs, Art. 67.4 establishes that it is the responsibility of the Education Administrations to provide basic cultural programs to facilitate the integration of the immigrant population.

Estatut d'autonomia de Catalunya 2006 -Statute of Autonomy of Catalonia-. The Statute of Autonomy of Catalonia is its basic institutional regulations, defining the rights and duties of the citizens of Catalonia, as well as the political institutions, their competencies and relations with the Spanish State and the financing of the autonomic government. The Statute was approved in referendum on June 18 2006 and substitutes the Statute of Sau, which dated from 1979. It recognizes the right to education and entitles the Catalan Government with the power of determining the educational content of infant education and more competencies in non-university education. The Statute establishes Catalan as vehicular language in education and guarantees the right to non-religious education.

Llei 12/2009, del 10 de juliol, d'Educació, LEC -Catalan Law of Education-, aimed on developing the Autonomic competencies as established on the 2006 Statute. The Law gives autonomy to schools in order to develop their pedagogic project according to the student's needs. Schools will also be able to manage their own human and economic resources, and directors will have the legal status of Public Authorities. There was a strong debate before the LEC's approval referred to the center's autonomy and also around the public funding that could also be granted to private institutions -mostly religious- that segregate students by sex.

2.4.3 Structure

With respect to the educational system's structure, the General Education Act of 1970 was aimed at providing an education for all Spaniards between the age of 6 and 14. Since 1990, the General Law on the Educational System raised the age limit for compulsory education from 14 to 16 years. However, pupils can remain at compulsory schooling until 18 or until 21 for pupils with special education needs as seen on figure ??.

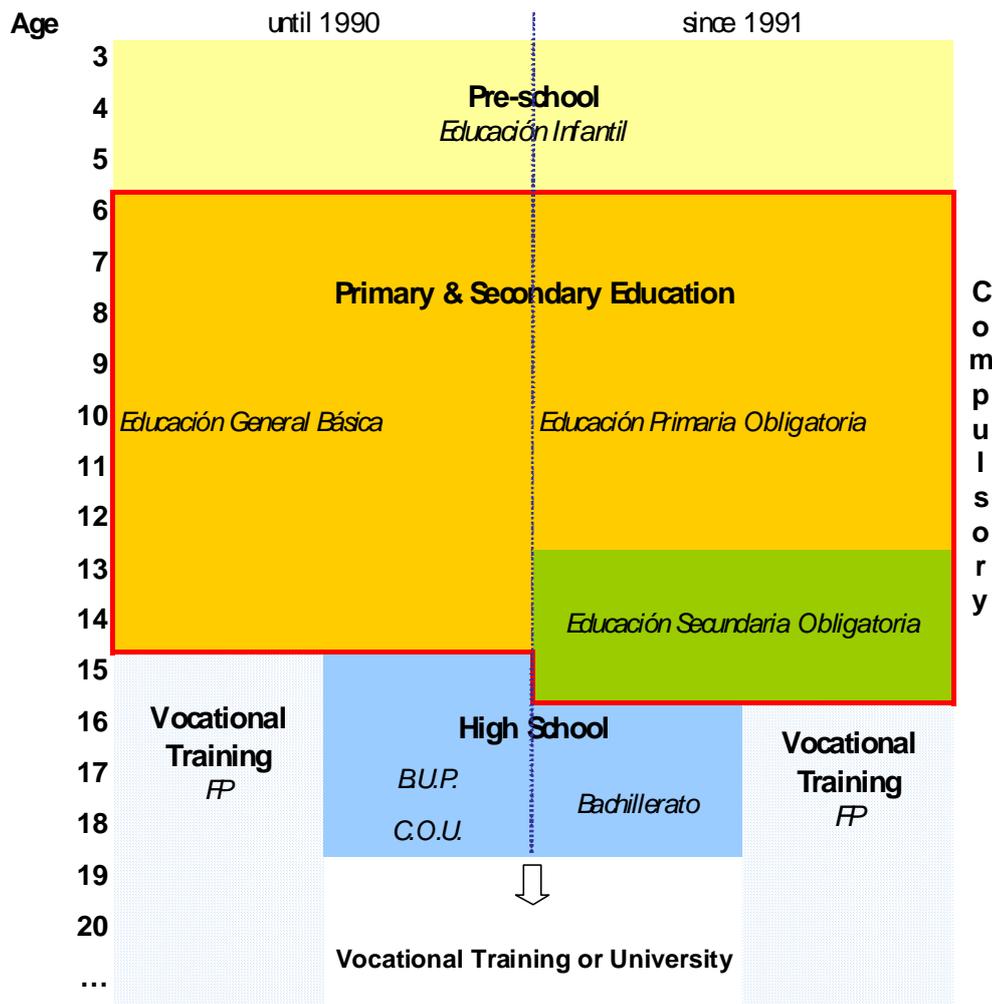
Regardless their administrative status, children of foreign origin must attend at compulsory stages. Compulsory education is divided in two main levels according to age. Elementary or Primary Education (*Educación Primaria Obligatoria*) caters for children aged from six to twelve. From twelve to sixteen years of age, children must attend Lower Secondary Education (*Educación Secundaria Obligatoria, ESO*). Although pre-school or pre-primary education (*Educación Infantil*) for children between three and six years is not compulsory, it is public funded regardless school ownership. It is also possible to cater education for children below that age but public places are limited.

Compulsory education is organized in three two-year cycles on Primary Education and 4 years for Lower Secondary Education. Regarding curriculum, as we have mentioned before the official curriculum at compulsory education is determined both at the State and the Autonomous Community level. It sets out objectives in terms of skills, methodological principles, content and assessment criteria. Curricular plans are approved by the School Council and monitored by the Education Inspectorate to ensure coherence between the official curriculum and classroom activities.

The only requirement for admission to primary education is reaching the statutory school age in the course of the calendar year. Besides school attendance and behavior, the most common and important criterion for progression to the next grade is the pupil's academic progress. Primary Education assessment is global and continuous in all areas. However, overall assessment can encompass a pupil's marks but marks are not the decisive factors in determining whether a pupil is held back or progresses to the next year. Promotion is often automatic within the same cycle but progression from one cycle to another is contingent upon meeting the curricular requirements. A student may fail an academic course only once throughout primary education. If student's overall results gives access to the following cycle but has negatively assessed in one or more areas, he or she must receive academic support. With respect to qualifications and certificates, an official academic certificate is awarded at the completion of compulsory schooling.

Assessment in Lower Secondary Education is continuous throughout the school year for each subject area. Progression to the next class is jointly decided by teachers at the

Figure 2.3: Organization of the Spanish educational system



Source: Author's elaboration.

end of each academic year according to the individual attainment. In case of failing a subject at the end of the year, students must pass a special examination. Students failing three or more special examinations can not be promoted into the following academic level. Each academic level can only be failed once and the number of repeated years across the whole period of compulsory schooling is limited to two. If, after repetition, a student does not meet the minimum requirements to promotion, the assessment team would decide on their subsequent progress and individual reinforcement measures to be adopted.

Students who complete Lower Secondary Education and having passed all subjects in this level -or exceptionally three subjects negatively assessed- acquire the Certificate of Compulsory Secondary Education (*Graduado en Educación Secundaria Obligatoria*). It gives access to Vocational Training (*Formación Profesional*) or academically oriented

upper secondary education (Bachillerato) (see figure ??). Students who are not awarded this certificate receive a Certificate of School Attendance (*Certificado de Escolaridad*) and may be admitted to vocational training schools if they are 17 or older and pass an entry examination.

According to the *Llei 1/1998, de 7 de gener, de Política Lingüística de Catalunya* (Catalan Linguistic Normalization Act), Catalan is the main language of instruction at compulsory and non-university levels. It is used in oral and written activities, teaching material, textbooks, learning activities and assessments, except in Spanish and foreign language subjects. Those students whose mother tongue is not Catalan must spend several hours a day for their first few months in reception classes (*aula d'acollida*). The objective of reception classes is to teach immigrant children enough Catalan to enable them to follow classes in regular groups. The *Pla per a la Llengua i la Cohesió Social, aules d'acollida* (Plan for language proficiency and social cohesion) establishes that effective reception, integration and equal opportunities are the key elements for a cohesive, plural and open Catalan society. Reception classes are considered as one of the instruments for diverse and multicultural educational centers.

Once compulsory schooling is completed, youngsters face the most important transition in the Spanish context. At this stage, students must decide whether to pursue academic or vocational higher education tracks, or to enter in the labor market. Vocational training (*Formación Profesional*) provides students the skills needed to perform a job that requires practical expertise. Academically oriented upper higher education (*Bachillerato*) gives access to Advanced Specific Vocational Training -and after that, to university-, Higher Vocational Training (*Formación Profesional de Grado Superior*), Advanced Training Cycles in Plastic Arts and Design (*Ciclos Formativos de Grado Superior de Artes Plásticas y Diseño*) and Advanced Sports Education (*Técnico de Deporte*). Students may not spend more than four years at this level and may receive either the Baccalaureate (Bachiller) or the Technician (*Técnico*) diploma. Access to university studies is limited to those whom a) have obtained the Baccalaureate and passed the entrance examination (*Prueba de Acceso a la Universidad, PAU*); b) senior technicians (only for studies related to their certificate); and, c) adults over 25 who may pass an specific entrance examination if they do not hold a degree. Before the Bologna Process reform, University studies were classified in 3-year (*primer ciclo*) and 5-year (*segundo ciclo*) studies. On average, *primer ciclo* students were aged between eighteen and twenty-one, whereas *segundo ciclo* students were between twenty-one and twenty-five (MEC, 2005).

2.4.4 Regulation on education and immigration

The first reference about children of foreign origin on the Spanish legislation on education was made on the Organic Law of the Right to Education, LODE, from 1985. It established that, regardless of their legal status, resident children of foreign origin at compulsory schooling ages have the right to education, that should be basic and mandatory. Later, the Organic Law on the General Organization of the Educational System, LOGSE from 1990 on its Article 63.2 provides that compensatory educational policies would reinforce the mechanisms against inequalities arising from social, economic, cultural, geographic or ethnic differences.

Specifically referred to educational center's administration, the *Ley Orgánica 9/1995, de 20 de noviembre, de la participación, la evaluación y el gobierno de los Centros Docentes* -Organic Law of Participation, Assessment and Management of Schools- was aimed at developing and modifying some of the provisions established in the LOGSE for quality enhancement. The law differentiated the enrolled population with special education needs related to a disability and those associated to social, cultural and geographical disadvantaged sectors. Later, the *Real Decreto 299/1996, de 28 de febrero, de ordenación de las acciones dirigidas a la compensación de desigualdades en educación* -Royal Decree on Management actions to fight against educational inequalities- and effective until November 4 2009, consolidated the instruments aimed to guarantee education for all in three basic axis: access and permanence in the educational system, educational services for students and quality improvement (CIDE, 1999).

The Organic Law on the Quality of Education (LOCE) from 2002, was aimed to reduce the drop-out rates and to improve the quality of education. It offers vague references stressing that the educational reform will also benefit pupils of foreign origin. Scant attention is paid to their special needs and to the special training teachers of immigrant pupils must undergo. As La Porte (2004) argues, despite the law presents itself as based “on the humanistic values of our European cultural tradition”, none of the ‘values’ on the basis of which the new law is formulated makes any reference to multiculturalism or diversity as a crucial component of education. The LOCE established that students with special educational needs can attend mainstream establishments with specialized classrooms or ordinary groups in special education centers or combined schooling according to their abilities. However, the ‘special education needs’ concept was broadly defined by law. It covered highly-gifted students, students with special educational needs, foreign students and those who require compensatory education. On the other hand, education authorities would provide the specialized mainstream establishments in order to satisfy the demand. With respect to schooling of children of foreign origin, the law stipulated

(art. 42) that it would be facilitated by arranging specialized classrooms in mainstream establishments for those who do not have knowledge of the Spanish language and culture or lack basic knowledge. Although it established that students of foreign origin have the same rights and duties as their Spanish peers (art. 42.3), the LOCE stipulated that those foreign students with severe adaptation problems at compulsory lower secondary (ESO) may have access to initial vocational training programs. Nonetheless, as Carabaña (2004b:85) emphasizes:

“Sencillamente, ni ‘extranjero’ ni ‘inmigrante’ son categorías educativas y nunca deberían haberse abierto camino hasta el texto de una Ley de Educación”

(Neither ‘foreigner’ nor ‘immigrant’ are educational categories and should have never been included in a Law)

As Sotés-Elizalde (2010) stresses, the Organic Law of Education (LOE) alludes to “attention to the diversity” common to all students, and therefore, just as in the LOGSE, foreign students do not receive differentiated treatment. Article 78 states that access to compulsory education of those students who, coming from other countries or for any other reasons are enrolled once the academic year has started. For non-compulsory education, institutions should promote their enrollment. Late arrivals or enrollments in the Spanish educational system constitute the so-called *matrícula viva* (live enrollment). Pupils should be enrolled in courses according to their age, individual characteristics and academic background. With respect to integration instruments, article 79 of the Organic Law of Education promotes the development of specific programs for non- and limited language proficient students as well as a supportive learning environment where needed. Programs should be developed at the same time as students are enrolled in regular classes, according to their academic achievement. Whether not distinguishing between Spanish and foreign students, the law also establishes the development of compensation programs in order to fight against inequality (art. 80).

As the Organic Law 4/2000 of January 11, Concerning the Rights and Freedoms of Foreigners in Spain and their Social Integration (amended by the Organic Law 8/2000 of December 22) stated the right to education of the foreign residents (art. 9), the nineteenth Additional Provision on foreign origin pupils of the LOE specifically refers to the immigration act. Also, article 67.4 referred to adult education considers specific language programmes (Spanish and co-official languages) for foreigners in order to facilitate their integration. The last amendment of the Immigration Organic Law 4/2000 by the Organic Law 2/2009, states that children of foreign origin have the right and duty to basic, free

and compulsory education. Foreigners under eighteen years of age are also entitled to enroll in post-compulsory education, allowing them to obtain the correspondent academic certificate. They are also allowed to access the public grant and scholarships programs just under the same conditions as their Spanish peers. Education should be promoted by public authorities in order to promote the social integration of immigrants (art. 9.3). More specifically, article 9 on right to education states:

Artículo 9. Derecho a la educación. (Redactado conforme a la Ley Orgánica 2/2009)

- 1. Los extranjeros menores de dieciséis años tienen el derecho y el deber a la educación, que incluye el acceso a una enseñanza básica, gratuita y obligatoria. Los extranjeros menores de dieciocho años también tienen derecho a la enseñanza postobligatoria. Este derecho incluye la obtención de la titulación académica correspondiente y el acceso al sistema público de becas y ayudas en las mismas condiciones que los españoles. En caso de alcanzar la edad de dieciocho años en el transcurso del curso escolar, conservarán ese derecho hasta su finalización.*
- 2. Los extranjeros mayores de dieciocho años que se hallen en España tienen derecho a la educación de acuerdo con lo establecido en la legislación educativa. En todo caso, los extranjeros residentes mayores de dieciocho años tienen el derecho a acceder a las demás etapas educativas postobligatorias, a la obtención de las titulaciones correspondientes, y al sistema público de becas en las mismas condiciones que los españoles.*
- 3. Los poderes públicos promoverán que los extranjeros puedan recibir enseñanzas para su mejor integración social.*
- 4. Los extranjeros residentes que tengan en España menores a su cargo en edad de escolarización obligatoria, deberán acreditar dicha escolarización, mediante informe emitido por las autoridades autonómicas competentes, en las solicitudes de renovación de su autorización o en su solicitud de residencia de larga duración.*
- 5. (Suprimido conforme a la Ley Orgánica 2/2009)*

2.4.5 Educational policies on access to education

According to Calero (2007) policies aimed at greater equity in Spanish education encompass both general and more targeted elements. Targeted programs are aimed at priority

groups as students from low-income families, low achievers in compulsory education and foreign population. Among those general policies which are intended to promote equity, we can find the following: common curriculum in compulsory secondary education; gratuity during compulsory years; integration of students with special needs; non-selectivity admissions to public and subsidized private schools and the subsidization of university education (Calero 2007: 119-1200).

In Catalonia, access to education in public and state-sanctioned schools is regulated by the *Decret 75/2007, de 27 de març, pel qual s'estableix el procediment d'admissió de l'alumnat als centres en els ensenyaments sufragats amb fons públics (DOGC núm. 4852 del 29 de març de 2007)* -Decree 75/2007, of March 27, on the admissions procedure to subsidized educational centers- and two additional regulations that are modified each academic year. The first, referred to the enrollment and admissions policy for non-university education whereas the second establishes the tiebreaker criteria. For the 2010/2011 course, the additional regulations are the *Resolució EDU/107/2010, de 27 de gener, per la qual s'aproven les normes de preinscripció i matrícula de l'alumnat als centres educatius per al curs 2010-2011 en els ensenyaments sufragats amb fons públics d'educació infantil, d'educació primària, d'educació secundària obligatòria, de batxillerat, de formació professional, de programes de qualificació professional inicial (PQPI) realitzats pel Departament d'Educació, artístics, esportius, d'idiomes o d'educació d'adults;* and the *Acord GOV/5/2010, de 26 de gener, d'aplicació, per al curs 2010-2011, del criteri complementari per resoldre situacions d'empat en el procés de preinscripció i matrícula de l'alumnat als centres educatius per tal de fer efectiu el principi d'igualtat.*

According to the Decree 72/2007, the admission process of public funded centers guarantees parental freedom of school choice and must be fulfilled if places are available. Every spring, the Catalan Department of Education opens the pre-enrollment process for public and state-sanctioned schools. Parents must provide a fulfilled form containing not only the household information but a prioritized list of three educational centers according to their preferences. Most of the demand is fulfilled according to the parental first choice preference. If demand exceeds the number of available places, the final decision would benefit those cases in which another family member is enrolled at the same school, proximity of the place of residence as well as the households' socioeconomic status. Additionally, the Catalan educational system also privileges children with disabilities, members of numerous families (3 or more children) and/or suffering from a chronic disease (for example, diabetes or celiac). Given that educational outcomes are not public, parental choices are mostly based on the public opinion, often related to school's ethnic and social composition. Consequently, educational centers at socially deprived areas would experience a

continuous decline with respect to those with a better public image. As a result, supply would not be fulfilled, giving access to students –mostly immigrants- arriving once the academic course has started.

As we have mentioned before, integration and distribution policies are implemented at local scale. Some of the measurements that the Catalan Government and the Municipalities have implemented with respect to access to education have directly affected or conditioned the enrollment of children of foreign origin. Design and application of specific instruments are often discretionary and most of the times the information could not be publicly accessed. Among these measurements we could mention:

1. Reservation of places for pupils with special education needs (quota policies)

The Organic Law of Education, LOE, introduced the reservation of places for pupils with special education needs (including children of foreign origin) to a rate up to 10 percent -around two seats- per classroom. In some cases the reservation of places has reached six or eight seats but in most municipalities the two-seat minimum policy is far from ensuring a more equitable distribution of the special education needs' pupils (Valiente and Rambla 2009; Alegre 2007). Also, the effectiveness of this policy can also be questioned as far as it could only be implemented during the enrollment period and most of the children of foreign origin arrive once the academic course has started.

2. Reduction of student/teacher ratios

This practice consist in reducing the student/teacher ratio from a specific municipality or area in order to guarantee a minimum number of additional available seats to be covered by children entering the school system throughout the school year. Although it could allow a more equitable distribution of students of foreign origin - and a consequent better instrument to fight against segregation-, its application may be legally questionable by interfering with parent's right to choose their children's school (Alegre 2007).

3. School zoning policies

Educational center's areas of influence are determined considering the resident population at schooling ages in the municipality (or surrounding municipalities). As we have mentioned before, part of the school selection process relays on the proximity of the familiar place of residence. Consequently, instead of changing their residence, some families seek to guarantee their choice by false registrations.

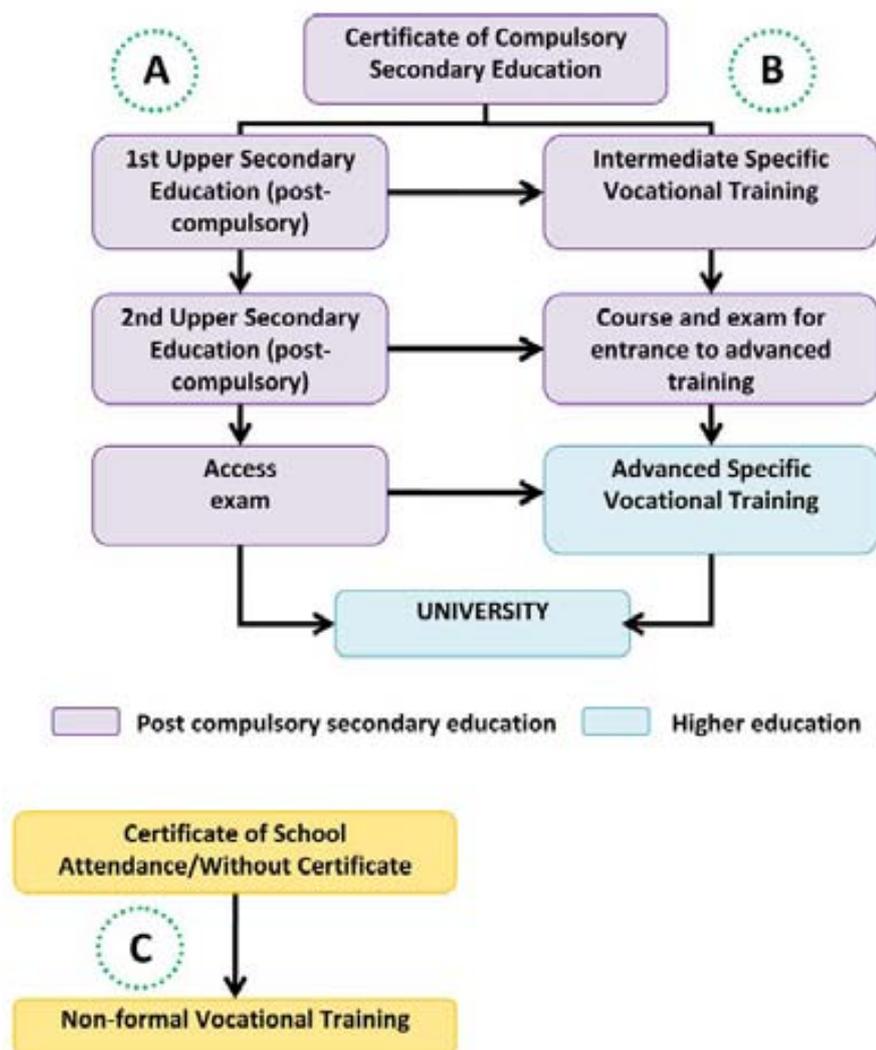
According to Benito and González (2007), Catalan school zoning policies can be grouped in three categories. The first is to establish a single catchment area for all

the public funded schools. All the applications would then obtain the same scaled criteria based on place of residence maximizing families' school choice. If state-sanctioned schools are included on this measure it would avoid the flight from public centers favoring -at least theoretically- a more diverse school system. However, depending on the size of the municipality a single area of influence can violate the proximity principle stated by law. A second zoning policy consists in establishing one catching area for each public funded school and an alternative one for charter centers. The main advantage of this policy is that it can be used to design specific areas of influence that break the urban segregation of certain neighborhoods or districts. It is frequently used in medium sized municipalities and it could be easily modified according to the social needs. However, it could incentivize the flight to charter schools with alternative catching areas or to other less stigmatized public schools. The third model -combination of the above- considers catching areas with more than one public funded center and an alternative zoning for state-sanctioned schools. This is the most frequent policy implemented.

As one might expect, the policies mentioned above could directly influence or determine the concentration and school segregation of children.

- Policies at local level not consistent within the years
- what can we understand for redistribution of children?

Figure 2.4: Pathways in the Spanish Education system after compulsory education



Source: Casas et al. 2010.

2.5 Conclusions

As we have seen on this chapter, there is still a significant effort to make in order to guarantee not only full access to education to children of foreign origin but also databases and resources that allow to measure educational gaps and policy evaluation. In that sense, we must admit the effort of the numerous researchers who conducted specific *ad hoc* surveys. Despite some of their results could not be extended based on the sample size used, they can shed some light on how the educational system works at micro level. However, and especially related to educational policies, the studies have been focused on the impact of children of foreign origin leaving aside that poor educational outcomes were indeed not new. High upper secondary school failure rates and the scarce enrollment at higher education has been one of the challenges of the European Union and the OECD countries during the last years, even before Spain's migratory boom. With respect to policies, as Subirats (2003) stresses the complexities of the new social reality of Spain which influence schools and educational centers, may be encompassed by the following perspectives: integrated educational areas; professionally rich; socially influential; heterogeneous and diverse; and, politically aimed towards a greater social cohesion. In that sense, it is important to incentivize a social cohesion between the actors involved and a greater -and effective- implication of the central planner.

Changes in migration policies have directly affected the arrival of children of foreign origin (i.e. formal barriers as family reunion procedures) and their access to formal education. Migration policies have been focused on immigrant workers but they have also indirectly gave power to discretionality in school continuation decisions. Modifications to the Organic Law 4/2000 with respect to the maximum age of the right to education of the foreign residents regardless their legal status from 18 to 16 years of age gave discretionary power to schools for allowing the education of undocumented children. If access to education is constrained, their only opportunity after compulsory education is entering the informal labor market as irregular workers and maybe apply for social or labor attachment. However, as Domingo (1995) stresses, the fact that immigrants finally regularize their situation does not mean that they can later maintain their legal status (Domingo 1995: 5).

The main contribution of this research will be to explore which are the main implications of immigration on the Catalan educational system. It is clear that the unexpected demand of compulsory education during the last ten years has revealed the weakest points of the educational system and the related policies. Although international migration inflows have been the main source of the demand growth it has also been used as a scapegoat from political and social parties.

We will focus our study in two key points of a student's academic transition. First, based on the Catalan *Estadística de l'Educació* we will study the impact on compulsory education and the composition of the enrolled population in this Autonomous Community (Chapter 3). This will represent one of the main contributions of our research as this database has not been deeply explored from a sociodemographic perspective. Second, we will study the evolution of the school segregation in Catalonia and its relationship with residential segregation at different geographical level (Chapter 4). Our analysis will also include the study of segregation at micro level, by estimating the related effects in the city of Barcelona. Finally, based on secondary sources we will approximate the effect of the possible determinants of the enrollment in post-compulsory education and school continuation decisions (Chapter 5). In order to meet this objective, we will use two main approaches. Based on Recaño and Roig (2006) and Petrolongo and San Segundo (2002) we will try to estimate the possible parental and contextual effects in the academic transition from lower secondary to non-compulsory education. Then, we will estimate a Cox proportional hazard model on differential educational success based on origin.

To maintain a homogeneous criteria within the different explored databases, we will mostly use the variable nationality instead of place of birth. Also, we will consider *foreigner* all of those whom nationality is not Spanish, regardless their place of birth or their parent's individual characteristics. In that sense, the terms *foreigner*, *immigrant* or *foreign origin* will be used mostly as synonyms and without distinction. We will also use the terms *scholars*, *pupils* or *students* as synonyms.

Chapter 3

Data

The diversity of sources that contain education-related variables in Spain goes from demographic, labor and health surveys. However, as we might expect, most of them consider educational attainment as a secondary outcome, without inciding in the educational track of the individuals. Datasources that also include representative samples of the immigrant population is still scarce, probably related to the relative novelty of the phenomenon. In some cases, it is possible to analyze the educational attainment of the aggregated foreign population or by continental aggregates, but access to education of non-nationals is still missing. The lack of a specific survey focused on educational transitions or a public database that allows the study of human capital formation under a life-course perspective constraints the potential research. Policy design and evaluation are as well affected by the limited information available.

The objective of this chapter is to introduce the databases that have been used in our research. We will explore the main characteristics and the basic information contained in each datasource as well as the limitations affecting our study. Only one of the explored databases –the *Estadística de l'Educació*, section 3.1- contains exclusive information of the enrolled population and the educational centers in this Autonomous Community. The rest of the databases explored have been included in order to fulfill two main objectives. First, to study educational and labor transitions and, second, to include contextual variables in our analysis.

3.1 Estadística de l'Educació 2000/01-2007/08

The *Estadística de l'Educació* (Non-university Enrollment Statistics) is annually produced by the *Direcció de Serveis del Departament d'Ensenyament de la Generalitat de*

*Catalunya*¹ -the Direction of Services of the Catalan Department of Education. The objective of this database is to collect quantitative and qualitative information of the main actors involved in the Catalan educational system: students, groups, educational institutions and teachers. However, it does not account on the quality of education, socioeconomic characteristics of the students and their families or the grades obtained throughout the academic year.

As we might expect, regardless their administrative and restricted character, this is not the only database generated by the Department of Education. The *Sistema d'Administració i Gestió Acadèmica* -System of Academic Administration and Management-, SAGA, was aimed at improving the quality and characteristics of the data collected during the enrollment process. It should therefore include information with respect to family background such as parent's maximum academic degree. Nevertheless, and according to the information provided by the Department of Education, the feasibility of the data provided by SAGA during the first year of its application was even lower. On the other hand, the *Matricula viva* -Live Enrollment- database contains information regarding the variations in school enrollment throughout the academic year. The information collected in this restricted database is later used to compile the final enrollment statistics reported at the end of the academic year to the Spanish Ministry of Education. Unfortunately, as it is only used for final calculations, the information is destroyed once the new academic year has started. The information provided from both datasources is only accessible for the Department's internal purposes.

At this time, the *Estadística de l'Educació* contains information of almost 5,000 educational centers distributed within the Catalan territory. Data was first published by the Department of Education during the academic course 1984/85 and is available on the Department's monographic series since the academic course 1976/1977. Although 1980/1981 represented the first academic course in which the Catalan Government was in charge of the educational competencies, the statistics have been previously produced by the Spanish Ministry of Education and the *Instituto Nacional de Estadística* -National Statistics Institute-, INE. Each institution is responsible of collecting the data during the Spring's enrollment process. Student's nationality is registered the first time students are enrolled. For those cases where Spanish citizenship is acquired, parents must report the status change to the school administration in order to be registered. However, it is not mandatory and as a result, most of the nationalities reflected by the database are the ones originally reported. With respect to the specific limitations of this database, as the CIDE (1999) report stresses, one of the difficulties that researchers have to face is that as

¹Until December 29th 2010, the Department was known as 'Departament d'Educació'.

each director is responsible of providing the enrollment statistics of his/her educational center thus no homogeneous criteria is applied throughout school strata. Also, the citizenship register is often confused with the country of birth during the enrollment process generating a bias in the final database.

The database contains individual data from public and private or state-sanctioned educational institutions for each academic year from all the non-university educational levels as shown on table 3.1. However, private centers are not required to provide their enrollment statistics to the Department thus their proportion -and some times the feasibility of the data reported- in the total sample is not significant. We must stress that not all municipalities have schools. School distribution is primarily based on population composition and also, not all municipalities have the capacity to manage another level of infrastructure. Therefore, catchment areas could include more than one municipality.

At territorial level, data are arranged first by *Serveis Territorials* -Territorial Services- and then by Municipality. Territorial Services are administrative units designed by the Catalan Department of Education according to the spatial distribution of the population enrolled. Thus they and are not necessarily equivalent to administrative territorial distributions as counties or provinces as seen on figure ??.

Among their functions, educational Territorial Services are in charge of coordinating the human resources operations, the manage maintenance and operations of school facilities and the education inspectorate. Since 2009 the geographical boundaries of the Territorial Services were redefined in nine units plus an additional independent office for the city of Barcelona, the *Consorci d'Educació de Barcelona* -Education Consortium of Barcelona-. The Education Consortium of Barcelona is defined as an associative public organization comprising the Catalan Government and the Barcelona City Council for the joint management of education functions, activities and services. It is in charge of the local zoning policies and the development of instruments against school segregation.

Table 3.1: Educational levels included in the Non-university Enrollment Statistics

Llar d'infants	Kindergarten
Educació infantil	Pre-school
Educació Primària	Primary
Educació Secundària Obligatòria (ESO)	Lower Secondary
Batxillerat	Upper Secondary
Formació Professional	Vocational Training
Programes de Garantia Social	Social Guarantee Programmes (including adult literacy programmes)
Altres ensenyaments	Others (including music, sports and languages)

Source: Author's elaboration.

Figure 3.1: Territorial Services of the Catalan Department of Education. // Academic course 2010/11



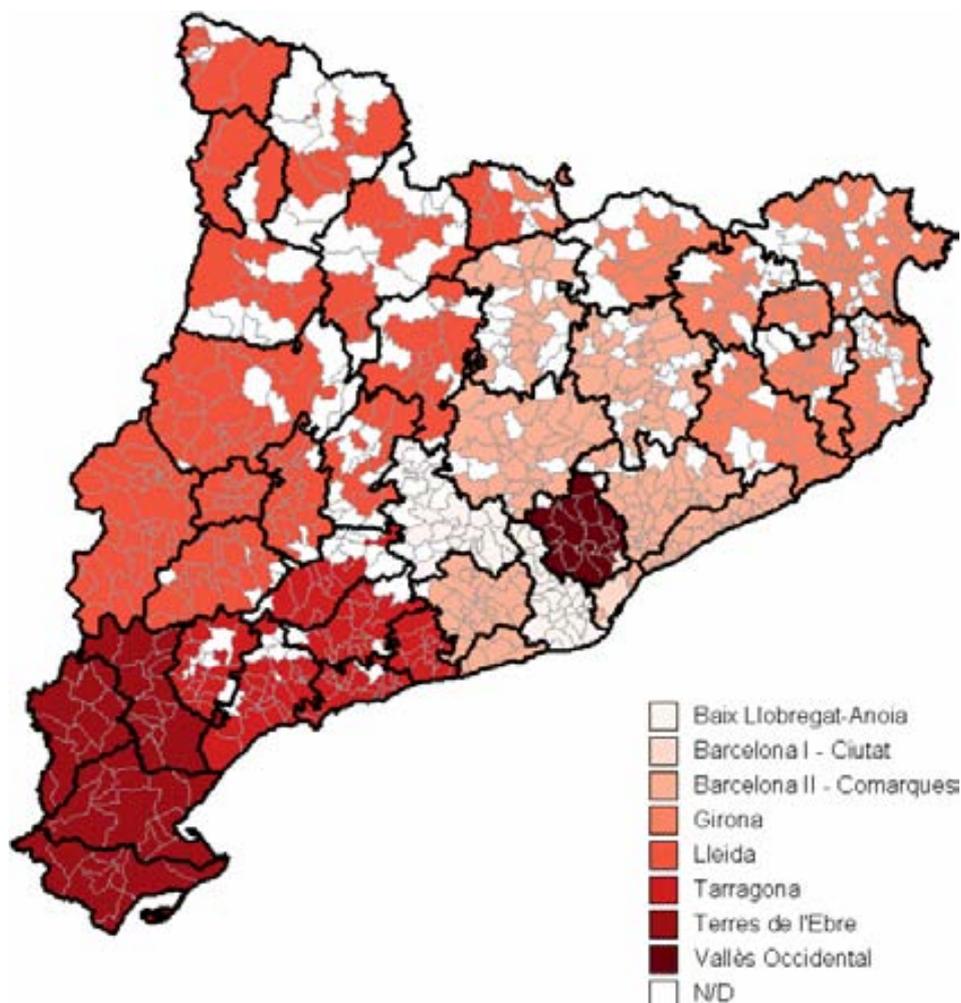
Source: Author's elaboration and Departament d'Educació.

At the time of the data request, Territorial Services were known as *Delegacions Territorials* -Territorial Delegations-. Based on the database provided by the Direction of Services of the Catalan Department of Education, the former distribution of the Territorial Delegations can be seen on figure ???. During that time, Territorial Delegations were defined as:

1. Baix Llobregat - Anoia
2. Barcelona I - Ciutat
3. Barcelona II - Comarques
4. Girona
5. Lleida

6. Tarragona
7. Terres de l'Ebre
8. Vallès Occidental

Figure 3.2: Territorial Delegations of the Catalan Department of Education. Academic course 2007/08.



Source: Author's elaboration based on the *Estadística de l'Educació 2007/08*. Note: N/D refers to non-available data given the absence of an educational center in that specific municipality.

According to the main objectives of this research, we have selected the period between the academic years 2000/01 and 2007/08 as horizon of analysis. In order to fulfill the anonymity requirement of statistical databases, the data exploded for this research²

²We would like to thank Mr. Joan Oliart i Bermejo, Director of the *Servei d'Indicadors i Estadística of the Direcció de Serveis* for his cooperation and collaboration in facilitating the database.

is aggregated by educational institution. The database provides information on three dimensions: Geographical (Territorial Delegation, County and Municipality), Administrative (Center's code, Name and ownership) and Demographic (age, sex and nationality or country of birth).

The database was received in two stages. Each one provided a different configuration affecting the variables of interest provided. First, data from the period between 2000/01-2006/07 was sent for the entire Catalan territory at the end of December 2007. Unfortunately only single variables were provided by the Department in three tables. Table 1 contained information referred to age and sex of the enrolled population by educational center; Table 2 contained information with respect to country of citizenship while Table 3 was with respect to country of birth. The second database received contained the enrollment data of the academic course 2007/08, but variables were crossed. As a result of the second stage we obtained two tables containing information about gender, age, country of birth (Table 1) and citizenship (Table 2).

In order to minimize the impact of the limitation introduced by the scarce information of the first tables obtained, we decided to explore a subsample of the enrolled population contained in the original database. Given that educational levels are not identified on the database and that one same educational center can teach at different levels, we must take into account that data from the academic period 2000/01-2006/07 will contain a structural bias. To minimize its impact on the final results, we have selected a subsample of institutions according to the following criteria. First, we have excluded those centers where only post-compulsory education or social guarantee programs was taught. Then, we have selected only those centers with complete information for the entire period of analysis. As a result, we have obtained a sample of 2,642 educational centers -74 percent publicly funded- located in 707 Catalan municipalities that will be explored on Chapters 3 and 4.

3.2 INE-IPUMS International 1991 and 2001 Censuses Microdata

Spanish Population and Housing Censuses are conducted by the *Instituto Nacional de Estadística*, INE (National Statistics Institute) on a ten-year basis. The aim of this exercise is to conduct a population recount and to provide information on the number and distribution of the main demographic and social characteristics, always respecting statistical secrecy. Consequently, the census is also addressed to the foreign residents regardless of their legal status.

The last Census edition -conducted in 2001- introduced two main variations compared to previous operations in order to clarify the relationship between different units and concepts. First, the *resident* or *de facto population* concept was substituted by the concept *linked* or *de jure population*. This operation removed the inclusion of non-resident population in the census, that is, persons who were in the territory when the census was performed although they did not reside within and only considered those who have a regular connection (i.e. residence) with the municipality in question. Second, the *household* concept became *house-dwelling*, no longer requiring inhabitants to share common expenses. The basic unit used is the resident person but the identification is not individual as it is necessary to consider the relationships of coexistence. Therefore the family, the household and the family nucleus also appear as additional basic units³.

Another novelty of the 2001 Census was its relationship with the Municipal Register unlike the 1991 Housing Census which was primarily based on the 1990 Building Census⁴. The Census register files were based in those of the Municipal Register in order to improve precision and reduce costs, taking advantage of the fact that register data can be legally used with statistical purposes. As a result Census booklets were individualized by printing register data beforehand and were designed including joint dwelling questionnaires, household questionnaires and as many individual questionnaires as persons between 16 and 64 years old reside in each dwelling.

We have used the INE harmonized census microdata from the International Public Use Microdata Samples -IPUMS- database, located at the University of Minnesota Population Center. This database provides large sample densities of anonymized and harmonized individual and household census records on the order of 5 percent for Spain. The high degree of spatial specificity available have allowed us to obtain a sample with the same order for

³Source: INE. Information available at: <http://www.ine.es/en/censo2001>.

⁴Reference date: 15 October 1990.

Catalonia. The main advantage of using IPUMS microdata samples is the integration of census microdata and metadata variables in one same file. With respect to educational attainment data, it is possible to obtain three different related variables depending on the encoding used by IPUMS: EDUCES, EEDATTA and EDATTAN. First, EDUCES indicates the person's educational attainment in terms of the level of schooling completed according to the Spanish educational system. As this is not a harmonized variable, comparisons between samples with different educational systems (for example 1981 and 2001) may introduce a bias. EEDATTA records the person's educational attainment in terms of the level of schooling completed (degree or other milestone) for the European samples. It only records completed levels and it does not necessarily reflect any particular definition of the various levels of schooling in terms of terminology or the number of years of schooling. Finally, EDATTAN also records the person's educational attainment in terms of the level of schooling completed according to the United Nations standard of six years of primary schooling, three years of lower secondary schooling, and three years of higher secondary schooling.

In order to conduct the analysis of parental and contextual effects on academic trajectories into post-compulsory education we have included the 1991 and 2001 Censuses microdata in our analysis. This will allow us to estimate the background effects that affected the first generations of international and internal immigrants whom arrived prior to the immigration boom and will settle the basis for our analysis. We have selected a sample of 70,953 individuals (see table 2.2) between 17 and 24 years old -the average period between high school and 5-year university completion. In order to include family background and to avoid selection bias from individuals who migrate to complete their studies, only those living with at least one parent were considered. The dataset will be described in Chapter 5.

3.3 Padrón Continuo de Habitantes

The *Padrón Continuo de Habitantes* (Continuous Register of Spain) is the datasource based on the *Padrón Municipal de Habitantes* (Municipal Register) and published by the National Statistics Institute (INE). The *Padrón Municipal de Habitantes* is an administrative register in which inhabitants are registered and constitutes proof of residence in the municipality. It provides the basic sociodemographic information of the resident population regardless their legal status and has become a fundamental datasource in the Spanish statistical system for both the recording of migrant flows and for counting the resident population in the country.

The formation, maintenance, revision and custody of the *Padrón Municipal de Habitantes* corresponds to the *Ayuntamiento* -Town Council-, in agreement with the regulations approved jointly by the *Ministerio de Economía y Hacienda* -Ministry of the Treasury- and the *Ministerio para las Administraciones Públicas* -Ministry of Public Administration- by request of the *Consejo de Empadronamiento*, obtaining the Revision of the *Padrón Municipal de Habitantes* referred to 1 January of each year. The *Padrón Continuo* is thus the result of the Revision since 1996 becoming the official population data from that year onwards. This operation considers for its calculation the registered births, deaths and naturalizations during the year. As a result, the population reflected by both the *Padrón Continuo* and the *Padrón Municipal*, will not match despite their common origin.

Compulsory registration data for the *Padrón Municipal de Habitantes* are the following: Name and surname, gender, usual residence, country of citizenship, place of birth, date of birth, national identity number for nationals or passport/foreigner identity number for non-nationals and maximum academic degree obtained. Based on the variables collected and its public interest, the INE creates an statistical operation of the register and publishes the final database containing the following variables: gender, age, country of citizenship and place (nationals) or country of birth. At territorial level, data can be obtained at five different levels: national, autonomic, provincial, municipal and at census tract level. However, information with respect to educational attainment is not published based on its low feasibility and consistence. We must also point out that the registered date does not necessarily reflect the date of arrival to the country for non-national residents.

With respect to the feasibility of the Register's data, according to Domingo and Sabater (2010) and Vono, Domingo and Bedoya (2008), foreigner's and local administrations' propensity to registrations has shown variations in time resulting in *flagrant*

under-registrations or also significant overestimations, being 1996 the inflection point for this trend. With respect to irregular migrants, municipal register requirements were discretionary depending on each municipality or the person in charge. Since 1996 and according to Law 4/1996⁵ residents must be registered regardless of their legal status. We could mention three main reasons that incentivized the decrease in underregistrations. First, the possibility of being used as a certificate of length of residence in extraordinary regularization processes. Second, being registered in the municipal register also gives access (and is a requirement) for the public healthcare system. Third and most important for our research subject, the register's role on the school enrollment process. As we have seen on subsection 1.4.5, current regulations prioritize school proximity of the household as an enrollment criteria for public or charter school centers affecting the school-district policies which determine the school catchment areas. In that sense, we could assume that the child population is the one that is less underestimated in the register. As a result, there was a significant growth on new registrations. The Law 4/1996 also established that Town Councils are responsible for maintaining the registers and are required to communicate monthly variations to the INE in order to remove errors and duplicates from the main database. Then, revised results are sent to each municipality and if an agreement cannot be reached, the case defers to the Electoral Register Board for its report. In fulfillment of its functions, the Electoral Register Board gives information on the discrepancies between the INE and the Town Councils and proposes official population figures for those conflicted municipalities that the President of the National Statistics Institute brings up for approval via Royal Decree.

Some of the bias introduced in the data is related to the false registers for particular purposes as tax rebates or accessing specific educational centers. Sabater and Ajeno (2005) performed an estimation for Catalonia of the so-called long-term absent *de jure* population (*empadronamientos atípicos*). That is, those individuals who usually live away from the municipality where they are officially registered. Their results show that 4percent of the registered population of the municipalities studied could be classified as long-term absent *de jure* population in 1996. Nevertheless, the best proof of reliability and quality of the Municipal Register data with respect to citizens of foreign origin living in Spain is its comparison to the Census results (Devolder, Gil and Forte, 2006; Domingo and Recaño,

⁵ *Ley 4/1996, de 10 de enero, por la que se modifica la Ley 7/1985, de 2 de abril, reguladora de las bases de régimen local, en relación con el Padrón Municipal* -Law 4/1996 of 10 January, by which Law 7/1985 of 2 April, Regulator of the Local Regimen Bases and Regulation of Population and Territorial Demarcation relative to the municipal register is modified- and its regulation approved by the *Real Decreto 2612/1996, de 20 de diciembre, por el que se modifica el Reglamento de Población y Demarcación Territorial de las Entidades Locales aprobado por el Real Decreto 1690/1986, de 11 de julio* -Royal Decree 2612/1996 of 20 December by which the Regulation of Population and Territorial Demarcation of Local Entities is modified, approved by Royal Decree 1690/1986 of 11 July.

2005).

The cumulative deficiencies in the records -mostly related to over-registrations and cancellations- defined the expiration administrative procedure since 2006 (Domingo and Recaño 2007). The expiration procedure reflects the previously unrecorded outflow of third-country foreigner registrations lacking permanent residence permits which are not renewed every two years, established by virtue of the amendment of article 16 of Law 7/1985 Regulating Local Regime Basis, by Organic Law 14/2003, dated 20 November. That is, non-EU nationals without a permanent residence permit (students included) must renew their registration every two years in order to maintain their record. However, as this operation is not applied to EU nationals or their families, the register could still overestimate those cases. On the other hand, the incidence of extraordinary regularization processes on Municipal Register's data should also be taken into account. According to Domingo and Sabater (2010), the use of the register's certificate as a proof of length of stay and its possible use in future regularizations should be considered as one of the main causes of the foreigners over-registration instead of access to public services. As Fernández Enguita (2003: 260) stresses:

“Recuérdese que ni son todos los que están ni están todos los que son: ni todos los extranjeros son inmigrantes (pueden ser simples transeúntes o residentes temporales) ni todos los inmigrantes son extranjeros (pues desaparecen de la cifra los ya naturalizados). Además, siempre hay cierta cantidad de irregulares que no aparecen siquiera en el Padrón.”

We will include the data of the *Padrón Continuo* in our research at three main levels: Autonomous Community, municipality and census tract. Table 2.4.1 shows the population by origin and the number of census tracts available in our sample. We will explore first the data at Autonomic and municipal level in Chapter 3 in order to study the impact of the international migration inflows in the Catalan population structure and its relationship with the enrolled population in Catalonia. Then, we will analyze the residential segregation and its relation with the school segregation based on the *Padrón Continuo* data at census tract in Chapter 4.

Table 3.3: Continuous Register: population by origin and annual census tracts

Year	Spaniards	Foreigners	Total population	Census tracts
2000	6,080,409	181,590	6,261,999	5,210
2001	6,104,045	257,320	6,361,365	5,289
2002	6,124,420	382,020	6,506,440	5,224
2003	6,161,138	543,008	6,704,146	5,231
2004	6,170,473	642,846	6,813,319	5,237
2005	6,196,302	798,904	6,995,206	5,251
2006	6,220,940	913,757	7,134,697	5,284
2007	6,238,001	972,507	7,210,508	5,345
2008	6,260,288	1,103,790	7,364,078	5,410

Source: Idescat.

3.4 Estadística de Variaciones Residenciales, EVR

The *Estadística de Variaciones Residenciales* (Residential Variation Statistics), *EVR*, measures the annual migratory movements occurred between municipalities in Spain, changes in residency to the country from abroad and emigration abroad to the extent that these are reflected in the management of municipal registers. It is elaborated by the INE based on new registrations and registry removals in the municipal registers of inhabitants due to changes in residence. Since 2001, the centralized file of the *Padrón Continuo* has been used to establish the EVR and its reference date is December 31.

Migrations registered are concerned with both domestic and foreign movements. In both cases results are broken down according to Spanish and foreign nationality. As it records the number of movements it does not have to match the exact number of people making them. A person can register as having moved to a place and then leave that place several times in a relatively short period of time leading to a certain degree of underregistration (García and Pujadas 1997). However, it does provide information in individual anonymous files for every year since 1988, making it possible to (1) ascertain the degree of migration at municipal scale; (2) classify and analyze the different return movements that occur, taking into account the place of birth, origin and destination; (3) study how they evolve in time; and (4) find out some details about the people who move (Rodríguez *et al.* 2002: 236).

Just as the Municipal Register, registration of changes of residence is compulsory in Spain, but there is no guarantee of complete coverage flows since compliance depends on the (dis)incentives for registration of movements. Late registrations and local under-reporting could exist and, as registrations are often associated with obtaining rights or complying with obligations, the reality of migration could be distorted by registrations made to meet the private interests of citizens (Ródenas and Martí 2009). This distortion will specially affect internal migration between municipalities clearly affected by foot voting (Tiebout 1956). However, given that we will use this source for the study of the characteristics of international migration inflows, our result will not be affected by this bias.

With respect to the methodology used for collecting the database, we must stress that registry removals were not included until 2002. Consequently, they could also be underestimated given the difficulty of registering population that leave the Spanish territory who do not communicate they change of residence. On the other hand, the EVR is also determined by an important definition change in 2004, while incorporating those “omitted registrations” (*altas por omisión*) and the “erroneous cancellations” (*bajas por inclusión indebida*) that were not included before. Graphically, the inclusion of omitted registrations and erroneous cancellations result in an outstanding peak in 2004 that could lead to misleading interpretations if the new definition is not taken into account.

As for the data used in this study, we will explore the databases provided by the *Instituto Nacional de Estadística*, INE (National Statistics Institute). The dataset consists in the annual microdata of the residential movements occurred in Spain and the basic individual characteristics of migrants for the period between 1998 and 2009. Therefore, it allows the calculation of the internal and international movements performed. As for the individual characteristics provided, the variables provide information on: Country of birth, country of citizenship, date of birth, municipality of origin and destination, and sex. The date of birth has been used to calculate the age of migration. Exploring the register’s microdata enables the study of the accurate demographic characteristics of the individuals performing residential movements, as well as the variations of the inflows’ composition in time and its spatial distribution.

We will explore the demographic characteristics of the individuals performing residential movements considering their migratory background. The analysis of the inflows from abroad will give insights into their impact on the Catalan population structure during the last ten years. On the other hand, internal migration registered across the territory will be used to show how the territorial distribution for population under 20 years old

has changed for the period between 1998 and 2009. Table 2.4.2 shows the inflows from abroad and from the rest of the Spanish territory that will be included in our analysis.

Table 3.4: **In-flows to Catalonia by region of origin, 1998-2009.**

Year	Rest of Spain	Abroad	Total
1998	185,077	15,631	200,708
1999	196,683	16,505	213,188
2000	202,498	33,933	236,431
2001	200,050	46,320	246,370
2002	265,043	60,939	325,982
2003	301,725	59,880	361,605
2004	316,757	154,131	470,888
2005	332,586	162,936	495,522
2006	347,847	186,570	534,417
2007	336,880	201,733	538,613
2008	319,494	176,613	496,107
2009	316,464	125,252	441,716
Total	3,321,104	1,240,443	4,561,547

Source: Author's elaboration based on the Estadística de Variaciones Residenciales (EVR) 1998-2009, INE.

3.5 Enquesta Demogràfica 2007, ED07

The *Enquesta Demogràfica 2007* -Demographic Survey- or ED07 was conducted by the *Institut d'Estadística de Catalunya* -Statistical Institute of Catalonia-, Idescat, and has two main objectives. First, to update the information on the main structural demographic variables with respect to the population, households and families, and housing. Second, to analyze in depth the causes and consequences of the demographic changes taking place in the Catalan society, said causes of migration, fertility of generations or family formation among others. At territorial level, the aim of the survey is to obtain the results for the main demographic variables in the 41 counties, the four capitals of the provinces and those municipalities with more than 100,000 inhabitants. The most detailed results can only be obtained for Catalonia and to a lesser extent for the municipality of Barcelona and the 7 areas of the territorial plan (Idescat 2009).

The Demographic Survey was part of Catalonia's Statistical Plan for 2006–2009 and the annual statistical action programme for 2007 that implements it. Households were

randomly selected based on the Municipal Register data, reaching a total sample size of 10,500 households and 27,911 people.

The main fields included are: migration paths and causes of migration; fertility; family building; formation and dissolution of couples; emancipation of children; and, economic activity. With respect to migration, the survey considers both, internal and international migration as well as time elapsed since arrival. As for economic activity, it also considers the participation in unpaid housework.

As for the education related variables, the survey contains information about the maximum degree obtained, year of completion and undergone studies divided into 11 categories. As the survey also encompasses information with respect to the migration project, it is possible to estimate pre and post-migration academic trajectories. The survey also contains information on language proficiency. Table shows the territorial distribution of the sample by origin.

Table 3.5: **Demographic survey: territorial distribution of the sample by origin**

Province	Spaniards	Foreigners	Total
Barcelona	11,706	1649	13,355
Girona	3,344	668	4,012
Lleida	4,607	813	5,420
Tarragona	4,483	641	5,124
Total	24,140	3,771	27,911

Source: Author's elaboration based on Idescat.

With respect to the variables included in our research, we will consider those referred to origin, academic trajectories, household characteristics, migration and labor. As for the sample size used, we will include the full database in order to maximize the feasibility of our results. The sample used and the transformations performed will be detailed in chapter 6.

Part II

Chapter 4

Sociodemographic analysis of the enrolled population

In the most recent years of the migratory boom in Spain –with the arrival of more than five million migrants from the beginning of the twenty-first century-, the arrival of family migrants has had an impact in the population structure and particularly in the demand for education at local level. The swift growth of the immigrant population has moved Spain from being at the bottom places of the list of European countries regarding foreign-born residents to the top ones. Spain's migration inflows have been so significant that they have accounted for nearly 50 percent of the net absolute migration in the European Union (EU), to the extent that it has had the highest absolute net migration in the EU (with a peak of 920 thousand arrivals in 2007) and the second highest in the world after the USA. The aforementioned growth has been mainly motivated by the economic growth experienced over the last few years stimulated not only by the real estate bubble but by deep demographic changes that have taken place in the Spanish society. These have turned the non-native population into a new population segment seeking to achieve a higher social status within the Spanish population (Vidal, Gil and Domingo, 2009; Domingo and Gil 2007).

The aim of this chapter is to provide, first, under a general perspective, an analysis of the international migration inflows of the last decade and their impact on the Catalan population structure. Our analysis will be particularly focused on population under 20 years of age, the one who is directly related to the demand of education. This will provide a general scenario of the recent changes on the Catalan society and how the international inflows –especially those at compulsory schooling ages- should be later reflected on the enrolled population. Our analysis will explore two main datasources: the *Padrón Continuo* provided by the Statistical Institute of Catalonia (Idescat) and the Residential Variation

Statistics from the National Statistics Institute (INE). The second part of the chapter will explore the evolution and the sociodemographic characteristics of the enrolled population for the period between the academic courses 2000/01-2007/08 based on the Non-university enrollment database of the Catalan Department of Education.

With respect to the variables included, given the characteristics of the database used and in order to maintain the maximum comparability with previous findings, we will use *nationality* instead of *country of birth*. We will consider non nationals all of those persons whom nationality is not Spanish regardless their place of birth. In order to apply an homogeneous criterion in continental aggregation of foreign nationalities, we will use the following definitions: European Union 15 (EU-15)¹, Other European, American, African and Asia and Oceania. We have considered the inclusion of the EU-15 instead of subsequent EU definitions given the nationalities individually listed in the databases provided.

4.1 The role of young foreigners in migratory inflows

The impact of the international migration inflows in the Catalan society during the last years has had an effect on its social composition and the population's territorial distribution. The migratory inflows from abroad between 1998 and 2009 represent 1,256,074 new registrations in the Municipal Register of inhabitants. Most of them were conducted by foreigners -95.4 percent of the total movements-as shown on figure 4.1. Twenty-two percent (276,952 movements) of the new registrations originated abroad were from people under 20 years of age. As one might expect, the population increase has influenced the labor force composition and the demand of goods and services at micro level. Also, more population means more residential changes within the territory. According to the Residential Variations Statistics (EVR) during the period between 1998 and 2009, Catalonia experienced 4,762,255 changes of municipality of residence. The increased mobility represents on average half million annual residential changes since 2004 and close to 10 percent of Spain's internal migration.

Nevertheless, we must stress that the outstanding increase in the movements that can be observed between 2003 and 2004 is mostly determined by a methodological change in the Residential Variation Statistics definition. As explained in Chapter 2, since that date the Residential Variations Statistics incorporates those "omitted new registrations"

¹The EU15 comprised the following 15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

that were not included before. On the other hand, we must also remember that the Residential Variation Statistics (EVR) registers movements and not migrants. Thus mobility can be overestimated -especially at local level-, not necessarily reflecting real residential movements.

In terms of composition, the latest inflows have been led by new sending countries overpassing those from pioneer regions as Northern-Africa and particularly Morocco. Figure 4.1 shows the inflows from abroad by continental origin (figure 4.1.a) as well as the proportion of migrants under 20 years of age from each of them (figure 4.1.b). Figure 4.1.a shows how Americans -particularly from Latin-America- have dominated the arrivals from abroad since 2001 with 455,222 movements that represent 36.7 percent of the inflows. They are followed by Africans (261,544 arrivals) and Europeans (189,606 arrivals), especially from the later accession EU countries.

Since 2007 some of the registered inflows show a clear stagnation related to migration policies and the subsequent economic crisis. With respect to policies, the Spanish government released a restrictive policy targeted to Bolivian nationals, one of the most numerous group. The announcement of the visa imposition during 2006 significantly increased the inflows from this country by accelerating the migration project to Spain. Consequently, once the instrument was implemented, Bolivian inflows experienced a dramatic decrease. The opposite was experienced by Romanians and Bulgarians during that same year. Even though they are still subject to labour market restrictions to be fully lifted by January 1 2014, the 2007 European Union Enlargement process granted them with a less restrictive migration regulation. Therefore, some Romanian and Bulgarian nationals who used to live in Catalonia moved to other European Union countries or even returned to their home country. Due to the financial crisis aggravated by the collapse of the Spanish housing market, the economy fell into an economic downturn during the second half of 2008. As we might expect, the adverse economic conditions could directly affect the migrant's (and potential migrant's) decisions affecting their behavior for the subsequent years. Nevertheless, we must also consider the effect of the migration project on effective arrivals. Besides the influence of economic cycles that determine the arrival of labor migrants, family migration projects would determine the subsequent arrival of underage children from abroad.

In that sense, the proportion of arrivals of population under 20 years of age represent 22 percent of the total inflows from abroad (272,384 movements). The composition by continental origin of this group reproduce those of the aggregate. America, with 105.900 arrivals (38.9 percent of the total) represents the main origin of the inflows followed

by Africa (23 percent) and the non communitarian Europe (14.6 percent of the total). While comparing figure 4.1.a and b, we can see two clear effects at first sight. First, the proportion of population under 20 years of age with respect to the total inflows from abroad is not homogeneous among the continental groups considered. The relevance of the younger Spanish inflows clearly estates the differential migration projects and pathways according to origin with close to one third of the arrivals of natives. Migration of Spaniards from abroad does not represent by itself one of the most numerous inflows, but their structure by age is one of the younger. It could be related to the adoption of children from abroad whom acquire the Spanish citizenship at the country of origin and the arrival of children with at least one Spanish parent. The former does not necessarily implies that Spanish children arrive at the same time as their parents do, but in some cases they could also be subject to family reunion procedures. Second, it is possible to see while comparing both trends, the apparent delayed arrival of the youngsters. Considering that most of the non-EU nationals under 20 years of age arrive to the country via family reunion procedures, the gap between parental migration and the completion of the family migration project depends on legal constraints as well as the different migratory strategies. According to the prevalent legislation (see Chapter 1), immigrants should wait at least two years -effectively- since their first residence and work permit has been issued in order to apply as family reunion sponsor. Even though law establishes that -except for descendants with a disability- underage children are subject to family reunion procedures, reunified descendants of 18+ may be found, though in small numbers. In some cases the time interval that elapses between the moment a request is sent and the final arrival of the members to be reunited is so long, that descendants under 18 may arrive at Catalonia at an older age (Domingo, Lopez-Falcon and Bayona, 2010).

With respect to structure by age, international migration inflows to Catalonia during the period between 1998 and 2009 were clearly concentrated at working-ages with an average age of 29 years (see figure 4.2). More than one million of the movements from abroad (83.2 percent of the total) were conducted by people between 15 and 64 years old, consistent with the economically incentivized migration. The distribution among continental origins shows a maximum at the 25-29 age group in which Americans represent one third of the inflows. However, we must stress the relevance of tied movers and the 15-19 age group in the migration project of foreign citizens. At this age group, inflows from abroad experience an increase probably influenced by the family reunion constraints mentioned before. Additionally, composition by age is determined by the differential settlement process' from pioneer migrant origins as we will see later.

The predominance of the 0-4 age group in the distribution by age of the movements

performed by Spaniards (15.5 percent of their arrivals), could be a direct reflection of international adoptions. According to the *Departament d'Acció Social i Ciutadania*² -Ministry of Social Action and Citizenship of Catalonia- there were 2,736 infants adopted abroad between 2006 and 2008 (Departament d'Acció Social i Ciutadania 2009). Considering the movements originated abroad during that same period, adoptions abroad represent 89.8 percent of the inflows under 5 years. On the other hand, the arrival of Spanish citizens from abroad could also be related to return migration –in some cases of mixed couples- or from third-country nationals with dual citizenship.

Table 4.1: **International migration in-flows from abroad by sex. Catalonia, 1998-2009. Selected nationalities.**

Country of citizenship	Male	Female	Total	Sex ratio
Morocco	112,759	71,403	184,162	158
Romania	50,711	45,364	96,075	112
Bolivia	30,148	39,857	70,005	76
Ecuador	32,009	33,821	65,830	95
Colombia	23,403	26,737	50,140	88
China	26,236	22,705	48,941	116
Pakistan	40,497	5,748	46,245	705
Argentina	20,863	20,550	41,413	102
Peru	18,460	20,644	39,104	89
Italy	17,052	21,044	38,096	81
Brazil	21,816	16,140	37,956	135
Rest of citizenships	287,291	235,185	522,476	122
Total in-flows from abroad	681,245	559,198	1,240,443	122

Source: Author's elaboration based on the Residential Variation Statistics 1998-2009, INE.

The diversification of the origin regions could a priori suggest differential migratory strategies for the period 1998-2009. The diverse composition by sex of the main sending countries' inflows (shown on table 4.1) also indicates a differential gender-based migration project. In that sense, Pakistanis represent the most predominantly male nationality with only 12.4 percent of the movements carried by women and a sex ratio of 705. Apparently, the migratory project of Pakistani nationals prioritizes men as pioneers completing the familiar project through family reunion processes where most of the reunited members are spouses and descendants (Domingo, López-Falcón and Bayona 2010). Furthermore,

²Now *Departament de Benestar Social i Família* -Ministry of Social Welfare and Family- of the Catalan Government.

family reunion could also influence the proportion of Pakistani inflows under 20 years of age. They represent 36 percent (6,789 movements) of the total arrivals; the higher of the nationalities included on table 4.1. Moroccans represent the second predominantly male nationality with 61.2 percent of the movements performed by men. On the other hand, Latin-American nationals have traditionally built migratory chains with a strong female representation. More than 50 percent of the movements performed by Bolivian, Peruvian and Colombian nationals are carried by women, showing sex ratio values below 100. In that sense, the demographic profiles indicate that the original migratory project rounds off with the family reunion phenomenon and the extreme differential distribution could be only temporary. According to Domingo, López-Falcón and Bayona (2010), this is true not only due to the differences in the patterns of reunited men and women but in the preferences shown when requesting family reunion as well. The pioneer role that men have and their attachment to well defined job niches -as is the case for Moroccans- may cut short job opportunities for newly arrived women. This is so because the jobs their husbands hold (which also outline their social and information networks) bear no relationship with the domestic jobs their wives could take. This situation reinforces even further their sole role as housewives, creating a strict division of labor between sexes.

Complementarily, figures 4.3 and 4.4 illustrate the evolution of the inflows to Catalonia from abroad for the main nationalities. The left column shows the movements by sex and age group whereas the right shows the evolution by sex and year of register. There are three effects that we would like to emphasize from these figures. First, the incidence of visa requests on Latin-American inflows that directly affect Bolivian (2007), Ecuadorian (2003) and Colombian (2002) nationals (see Chapter 1) that could be easily identified graphically. Prior to the entry into force of the Schengen visa requirement for those nationals we can see a significant increase in the movements probably anticipating their migratory project, unleashing the so called "call effect" and temporarily affecting the age/sex structure of the inflows (Vono, Domingo and Bedoya 2008). At that point the role of the younger age groups lost their importance in the distribution by ages.

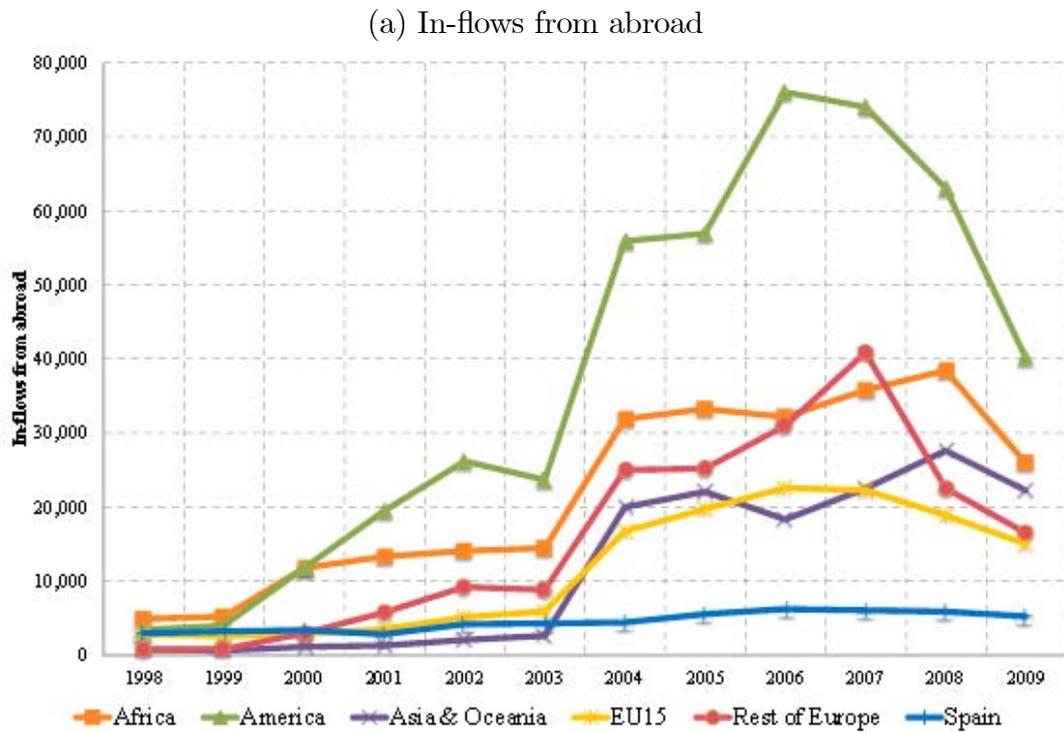
The counterpart for this effect should be the decrease of Romanian nationals after their entry into the European Union in 2007.

Second, we must stress the importance of gender according to nationality and age in the different migratory projects. As we can see on the graphs, there is no homogeneous behavior neither by nationality nor in time. Temporal differential behaviors indicate whether the pioneer role in the migration project is taken by men or women. As we have mentioned before, an example of the men-centered migratory strategies are Pakistani nationals. As a counterpart, Bolivians represent the only nationality that keeps the trend

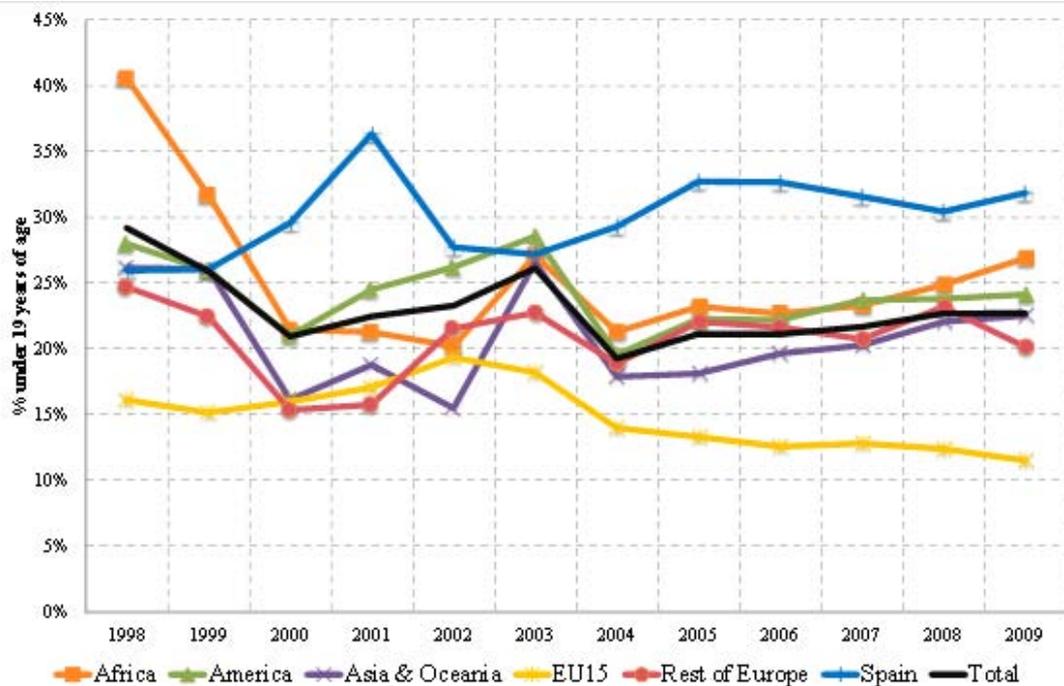
during the entire analyzed period. The rest of the Latin-American nationalities have equalized the male/female inflows-.

Third, with respect to family-centered strategies, considering that children and youth under 20 years of age are mostly tied movers, we can expect that their arrival to the country experiences a delay with respect to their parents'. The effect of family reunion procedures will then delay their arrival to the country. There is a small variance across years for this age group showing a stable behavior in relative numbers with respect to the total inflows (see Table 4.2). In other words, the behavior observed by the inflows under 20 years of age could -in some cases- be classified as delayed or even counter cyclic with respect to the aggregate. This is clearly observed during the last two years of the analyzed period.

Figure 4.1: Evolution of the international migration in-flows and proportion of the 0-19 age group by nationality and year. Catalonia, 1998-2009.

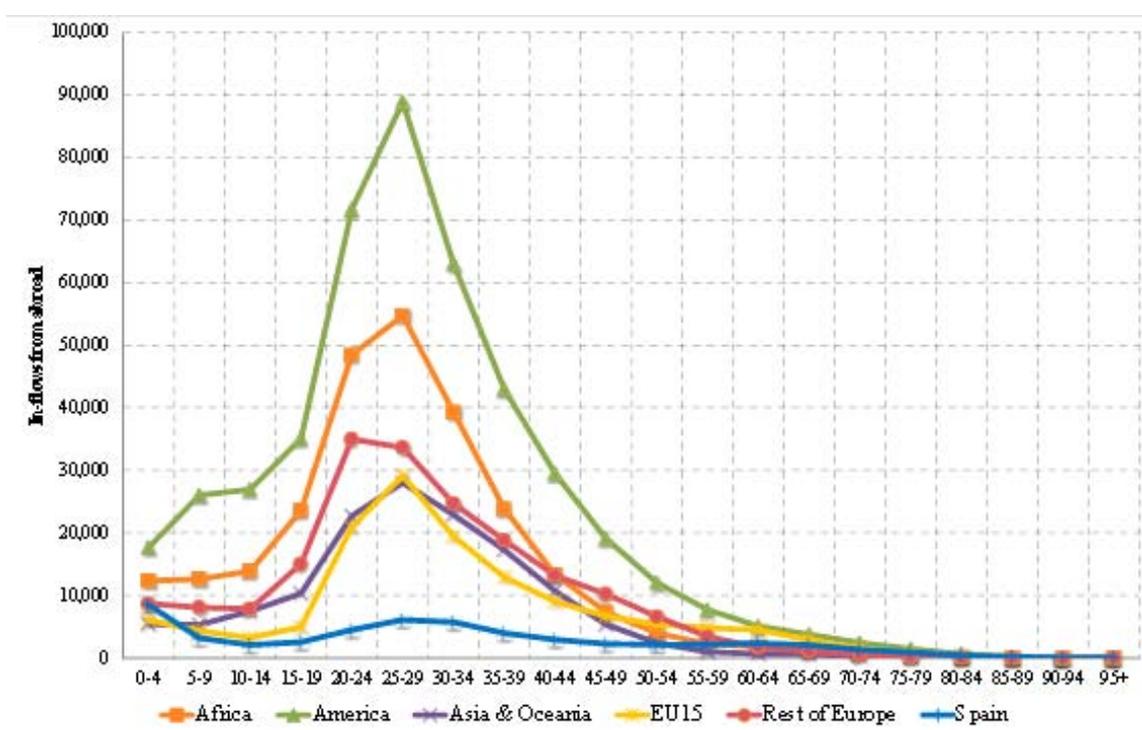


(b) Proportion under 19 years of age



Source: Author's elaboration based on the Residential Variation Statistics 1998-2009, INE.

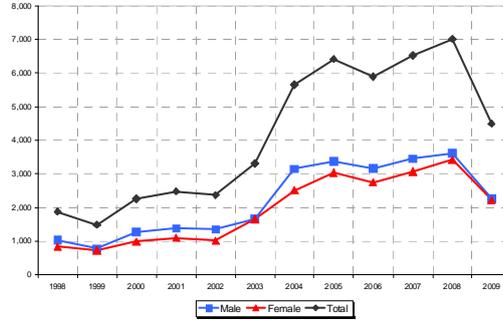
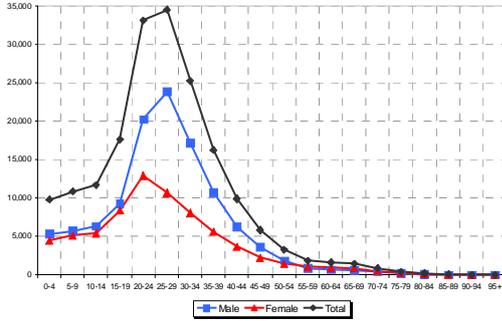
Figure 4.2: Immigration from abroad by age and citizenship in Catalonia, 1998-2009



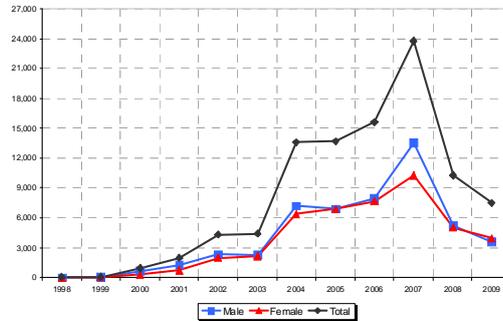
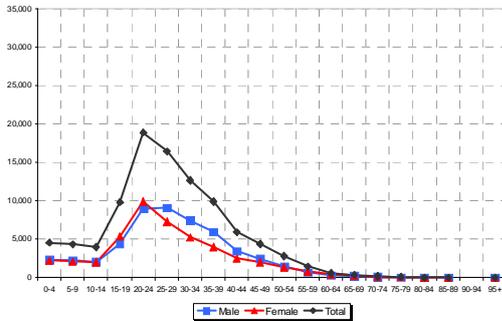
Source: Author's elaboration based on the Residential Variation Statistics 1998-2009, INE.

Figure 4.3: Immigration from abroad by age in Catalonia, 1998-2009. Selected nationalities.

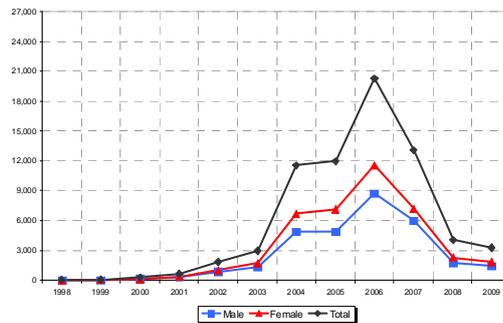
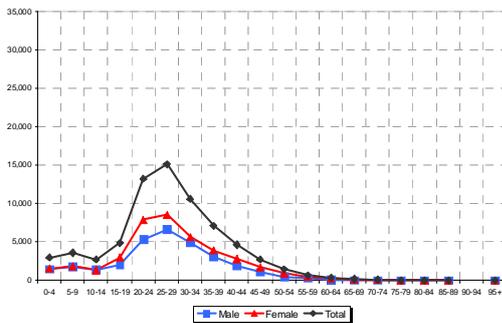
Morocco



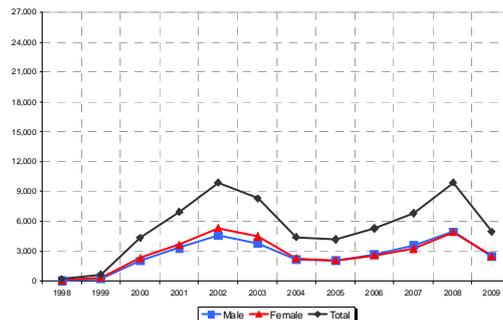
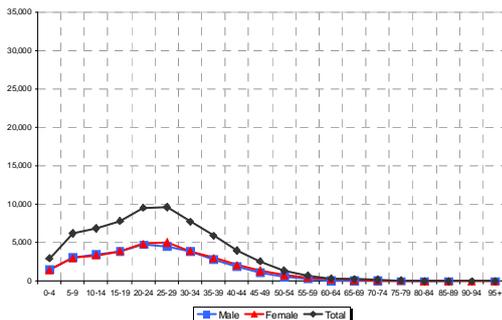
Romania



Bolivia



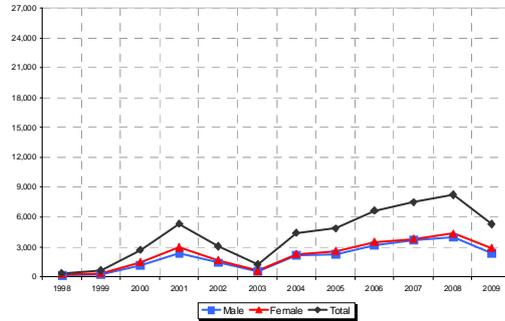
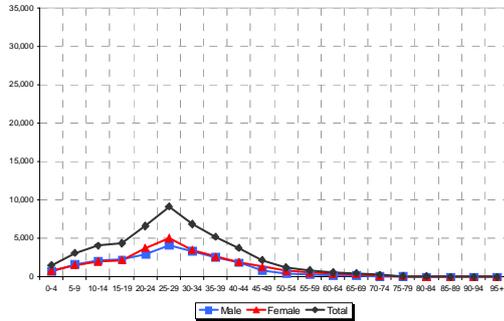
Ecuador



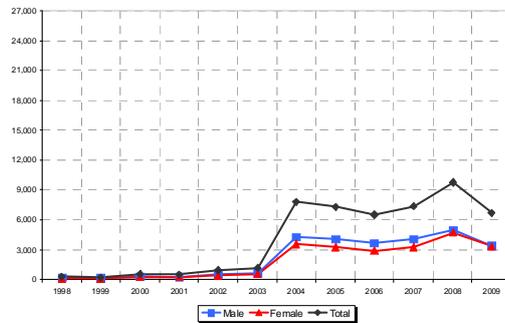
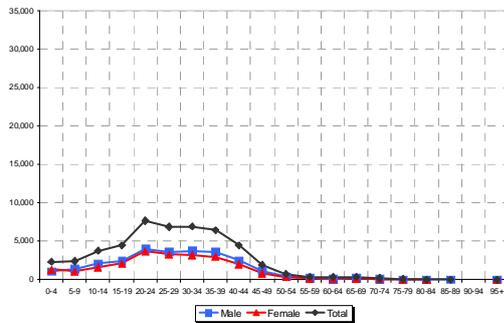
Source: Author's elaboration based on the Residential Variation Statistics 1998-2009, INE.

Figure 4.4: Immigration from abroad by age in Catalonia, 1998-2009. Selected nationalities.

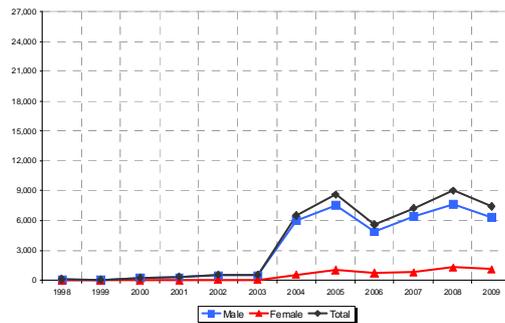
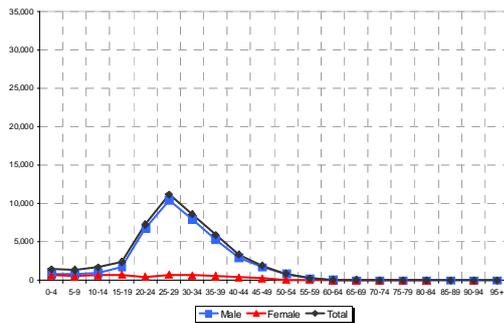
Colombia



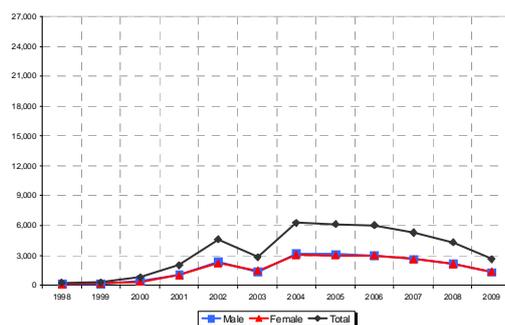
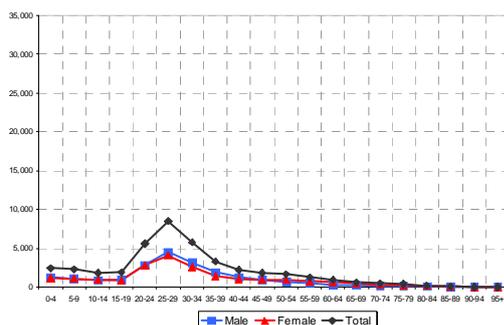
China



Pakistan



Argentina



Source: Author's elaboration based on the Residential Variation Statistics 1998-2009, INE.

Table 4.2: Immigration from abroad by nationality under 20 years of age. Catalonia, 1998-2009

(a) Percentage of the inflows under 20 years of age

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Morocco	43.4%	34.2%	24.5%	23.8%	22.5%	30.8%	25.5%	27.2%	26.3%	26.7%	27.6%	27.2%	26.4%
Ecuador	29.2%	24.2%	15.1%	24.4%	33.1%	35.5%	21.6%	38.3%	41.1%	55.1%	45.0%	40.4%	35.9%
Romania	19.4%	10.5%	9.7%	15.4%	23.6%	23.6%	20.0%	24.8%	26.3%	23.0%	27.0%	22.3%	23.5%
Bolivia	31.7%	34.4%	21.8%	24.3%	20.9%	21.6%	17.2%	21.7%	21.4%	19.2%	16.6%	21.4%	20.1%
Colombia	25.8%	28.0%	24.0%	25.2%	19.1%	27.9%	28.4%	28.1%	24.4%	27.8%	24.8%	28.2%	25.8%
China	31.1%	28.2%	16.4%	23.8%	17.6%	32.9%	26.1%	20.8%	23.5%	28.1%	30.2%	28.3%	26.1%
Peru	25.1%	18.3%	17.2%	17.6%	17.4%	23.6%	19.7%	25.1%	23.1%	24.4%	21.2%	24.7%	22.0%
Argentina	23.6%	24.5%	24.4%	25.7%	23.5%	26.2%	19.2%	18.9%	21.1%	18.6%	16.9%	15.0%	20.1%
Dominican Republic	40.7%	35.7%	40.2%	30.5%	27.9%	38.5%	29.0%	31.0%	33.5%	33.3%	32.4%	38.4%	32.5%
Brazil	26.5%	26.3%	24.9%	21.1%	24.1%	22.1%	15.4%	15.9%	17.7%	17.8%	18.7%	19.1%	17.9%
Pakistan	21.9%	22.5%	4.3%	9.9%	9.6%	19.7%	10.3%	14.5%	15.8%	12.7%	17.3%	16.9%	14.6%
Italy	15.6%	13.4%	16.8%	17.9%	20.3%	18.3%	13.7%	12.2%	10.7%	11.4%	10.6%	8.7%	11.9%
Rest of citizenships	22.3%	22.4%	20.3%	20.7%	20.8%	21.7%	16.7%	18.1%	17.6%	17.7%	18.4%	20.4%	18.4%
Total	29.2%	25.9%	21.0%	22.5%	23.3%	26.2%	19.3%	21.2%	21.2%	21.7%	22.7%	22.7%	21.7%

(b) In-flows under 20 years of age by year of arrival

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Morocco	1,876	1,497	2,260	2,478	2,364	3,309	5,655	6,412	5,897	6,528	7,022	4,496	49,794
Ecuador	61	160	660	1,690	3,264	2,948	957	1,596	2,177	3,749	4,438	2,009	23,709
Romania	7	9	91	298	1,013	1,048	2,712	3,396	4,108	5,463	2,768	1,659	22,572
Bolivia	13	22	64	166	390	643	1,977	2,596	4,324	2,514	672	696	14,077
Colombia	98	171	646	1,341	582	335	1,263	1,356	1,619	2,082	2,044	1,485	13,022
China	99	59	88	113	162	378	2,026	1,520	1,525	2,068	2,946	1,886	12,870
Peru	186	116	142	155	206	360	1,150	1,204	1,234	1,466	1,536	1,009	8,764
Argentina	63	74	194	524	1,076	742	1,201	1,155	1,263	983	726	392	8,393
Dominican Republic	234	148	227	193	202	350	802	945	1,155	1,364	1,338	1,080	8,038
Brazil	54	61	101	95	147	196	585	885	1,311	1,503	1,232	669	6,839
Pakistan	23	20	10	35	50	108	673	1,244	887	921	1,558	1,260	6,789
Italy	61	51	75	132	290	255	625	674	676	714	620	401	4,574
Rest of citizenships	1,793	1,892	2,561	3,206	4,456	4,998	10,124	11,506	13,299	14,444	13,226	11,438	92,943
Total	4,568	4,280	7,119	10,426	14,202	15,670	29,750	34,489	39,475	43,799	40,126	28,480	272,384

(c) Sex ratio of the inflows under 20 years of age

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Morocco	1.24	1.08	1.29	1.28	1.31	1.01	1.26	1.11	1.15	1.12	1.06	1.03	1.14
Ecuador	1.03	0.86	0.88	0.92	0.91	0.97	0.93	1.08	1.09	1.10	1.12	1.12	1.03
Romania	0.40	0.29	1.28	1.27	0.97	0.88	0.86	0.85	0.93	1.01	0.98	0.92	0.94
Spain	1.09	0.95	1.08	0.94	0.91	0.92	0.77	0.81	0.84	0.89	1.05	1.15	0.93
China	7.86	3.00	1.58	0.63	0.36	0.56	0.98	0.54	0.35	0.85	4.48	2.92	0.91
Colombia	1.09	0.97	1.15	0.98	0.95	1.26	1.20	1.00	1.09	1.04	1.02	1.01	1.05
Bolivia	0.14	0.42	0.86	1.36	2.09	1.62	0.93	1.55	2.78	1.27	0.23	0.40	1.08
Peru	0.77	1.19	0.92	0.78	0.78	1.05	1.07	1.00	1.04	1.01	0.95	0.94	0.99
Pakistan	0.57	0.38	0.08	0.11	0.05	0.19	0.73	1.34	0.89	1.16	2.64	4.16	1.03
Argentina	1.30	1.00	2.12	6.51	8.57	3.44	1.87	1.24	0.99	0.64	0.59	0.55	1.22
Brazil	3.86	5.40	17.00	5.56	4.00	2.32	1.17	0.88	1.90	2.16	1.12	0.70	1.35
Italy	0.85	1.13	1.08	0.74	1.12	1.09	1.03	1.25	1.22	1.01	1.19	1.07	1.10
Rest of citizenships	0.86	0.99	1.00	1.03	1.05	1.07	1.10	1.20	1.12	1.13	1.22	1.30	1.15
Total	1.06	1.01	1.11	1.06	1.02	1.00	1.06	1.06	1.05	1.08	1.13	1.16	1.08

Source: Author's elaboration based on the Residential Variation Statistics 1998-2009, INE.

4.2 Effect of international migration inflows on the population structure

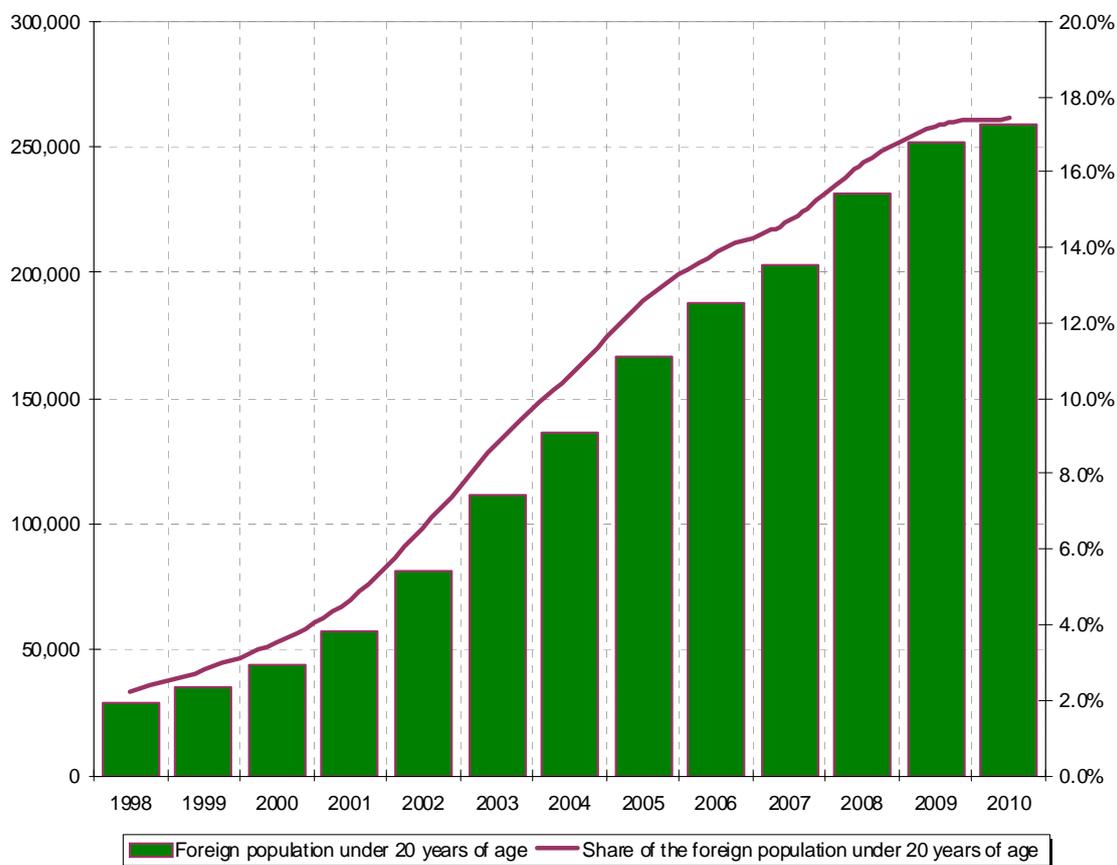
The international migration inflows described have had an impact on the Catalan population structure. First by its composition by sex and age and, later on, as a consequence of the differential demographic behaviors of the immigrant population. According to the *Padrón Continuo*, at January 1 2010, sixteen percent of the Catalan population -1,198,538 persons- held a nationality other than Spanish. Of them, 21.7 percent -259,490 persons- is under 20 years of age. In terms of population stocks, the proportion of children of foreign origin between 0 and 19 years old has continuously grown during the 1998-2010 period. In 1998 they represented 28,515 persons reaching 259,490 persons in 2010 multiplying by nine their presence in this Autonomous Community. As a result, the share of foreign population under 20 years old grew from 2.2 percent in 1998 to 17.4 percent in 2010 (see figure 4.5). That is, at that date, approximately one in five youngsters under 20 years of age were of foreign origin.

As we have mentioned before, the structure by sex and age of the main continental origins does not follow a homogeneous distribution among them. Figure 4.6 shows the population pyramids by origin according to the *Padrón Continuo* at January 1 2010. As we can see, the first significant difference among origins relays on the population pyramid's base corresponding to the 0-4 age group. Consequence of the progressive population settlement, population under 5 years of age -especially those of Africans (figure 4.6.a) and Asians (figure 4.6.c)- has increased its significance over time. Higher birth rates and successful family reunion process have directly influenced the evolution of this age group over time. Nevertheless, the importance of this age group for the rest of the origins listed can also be influenced by legislation and citizenship acquisition policies. This consideration directly affects Spaniards and Latin-Americans by conferring the Spanish citizenship to children whose nationality is not automatically recognized once they were born in a different country (see Section 2.3.2). Therefore, children of immigrant parents of specific nationalities are in some cases registered as Spanish nationals. As we have seen before, some countries have modified their Constitution to allow the recognition of the nationality of their citizens born abroad. However, the amendment does not represent an automatic mechanism -as the *ius sanguini principle*- for nationality recognition. Such is the case of Colombia³ (2002), Ecuador⁴ (2008) or Bolivia (1994) that still allow the application of the Spanish nationality acquisition *ex lege*. For Bolivian nationals, it was

³Reform of article 96 of the Colombian Constitution (Acto Legislativo No.1 del 25 de enero del 2002).

⁴Ecuadorian Constitutional reform published on the Official Diary on October 20, 2008.

Figure 4.5: **Population of foreign origin under 20 years of age and proportion over their age group. Catalonia 1998-2010.**



Source: Author's elaboration based on the Population at January 1, 1998-2010. Continuous Register, INE.

not until 2009⁵ when the Spanish authorities determined that the Spanish *nationality by presumption* will not longer be valid. For Ecuadorian nationals it will only apply when both parents were not born in Ecuador⁶ while Colombians could still benefit from this measure. Consequently the number of children of immigrant parents could be underestimated in both the *Padrón Continuo* -at least temporarily- and the *Estadística de l'Educació*. In order to approximate the effect on the aggregate population the number of births to foreign mothers of the three above mentioned nationalities during the period 1998-2008 summed 23,497 children in Catalonia. Despite nationality derives also from

⁵Circular de 21 de mayo de 2009, de la Dirección General de los Registros y del Notariado, complementaria de la dictada el 16 de diciembre de 2008 sobre la aplicación del artículo 17 N°1, c) del Código Civil respecto de los hijos de extranjeros nacidos en España.

⁶Circular de 16 de diciembre de 2008, de la Dirección General de los Registros y del Notariado, sobre la aplicación del artículo 17 N°1, c) del Código Civil respecto de los hijos de extranjeros nacidos en España.

their fathers, they represented 1.6 percent of the total of births during the same period.

As for gender-based migration strategies that could be later reflected on the population stocks, Africans (figure 4.6.a) and Asians (figure 4.6.c) show a clear asymmetric distribution. It is the result of the extended migratory strategies with a strong male component in which men are pioneers in the migratory project. In both cases, men represent more than 60 percent of the population: 65.7 percent for Africans and 62 percent for Asians. On the other hand, Americans (figure 4.6.b) should represent their female counterpart followed by Spaniards. American women -mostly Latin-American- represent 55 percent of the distribution whereas Spanish women are 51.2 percent of the total. Specifically referred to population under 20 years of age, we must stress that there are no significant differences related to number of residents between sexes.

The concentration of young adults is also evident as a general component for all the continental origins as a result of the recent and highly accelerated economically incentivized inflows from the last decade. Foreign population is concentrated at young working ages between 15 and 44. On the other hand, there is a clear underrepresentation of the non-European residents over 50 years of age. The lesser trend to migrate at older ages, the novelty of the inflows -later complicated by the new legislation on family reunion- and the incidence of the naturalization processes could explain the structure of the pyramids shown.

Unlike the inflows, differences between age groups -especially while comparing the 15-19 age group- are smaller. They represent 30.1 percent of the total African residents - 94,797 persons-, followed by Asians and Americans with 19.9 percent (26,496 persons) and 20 percent (78,805 persons) respectively. The EU-15 residents under 20 years represent 13.5 percent (23,444 persons) whereas the rest of the European nationals of the same ages share 15.8 percent of their population (48,908 persons). With regard to the composition by continental origin, two thirds of the population of foreign origin under 20 years of age is American (28.9 percent) or African (34.8 percent). Nationals from non EU-15 countries represent 17.9 percent of the foreign youngsters under 20, whereas 9.8 percent are Asians and 8.9 are EU-15 nationals .

However, the structure by nationality of the foreign population would not necessarily follow the same pattern as the continental aggregates. That would be the case of Africans, where nationalities other than Moroccans are underrepresented. Moroccans are the first nationality not only at aggregated level but especially at younger ages (figures 4.7 and 4.8), followed by Ecuadorians and Romanians. Linked to circular and temporary migration to Spain, the first major Moroccan migration to Spain in search of work occurred in the 1980s

(González Enríquez, 2011). It was mainly aimed in the agricultural area of the Maresme - located along the Catalan Mediterranean coast, extending north from Barcelona- at a time when Moroccan nationals were not subjected to visa requirements. Later on, restrictive migration policies broke the circular character and the composition by nationality of the inflows. Quota policies and bilateral agreements increased the importance of Romanians, Bulgarians, Ecuadorians and Colombians in the temporary workers contingent despite their relative weight in the total inflows.

As we might expect, nationalities with the oldest presence in Catalonia –like Moroccans- or with family migratory strategies –as Ecuadorians- would have a most significant weight among the younger population. Therefore, the foreign population by age and nationality would not be homogeneously distributed by age group. Moroccans represent the most numerous origin in both, the aggregated and the 0-19 age group distributions with 19.5 and 29.4 percent of the foreigners respectively. Simultaneously, those nationalities with fewer effectives and among EU nationals are the ones that are close to 15 percent of the total.

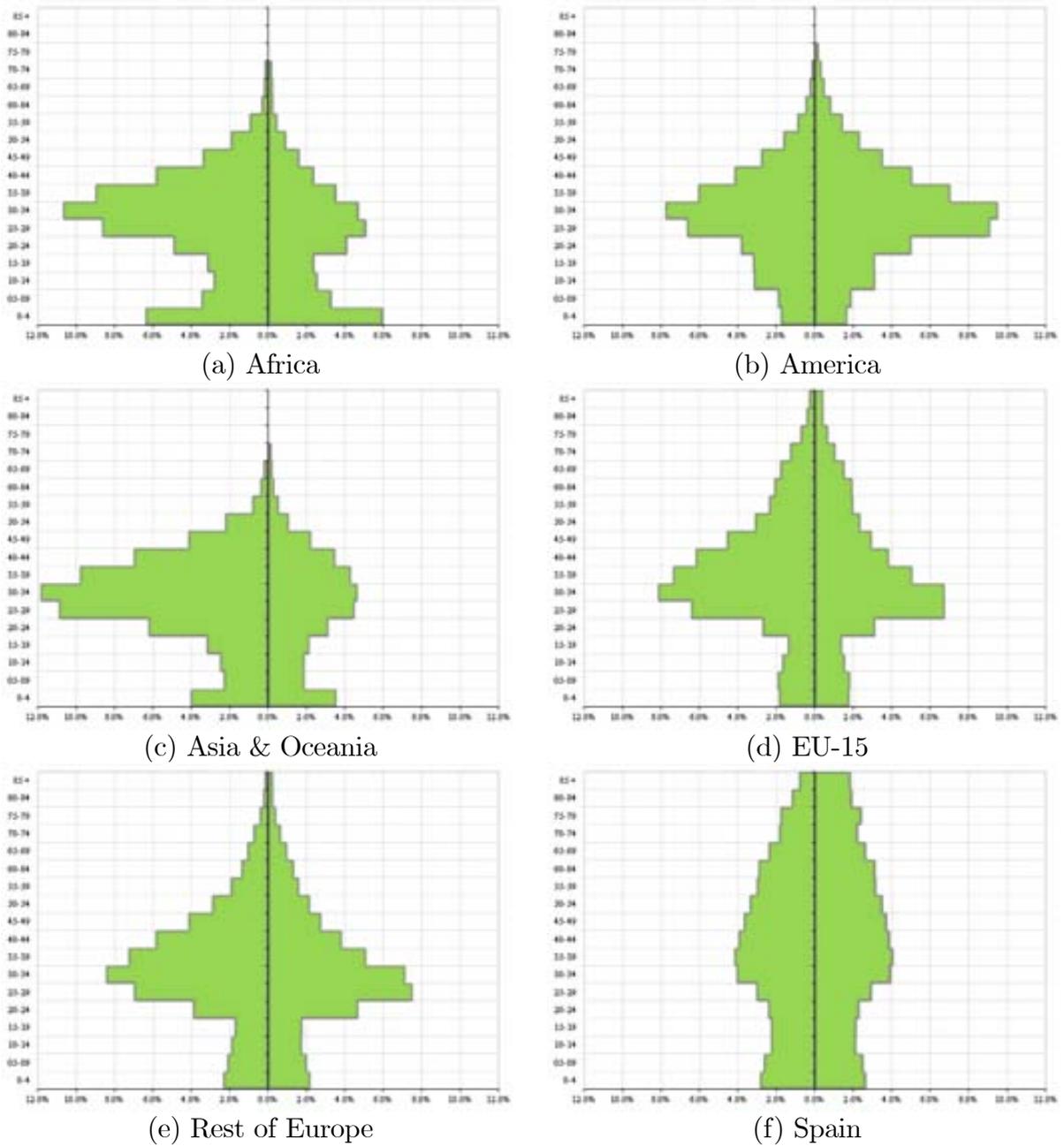
We can observe the evolution of the population pyramids of the main nationalities between 1998 and 2010 on Figures 4.7 and 4.8. The effect of the inflows and how population stocks have changed over time for each of the analyzed nationalities is clear. The predominant female Colombian, Peruvian and Ecuadorian populations from 1998 have already reached a point where they have a more homogeneous distribution by sex. In that sense, the gender-based migration projects among nationalities is reflected on the 1998 population pyramid indicating who had the pioneer role. The new distribution of 2010 could be an effect linked to the completion of the familiar migratory project, but also to the populations' settlement in Catalonia, also reflected in the younger age groups. Nevertheless, the structure of the foreign population is not the only one affected: The Spanish population has experienced a rejuvenation effect. It could be related to the increased birth rate and also to the naturalization of foreign citizens, as well as the recognition of the Spanish citizenship to children of foreign parents who were born in the country, just as we mentioned before.

The foreign population is concentrated at young working ages (between 15 to 44 years) and regarding the younger age groups, we can see how the settlement effect could clearly be observed at younger ages for Chinese, Pakistanis or Moroccans. Those children under 5 years old at the bottom of the pyramid will be educated in the country and will settle the so called *second generation*. In that sense and in term of policies, there is no need to "integrate" those children in the society once they have been here during their whole life. This does not mean that Latin-American families are not settled in the country, but

the almost negative shape pyramid could be the result of the naturalization of some of their nationals thus resulting in a double effect. It should indicate population decrease of Colombians, Bolivians or Ecuadorians compared to 1998, but it could also account for an increase on the Spanish nationals, explaining the more rectangular base shape.

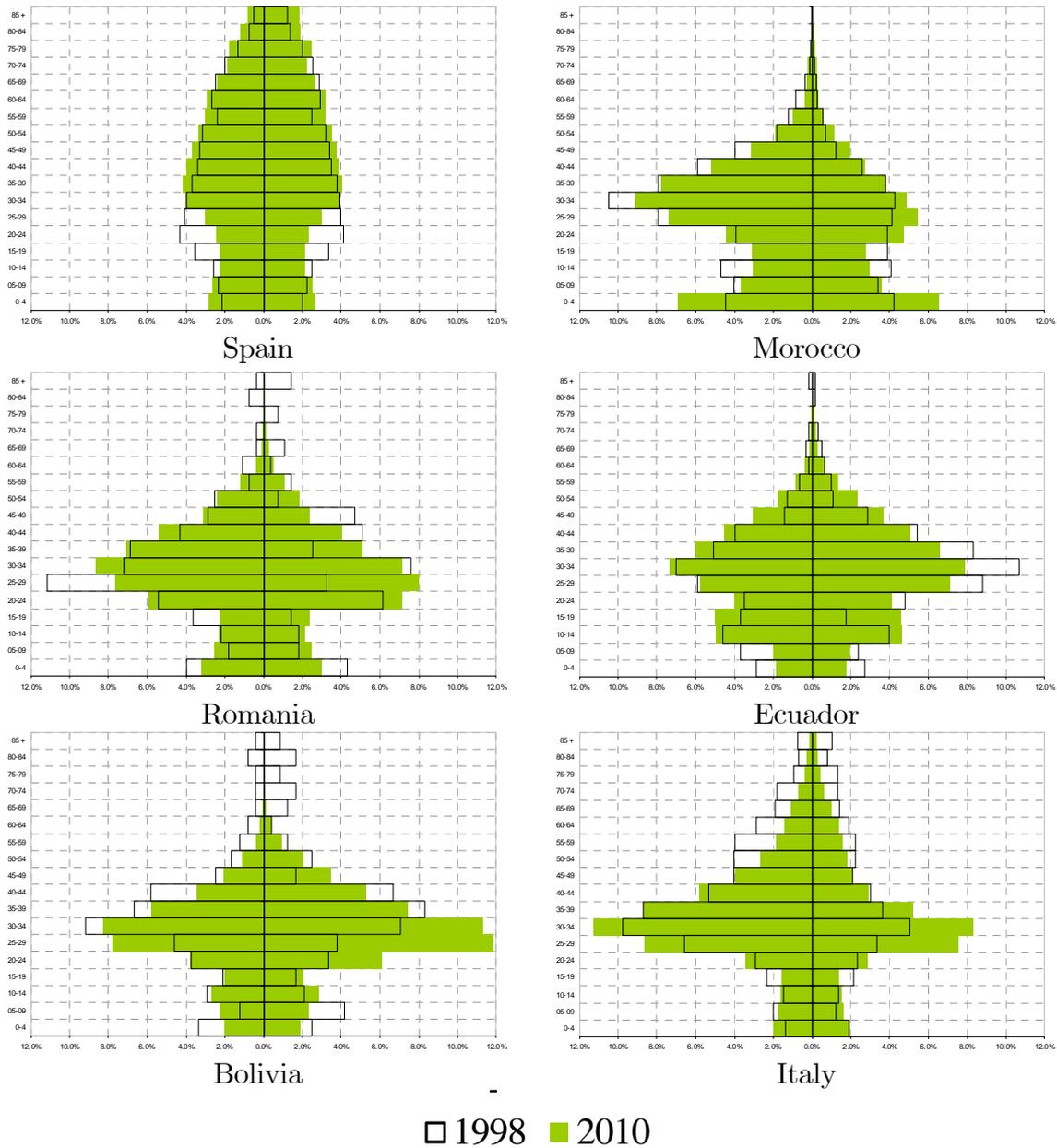
The distribution by sex is mostly balanced among the nationalities shown despite the predominantly male component of the aggregate. Similar to the composition of the inflows, the male Pakistani population represent 85.1 percent (29,986 persons) of their residents. Nevertheless, the 5,610 Pakistani residents under 20 years of age are distributed in 57.6 percent male and 42.4 percent female nationals. Considering that the inflows under 20 years of age of this nationality were also predominantly male, we could assume that the differential distribution on the population stocks would be related to births more than immigration itself.

Figure 4.6: Population pyramids by origin. Catalonia, 2010.



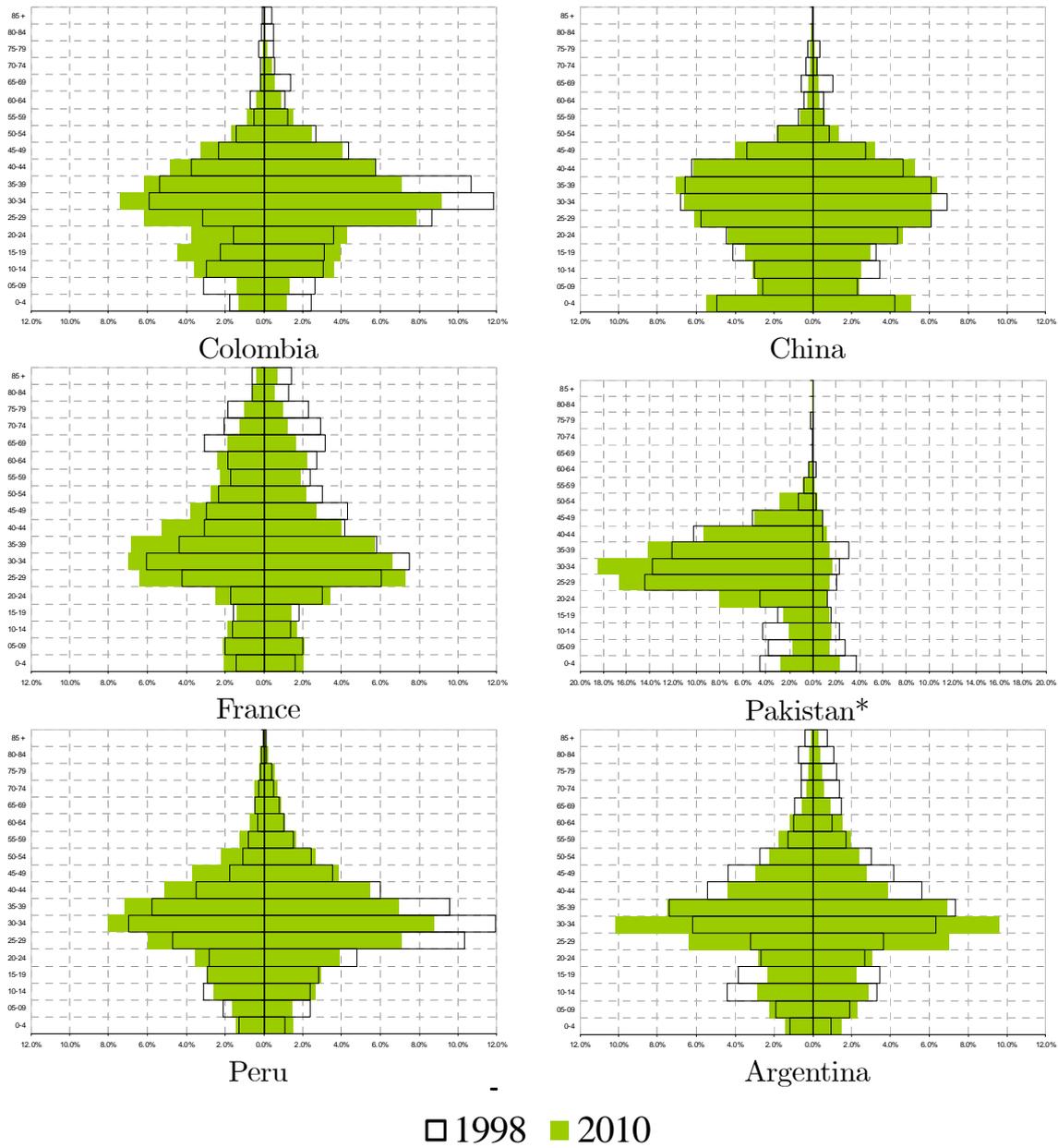
Source: Author's elaboration based on the Continuous Register at January 1, 2010, INE.

Figure 4.7: Population pyramids of the main nationalities in Catalonia*, 2010.



Source: Author's elaboration based on the Continuous Register at January 1, 2010, INE.
 * Note: Pakistan's population pyramid uses a different scale than the rest of nationalities illustrated.

Figure 4.8: Population pyramids of the main nationalities in Catalonia, 2010.



Source: Author's elaboration based on the Continuous Register at January 1, 2010, INE.
 * Note: Pakistan's population pyramid uses a different scale than the rest of nationalities illustrated.

4.2.1 The territorial distribution of the foreign population in Catalonia

The spatial distribution of the underage foreign population is directly correlated to those of the aggregate. Even though there would be some differences depending on which is the main nationality in the territory, tied movers' location will rely in that of their parents.

Based on the *Padrón Continuo* data at January 1 2010, figure 4.8 shows the municipal distribution of the registered foreign population between 0 and 15 years of age -208,575 persons- in Catalonia and their weight over the total resident population of the same age group. By analyzing the distribution shown on map 4.8.a, we can clearly see how the population is concentrated in Barcelona, the Mediterranean coast and the main cities of the Catalan counties. As we might expect, they represent economic attraction nodes not only to foreigners but to natives. The economic development of the area during the first decade of the 21st century generated new incentives to migrate to regions which experienced a structural change. The tertiarization of the Catalan economy brought the diversification of the economic activities in areas which were previously devoted to the primary sector as part of the Pyrenees. Consequently, the labor force experienced a transformation on its composition by origin and education profile. The diversification of the Catalan industry also targeted the economy of knowledge -especially in the city of Barcelona, as engine of economic growth and development.

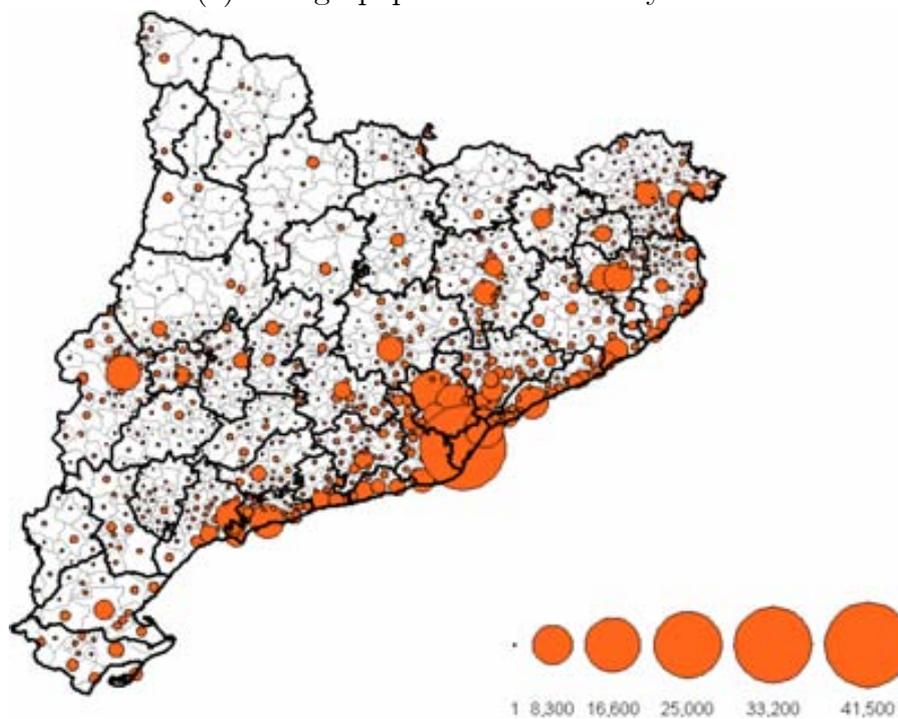
Nevertheless, the redirection of the Catalan economy has not left behind the continuity of the primary sector -mainly agriculture-. The north-eastern province of Lleida, the peri-urban areas of the provincial capitals and the Mediterranean Coast are well known for their agricultural tradition. Therefore, the migrants profile -from abroad and the rest of the Spanish regions- responded to a diverse labor demand on skills and experience. Furthermore, as a result of migrants' settlement on the territory, population at younger ages also was affected, especially in those municipalities in which children were not numerous.

Following the distribution of the economic activity in this Autonomous Community, the highest concentration of foreign origin residents under 16 years of age is located at the municipalities of Barcelona (32,302 persons) and its metropolitan area. The metropolitan municipalities with the most numerous underage foreign population are those of l'Hospitalet de Llobregat (10,045 persons), Terrassa (7,095 persons), Badalona (6,443), Sabadell (5,425) and Santa Coloma de Gramenet (5,166). The distribution in relative numbers (see figure 4.8.b) would reflect the scale effect generated in smaller municipalities. Thus, in those where underage population is scarce, marginal changes on the population's composition would be over-estimated. Therefore, the ranking of the municipalities with

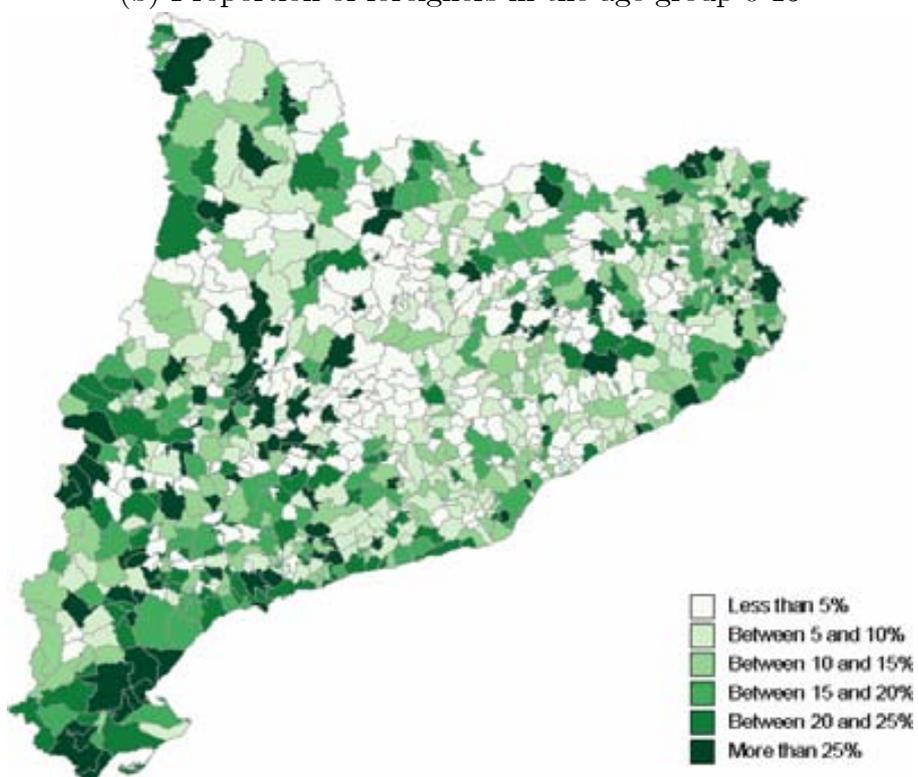
the most numerous foreign population would show lower concentration of immigrants on the aggregate. Graphically, if we could overlap both figures, we could see that some of those with the smaller dots representing the scarce presence of immigrant children are the same with the darker shade, indicating the most significant weight on their age group. That is the case of, for example, the municipality of Granyena de les Garrigues where 9 foreign residents under 16 years of age represent 56.3 percent of the total population of that age group. The proportion of foreigners on the 0-15 age group would be closely followed by those at the municipalities of Guissona (55.5 percent; 691 persons), Salt (54.5 percent; 3,350 persons) and Ullà (52.6 percent, 92 persons). Even though Barcelona concentrates the higher number of foreign residents, 15.6 percent of the population under 16 is of foreign origin, even lower than the Catalan average of 17.1 percent. However, probably referred to the lower housing costs, Barcelona's surrounding municipalities of l'Hospitalet de Llobregat (27.5 percent) and Santa Coloma de Gramenet (28.0 percent) experience a higher proportion of immigrant youth.

Figure 4.9: Municipal distribution of the foreign population under 16 years of age in absolute and relative numbers. Catalonia, 2010.

(a) Foreign population under 16 years.



(b) Proportion of foreigners in the age group 0-15



Source: Author's elaboration based on the Population at January 1, 2010. Continuous Register, INE.

4.2.2 Internal migration of young non-nationals in Catalonia

Consequent on the economic development and the related structural change, in terms of residential movements, the Autonomous Community of Catalonia experienced arrivals from abroad and also among the territory. As a result, residential mobility represents almost half of the municipality changes in the Residential Variation Statistics. As for residential mobility of immigrants, previous studies find a divergent behavior of the mobility of non-natives with respect to natives in terms of direction, intensity and basic demographic characteristics (Recaño and Domingo 2006; Pumares 2005; Recaño 2002). Thus, we could assume that residential mobility of foreigners has its own particular dynamics and does not necessarily follow that of natives. As López Villanueva, Pujades and Bayona-i-Carrasco (2011) stress, as foreigners are mainly young people without job stability who often still do not have a well established place of residence, their mobility rates are much higher than those of the rest of the population. Therefore, they proportionally register more residential movements than their corresponding age group.

In terms of the younger population, the relevance of the analysis of internal migration and residential movements is double. First, the arrival of non-natives would affect the local population structure. As we have seen on the previous sections, the magnitude of this effect would be conditioned to a scale effect. On the other hand, even though changes of residence of the younger population would be attached to the familiar migration project, the impact on the local society would be reflected in the demand of goods and services that the host society would not necessarily be prepared to face. That is particularly the case of demand for education. The arrival of children to areas where native population at younger areas is scarce would represent in some cases, an unsatisfied demand given the constrained infrastructure available. Therefore, it would represent a double effort from the public institutions in order to cover the demand growth and from families, to face the additional costs of unsatisfied necessities.

During the period between 1998 and 2009, residential changes of population under 20 years of age represented 580,664 of the registers. Of them, 18.9 percent (109,922 movements) were conducted by non-nationals. On average, three of every ten movements performed by non-nationals among the Catalan municipalities were related to internal migration. Figure 4.10 illustrates the net internal migration of the foreign residents aged 0 to 19 based on the Residential Variation Statistics. It was calculated in order to determine the net gain (in red or yellow shades) or decline (in blue shades) of the younger foreign population among municipalities.

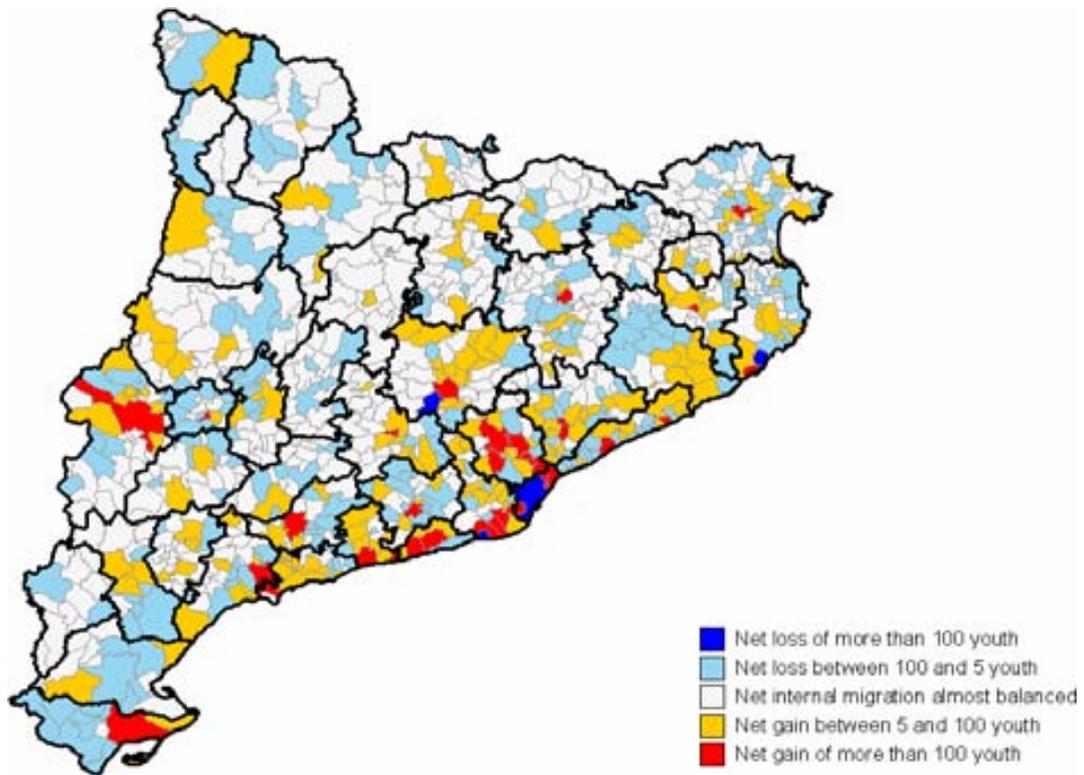
As we might expect, Barcelona is the municipality that registers the most numerous residential movements. During the period of analysis, it loses 8,272 young non-nationals,

result of 21,014 cancellations and 12,742 new registrations. With respect to the total movements, Barcelona is the destination of 11.6 percent of the internal migration of young non-nationals and origin of 19.1 percent of the cancellations. The economic dynamics of the last decade which also affected the housing prices could have influenced the net population expulsion from the municipality. As López Villanueva, Pujades and Bayona-i-Carrasco (2011) argue, Barcelona's urban periphery has always increased more than the central city itself. Therefore, the metropolitan area of Barcelona should be considered as an example of center-periphery suburbanization and deconcentration processes.

The city's redistributive effect on foreign population has had special incidence within the younger contrasted to the population gain from the surroundings. Even though the ages considered (0-19) could not allow us to assume an individual migration project, the familiar decisions would clearly determine the youngsters' relocation. Residential mobility is often the response to new dwelling needs due to family structure changes (Clark and Withers 2007). In that sense, the arrival of children after successful family reunion processes or as a result of settlement would determine familiar dwelling needs. Furthermore, considering the behavior of housing prices during the last decade, families should maximize the available income by relocating the household. Thus, housing prices would act as push-pull factors while attracting population to other municipalities, particularly in the metropolitan area of Barcelona. Net sending municipalities from it are Castelldefells, Premià de Mar and Sant Cugat del Vallès. Their counterpart is thus presented by l'Hospitalet de Llobregat, Terrassa, Reus and Sabadell which have consolidated their position as attraction nodes.

In aggregated terms, the intensity of the internal inflows would be conditioned to the capacity of response of the destination municipalities. Close to 313 municipalities receive young non-nationals, especially those from the Barcelona Metropolitan Area and the Mediterranean coast. Therefore, the main cities and the most economically active municipalities would experience the most intense and numerous migrations. The direction and scope of the movements could also be characterized by the distance between origin and destination. Those in which origin and destination are at short distance, could also observe the daily commuting between both. That is the case of county capitals and their surrounding areas. For example, the movements between Barcelona and its surrounding municipalities like l'Hospitalet de Llobregat (3,315 flows), Badalona (1,438) or Santa Coloma de Gramenet (1,198) related with a shared residential market, reflecting a population gain/loss pattern among them. Long-distance movements are traditionally the result of the attraction generated by the main economic centers (mainly provincial capitals) or those between areas that do not belong to the same county or province.

Figure 4.10: Net internal migration of foreign residents under 20 years of age in Catalonia, 1998-2009.



Source: Author's elaboration based on the Residential Variation Statistics 1998-2009, INE

4.3 Evolution of the enrolled population in Catalonia

The increase of the enrolled population in compulsory education is not homogeneous among the territory. It follows almost the same distribution of the aggregated non-national population, as a priori expected. The increased demand for education linked to the arrival of children of foreign origin has generated a public debate. First, because of the ineffective response from the central planners, especially with respect to resource allocation in order to guarantee education for all, under the same conditions, regardless origin. Second, because of the poor academic outcomes of the enrolled population in Catalonia. Finally, and particularly related to enrollment, because of the school segregation generated in some cases for the existence of informal barriers addressed to children of immigrants while demanding access to education. Even though some policy instruments have been implemented to correct the current situation, children of foreign origin have been used as a scapegoat to justify the scarce response from the central planners and the society itself in the integration process.

The aim of this section is to introduce the evolution of the demographic characteristics of the enrolled population in Catalonia. In order to understand the behavior of the enrolled population in Catalonia and the impact of the international migration inflows in the educational system, we will explore first the evolution of the scholars in this Autonomous Community. The period of analysis has been defined as that between the academic courses 2000/01 and 2007/08. Considering the limitations of the database, we will analyze a subsample of educational centers that met two basic criteria as described on Chapter 3. First, only those with information for the entire period should be considered. Second, in order to minimize the bias generated by including non-compulsory education stages in our database, the centers included should offer at least one course of compulsory education. To fulfill this condition, we have contrasted each of the records provided with the public database of the Departament d'Educació⁷. This operation allowed us to obtain the specific educational levels offered by each center as well as their exact address. The former will be one of the inputs used in the next chapter.

As a result, we will explore in this section a subsample of 2,642 educational centers -74 percent publicly funded- located in 707 Catalan municipalities. Figure X shows the municipalities with at least one school that were included in our sample of analysis. As for the spatial distribution of the educational centers, 633 municipalities have five or less schools in their territory which, in some cases, satisfy the demand of education of more than one neighboring municipality. As we might expect, the supply of education would be

⁷Available at http://www10.gencat.net/pls/ense_ensenyam/p01.menu

directly related to the resident population at compulsory ages. Therefore, the steep decline in the potentially enrolled population before the migration wave of the beginning of the 21st century resulted in the maintenance -or in some cases, the decrease- of the available places. Consequently, the number of municipalities with scarce or limited educational infrastructure is not uncommon, especially in remote areas.

Figure 4.11: **Municipalities with at least one educational center in Catalonia 2000/01-2007/08**



Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education)

4.3.1 The age/sex structure of the enrolled population

To analyze the evolution of the age/sex structure of the enrolled population during the period 2000/01-2007/08 we have selected a sub-sample of scholars aged 3-20. Even though the database does not allow to identify the specific educational level children are enrolled in, is at those ages when children can be enrolled in the following educational levels:

- Kindergarten (3-6 years old)
- Compulsory primary education (6-12 years old)
- Compulsory basic secondary education (12-16 years old)
- Upper secondary –academic track- (from 16 years onwards)
- Vocational education (from 16 years onwards)

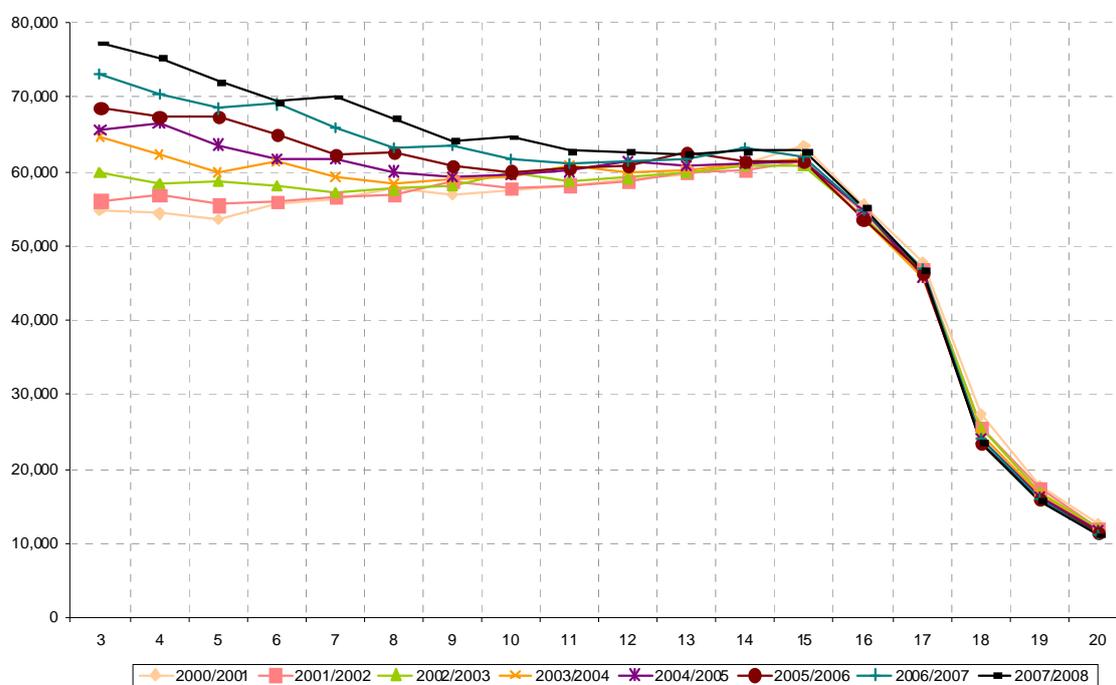
Even though upper secondary education should be completed at age 18, there is no specific limit for its completion according to legislation. On the other hand, the duration of vocational education courses will depend on the major chosen and the degree of specialization (see Chapter 2). Therefore, the inclusion of population aged 18 to 20 would mostly consider students enrolled in higher education rather than Social Guarantee Courses - mainly addressed to adult education.

In sum, we have only considered courses which can be public funded -such as kindergarten- in addition to the first post-compulsory transition. We must stress that, based on the followed criteria, the analyzed population from this section would slightly differ from the one explored in the following chapters. However, as the enrolled population at compulsory education represent more than the 90 percent of the data, the bias generated by the inclusion of pupils of non-compulsory levels would not be significant. Thus, we will be able to analyze the evolution of the composition by sex/age during the period of analysis with consistent results.

The evolution of the enrolled population in Catalonia by age (see figure 4.11) show the increase of the younger population especially at non-compulsory ages. Graphically, we could observe two effects. First, the gap between the different curves at a specific age could be used as a proxy of the demand increase related to the arrival of children from abroad and the birth-rate increase of the last years. As we can see on figure 4.11, the enrolled population at ages 3-5 is the one who experienced the most significant effect. Despite they correspond to non-compulsory ages, kindergarten could also be publicly funded even though public education at this level is scarce. Also, the increased enrolled population at younger ages is affected by women employment. The absence of a familiar or social network that could provide day care for the younger family members result in the enrollment of children at younger ages in order to improve the compatibility between work and family life. Second, it is possible to identify the evolution of the enrolled population cohorts over time, especially at compulsory ages. The graphic representation of this effect could be identified as the difference between enrolled population at age X and those at age $X+1$ during the following academic course. For example, the evolution of the enrolled population cohort born in 2000 could be seen as the enrolled population aged 3 for the academic course 2003/04, 4 for the course 2004/05 and so on.

Probably because of the recent arrival of children from abroad or related to their younger ages, the enrolled population increase at the last stage of compulsory education has practically remained steady over time. This could also be linked to the fact that even when children are supposed to be enrolled at levels according to age, they could also be enrolled at previous stages because of their academic background. However, the dramatic decrease of the enrolled population at post-compulsory ages has apparently not been affected by the inflows at least until age 18. On the aggregate, this effect -if not new- could represent a lower educational attainment level and therefore, a regressive trend on the human capital stocks.

Figure 4.12: Enrolled population by age and academic course in Catalonia. Academic courses 2000/01-2007/08.



Source: Author's elaboration based on the *Non-university Enrollment Statistics of the Department of Education*.

As for the distribution by sex of the enrolled population, it has remained stable during the period of analysis (see figure 4.12). The proportion of girls between 3 and 20 years old represent -on average- 48.7 percent of the enrolled population of Catalonia.

Representing enrollment data as a population pyramid allows an easier comparison between the endpoints of the reference period (see figure 4.13). Nevertheless, the larger base of the 2007/08 population pyramid is not only a migration effect but a consequence

of the increased births as we have mentioned above. The second effect that should be mentioned from the pyramid shown on figure 4.13, is the decrease of the enrolled population from 10 years onwards. Despite the arrival of children at younger ages, the enrolled population during the last analyzed course does not show a significant change that could reflect a direct impact of the migratory inflows as it occurred at younger ages. This could suggest that there is not only a higher risk of school drop-outs among the population of foreign origin but the ineffectiveness of the school policy.

In absolute numbers, the age/sex structure has not significantly changed during the analyzed period but the proportion of children aged 3-8 years has been increased on approximately 5.5percent during the period 2000/01-2007/08. During the school year 2000/01 this age group represented 36.6 percent -332, 389 children- of the enrolled population and reached 42 percent -431,438 children- during 2007/08. That is, the number of scholars between 3 and 8 years grew in 99,049 children, representing a schooling demand increase of close to 29.8percent with respect to the baseline year.

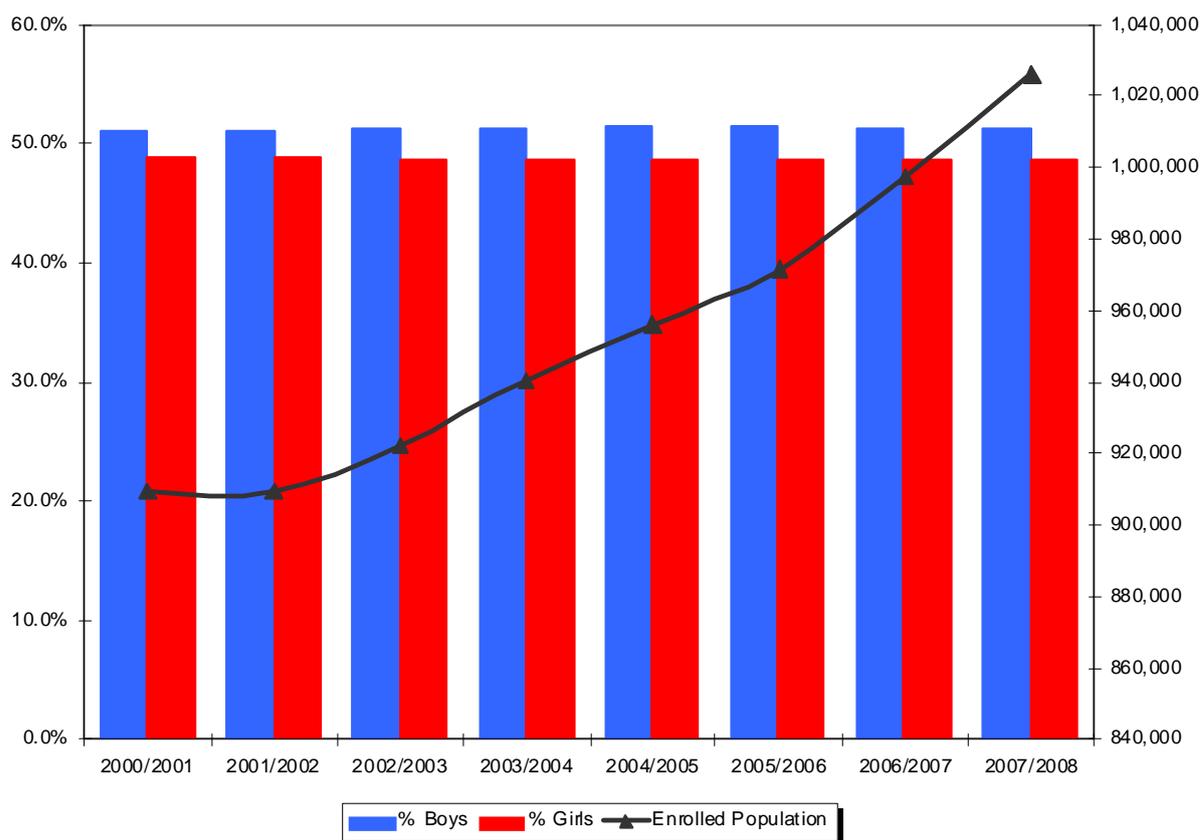
According to the Ministerio de Educación y Ciencia -the Spanish Ministry of Education, MEC- (2005) report, the number of university enrolled students has been decreasing during the last ten years related to the population pyramid inversion. The share of undergraduate students of foreign origin has increased from 0.7 to 1.7percent between the school courses 1994/95 and 2005/06; however, their participation on higher education studies is not directly related to the total population. Nevertheless, the percentage of those enrolled in graduate studies increases to 22.1 percent (16.073 students) during the same academic course. These results suggest that the opportunity and monetary costs for non-native undergraduate students is clearly higher than their native counterparts. It limits their access and permanence in higher education or in some cases generates a bias towards vocational schooling given the lower implicit costs and, in some cases, the compatibility with work. Also, we must stress that there could be a selection bias for graduate students that should be considered. Most of the non-national graduate and post-graduate students arrived specifically for completing their education. They have conducted their cost-benefit analysis in advance and, considering that an important percentage of them are beneficiaries of grants, are not exposed to the same conditions as the foreign population at the same age.

To estimate a measure of the level of education among residents at schooling ages we will calculate the *Gross Enrollment Ratio*, GER. The measure is expressed as the number of students enrolled as a percentage of the resident population by age. We have considered the population at January 1 of each year according to the *Padrón Continuo* data (INE)

for the period between 2001-2008 as the mean resident population. Even though this is a modification of the strict definition of the Gross Enrollment Ratio, we will use it as an estimation of the access to education of the resident population by age and given the characteristics of the enrollment database used. Results are shown on figure 4.14. We have plotted the estimations by sex and the aggregated GER by age.

The estimated gross enrollment ratio shows that access to schooling is mostly homogeneous by sex and covers close to 100 percent of the population until 15 years of age (detailed results are shown on table 4.3). Education is not mandatory from 3-5 years old but as could be subsidized, the effect of public funded education and the attempt to increase the compatibility between work and family, clearly incentives the enrollment of children at younger ages. On the other hand, we can observe some differences on the GER by sex from age 15 onwards. First, the decrease of the enrolled population at 16 is accompanied by the feminization of the students. Then, the male population overpasses the female for the last three analyzed years once the decrease in the enrolled population is generalized. The former could be related to the effect of the election of vocational tracking within the male enrolled population.

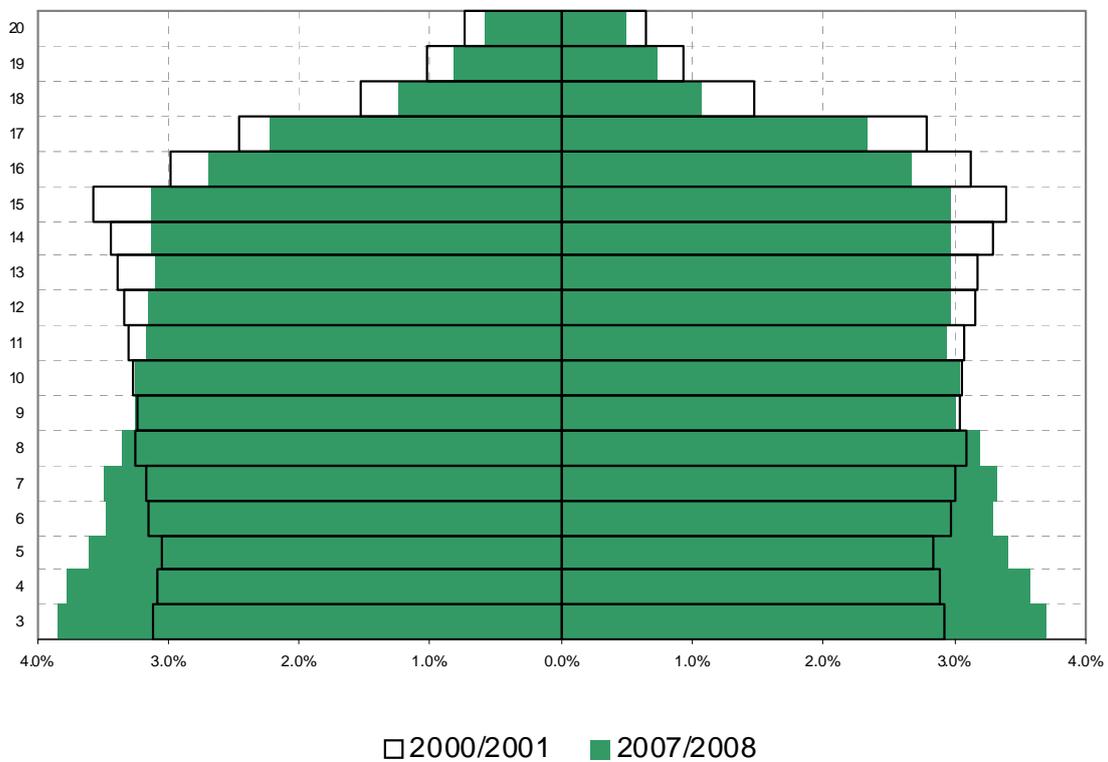
Figure 4.13: Enrolled population by age, sex and academic course in Catalonia. Academic courses 2000/01-2007/08.



	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Boys	464,701	465,645	473,142	482,701	491,070	499,096	512,427	526,410
Girls	444,588	443,802	449,279	457,795	464,883	472,538	485,307	499,776
Total	909,289	909,447	922,421	940,496	955,953	971,634	997,734	1,026,186

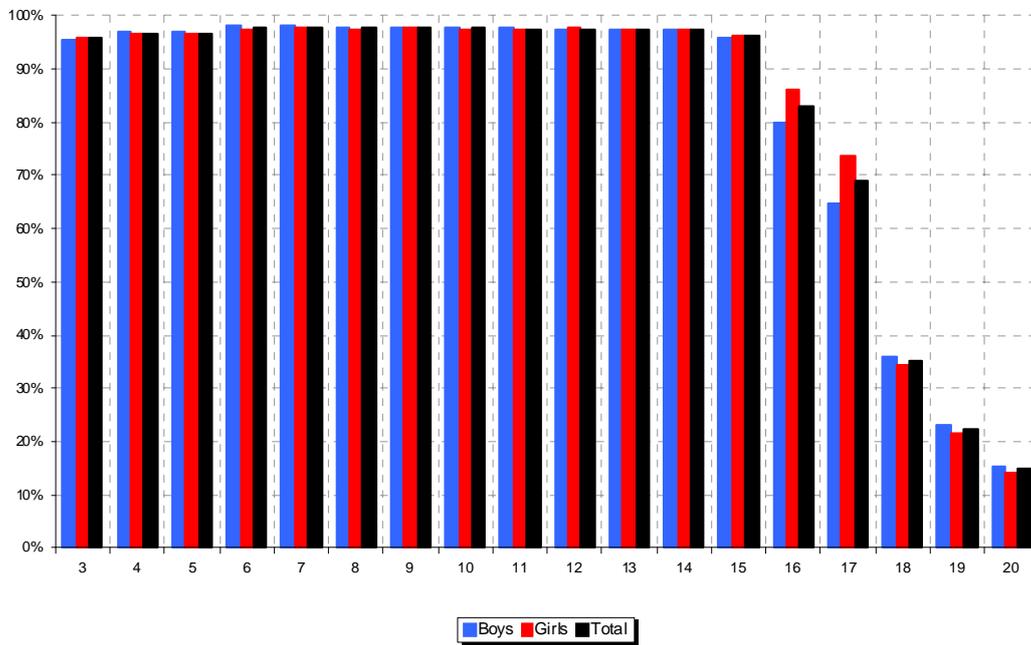
Source: Author's elaboration based on the Non-university Enrollment Statistics of the Department of Education.

Figure 4.14: Population pyramid of the enrolled population under 21 years old. Academic courses 2000/2001-2007/2008.



Source: Author's elaboration based on the Non-university Enrollment Statistics of the Department of Education.

Figure 4.15: Average Gross Enrollment Ratio by sex and age, Catalonia, 2001-2008.



Note: The Gross Enrollment Ratio is calculated as the number of students enrolled as a percentage of the resident population by age. Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education) and Padrón Continuo (INE).

Table 4.3: Average Gross Enrollment Ratio by sex and age, Catalonia, 2001-2008.

Girls									
Age	2001	2002	2003	2004	2005	2006	2007	2008	Average
3	96.1%	96.4%	95.3%	95.4%	94.3%	94.9%	96.2%	96.8%	95.7%
4	97.9%	97.0%	97.0%	96.7%	95.8%	95.5%	96.4%	97.5%	96.5%
5	96.2%	97.5%	96.2%	97.2%	95.7%	95.7%	96.2%	97.5%	96.5%
6	98.9%	98.3%	98.1%	98.4%	97.0%	96.3%	97.1%	96.3%	97.5%
7	99.8%	98.3%	97.2%	98.0%	97.1%	96.5%	96.6%	97.0%	97.6%
8	99.2%	99.0%	97.3%	97.3%	97.1%	96.5%	97.0%	96.7%	97.5%
9	99.0%	98.7%	98.2%	97.8%	96.6%	96.7%	96.9%	96.9%	97.6%
10	99.0%	98.6%	97.7%	98.3%	97.1%	96.1%	97.0%	96.6%	97.5%
11	98.5%	98.3%	97.7%	97.5%	97.1%	96.4%	96.5%	96.8%	97.4%
12	99.0%	97.9%	97.3%	97.6%	96.7%	96.7%	97.5%	97.7%	97.6%
13	99.2%	98.4%	97.2%	97.2%	96.8%	96.5%	96.9%	97.1%	97.4%
14	98.5%	98.5%	97.4%	97.3%	96.5%	96.3%	96.8%	96.7%	97.2%
15	96.4%	97.5%	96.5%	97.0%	96.0%	95.1%	96.2%	94.5%	96.1%
16	86.3%	85.1%	85.9%	86.3%	86.6%	85.5%	87.1%	86.3%	86.1%
17	73.2%	73.6%	72.8%	73.5%	74.2%	73.7%	75.1%	74.0%	73.8%
18	35.9%	35.0%	34.8%	34.0%	34.1%	33.5%	33.6%	32.7%	34.2%
19	21.5%	21.9%	21.9%	22.2%	21.6%	21.4%	21.5%	21.1%	21.6%
20	13.7%	13.8%	14.3%	14.6%	14.7%	14.4%	14.4%	14.2%	14.3%
Total	79.8%	80.3%	80.3%	81.1%	81.0%	81.0%	82.0%	82.2%	81.0%

Boys									
Age	2001	2002	2003	2004	2005	2006	2007	2008	Average
3	96.6%	96.8%	95.9%	95.7%	94.2%	94.9%	94.9%	95.8%	95.6%
4	97.9%	97.2%	97.3%	97.3%	96.2%	95.5%	96.6%	96.5%	96.8%
5	97.2%	97.4%	96.3%	97.1%	96.5%	96.1%	96.3%	97.4%	96.8%
6	100.3%	99.3%	98.6%	98.7%	97.0%	96.7%	97.4%	96.3%	98.0%
7	99.9%	99.3%	98.5%	98.5%	97.0%	96.5%	97.1%	97.1%	98.0%
8	99.6%	98.7%	98.2%	98.5%	97.5%	96.8%	96.7%	96.9%	97.9%
9	99.8%	98.9%	97.7%	98.3%	97.4%	96.5%	97.0%	96.8%	97.8%
10	99.2%	98.7%	98.0%	97.8%	97.2%	96.9%	97.0%	97.1%	97.7%
11	100.0%	98.4%	97.8%	98.0%	97.0%	96.5%	97.3%	96.9%	97.7%
12	99.0%	99.0%	97.2%	97.8%	96.8%	96.4%	96.6%	97.4%	97.5%
13	99.1%	98.1%	98.2%	97.4%	97.1%	96.6%	96.6%	95.9%	97.4%
14	98.3%	98.3%	97.3%	98.2%	96.7%	96.5%	96.7%	96.1%	97.3%
15	96.2%	96.8%	96.6%	96.6%	96.6%	94.7%	95.9%	94.0%	95.9%
16	78.1%	77.7%	80.3%	80.6%	81.5%	79.7%	81.3%	81.2%	80.0%
17	61.8%	63.4%	63.7%	64.7%	65.4%	65.4%	67.4%	65.9%	64.7%
18	35.5%	35.1%	36.6%	36.1%	36.4%	35.5%	36.6%	35.2%	35.9%
19	22.2%	22.7%	22.7%	23.4%	23.0%	23.3%	23.4%	22.8%	22.9%
20	15.2%	14.8%	15.1%	15.8%	15.6%	15.8%	15.9%	15.6%	15.5%
Total	79.2%	79.5%	80.0%	81.0%	80.8%	80.7%	81.7%	81.5%	80.5%

Total									
Age	2001	2002	2003	2004	2005	2006	2007	2008	Average
3	96.3%	96.6%	95.6%	95.5%	94.3%	94.9%	95.5%	96.3%	95.6%
4	97.9%	97.1%	97.2%	96.9%	96.0%	95.5%	96.5%	97.0%	96.8%
5	96.7%	97.5%	96.3%	97.2%	96.1%	95.9%	96.2%	97.4%	96.7%
6	99.6%	98.8%	98.3%	98.5%	97.0%	96.5%	97.2%	96.3%	97.8%
7	99.8%	98.8%	97.8%	98.3%	97.1%	96.5%	96.9%	97.0%	97.8%
8	99.4%	98.9%	97.8%	97.9%	97.3%	96.7%	96.8%	96.8%	97.7%
9	99.4%	98.8%	97.9%	98.0%	97.0%	96.6%	96.9%	96.8%	97.7%
10	99.1%	98.6%	97.9%	98.0%	97.1%	96.5%	97.0%	96.9%	97.6%
11	99.3%	98.4%	97.7%	97.8%	97.0%	96.5%	96.9%	96.8%	97.6%
12	99.0%	98.5%	97.3%	97.7%	96.8%	96.5%	97.0%	97.5%	97.5%
13	99.2%	98.3%	97.7%	97.3%	96.9%	96.6%	96.7%	96.5%	97.4%
14	98.4%	98.4%	97.3%	97.8%	96.6%	96.4%	96.7%	96.4%	97.2%
15	96.3%	97.1%	96.6%	96.8%	96.3%	94.9%	96.0%	94.3%	96.0%
16	82.1%	81.3%	83.0%	83.4%	84.0%	82.5%	84.1%	83.6%	83.0%
17	67.4%	68.3%	68.1%	69.0%	69.7%	69.4%	71.1%	69.8%	69.1%
18	35.7%	35.1%	35.7%	35.1%	35.3%	34.5%	35.1%	34.0%	35.1%
19	21.9%	22.3%	22.3%	22.8%	22.3%	22.4%	22.5%	21.9%	22.3%
20	14.4%	14.3%	14.7%	15.2%	15.1%	15.1%	15.2%	14.9%	14.9%
Total	79.5%	79.9%	80.1%	81.0%	80.9%	80.9%	81.8%	77.9%	80.3%

Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education) and *Padrón Continuo* (INE).

4.3.2 Evolution of the enrolled population by origin

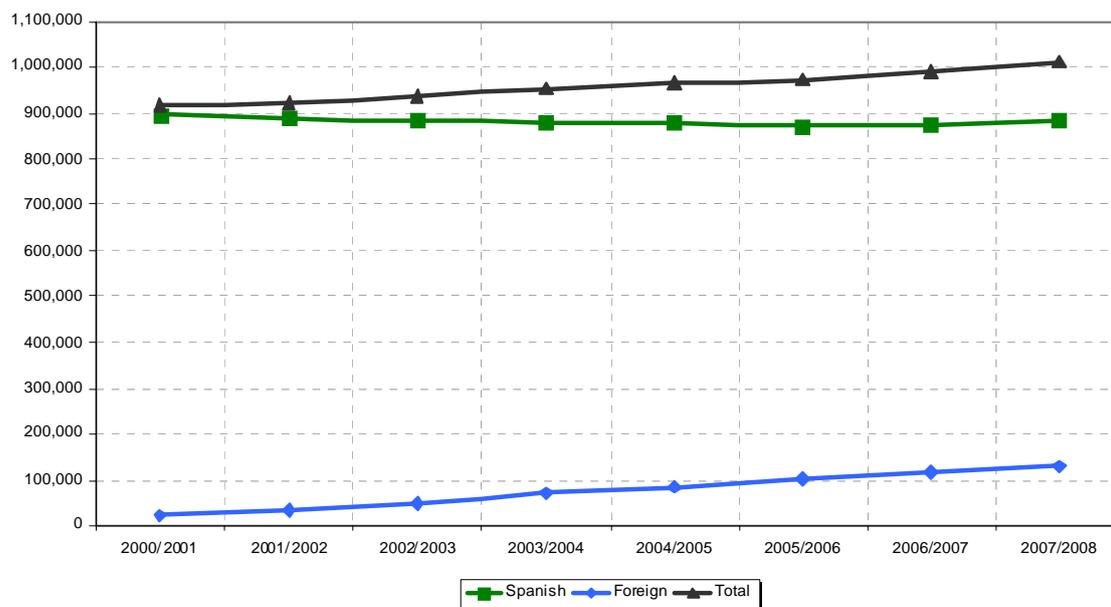
In order to analyze the evolution of the enrolled population by origin we will study the second database provided by the Catalan Department of Education referred to the nationality of the enrolled students. As we have mentioned above, the numeric results shown would not necessarily match those of the previous section given the impossibility to identify student's age or educational level for the majority of the academic courses included. However, this sub-sample will be the same one explored in the study of school segregation -if not stated- thus guaranteeing the compatibility of the results. We must also stress that, according to the information provided by the Department of Education, nationality is registered during the first enrollment process. If Spanish citizenship is acquired, parents are supposed to provide this information to their child's educational center. However, the number of registers which fulfill this condition is still scarce probably because schools do not consider this change as necessary or simply because parents do not provide the information on time. Therefore, it is possible to assume that the reported nationality of the enrolled population contained in the database provided is the one at arrival and has not been influenced in time by second citizenship acquisition.

The impact of the international migration inflows that Catalonia has received during the last years has affected the enrolled population to a lesser extent than at residential level (see figures 4.16 and 4.17). At January 1 2008, the foreign resident population under 20 years of age represented 16.2 percent of the Catalan population. At the same time, the enrolled population of foreign origin reached 12.8 percent of the total. We must stress that this estimation could be affected by the inclusion of post-compulsory ages in our sample, but it suggests the differential participation on the educational system between foreigners and natives. In absolute numbers, the number of foreign pupils in Catalonia passed from 23,207 to 129,670 between the courses 2000/01 and 2007/08. That is, an estimated growth of 458 percent in 8 years. Nevertheless, we must consider that the enrolled population growth has not been homogeneous neither by continental origin nor nationality (see figure 4.17) just as the inflows shown in previous sections.

The change in the enrolled population composition by origin is evident throughout the period of analysis. African nationals -mostly Moroccans- have lost their dominant position since the massive arrival of American flows -mostly Latin-Americans- from the beginning of the 21st Century. More specifically, during the 2000/01 school year the African population represented 47.2 percent of the foreign students for 29.8 percent of Americans. Seven years later, during the school year 2007/08 the distribution would be inverted with 44.5 percent of Americans and 30.1 percent of students of African origin. Non-EU European enrolled population grew mostly because of the effects of East Euro-

pean countries as Romania which experienced growth rates similar as the nationals from Bolivia, Uruguay or Ecuador of almost 1,000 percent.

Figure 4.16: Evolution of the enrolled population in Catalonia by origin. Academic courses 2000/2001-2007/2008.



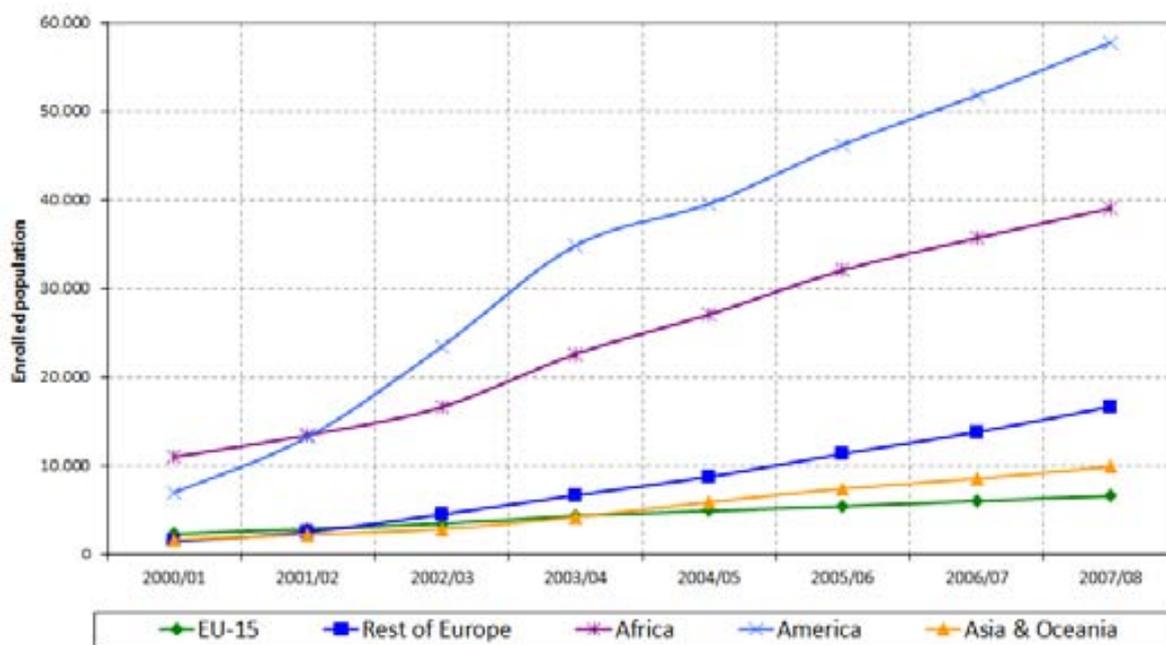
Citizenship	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Spanish	896,197	887,059	885,847	880,769	878,925	871,822	874,280	881,376
Foreign	23,207	34,220	50,723	72,460	85,989	102,295	115,612	129,670
Total	919,404	921,279	936,570	953,229	964,914	974,117	989,892	1,011,046
% scholars of foreign origin	2.5%	3.7%	5.4%	7.6%	8.9%	10.5%	11.7%	12.8%

Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Table 4.4 shows the enrolled population of foreign origin of the main nationalities in Catalonia. The distribution by nationality of the enrolled population reflects an uneven distribution. It is mostly dominated by Moroccans with 27.4 percent (34,339 students) of the foreign students enrolled. They are followed by Ecuadorians (14 percent; 16,465 students), Romanians (7.2 percent; 8,503 students) and Bolivians (6.2 percent; 7,317 pupils).

The evolution of the inflows shown in Section 4.1 is directly reflected on the behavior of the enrolled population by origin. The arrival of non-nationals from countries targeted in

Figure 4.17: **Evolution of the enrolled population of foreign origin in Catalonia by group. Academic courses 2000/01-2007/08.**



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària (Catalan Department of Education)*.

restrictive migratory policies (i.e. visa requirements for some Latin-American countries) has also accelerated the arrival of foreign pupils. That is the case of Ecuadorian and Bolivian nationals, who experienced a significant growth in a relatively short period of time probably because of the advancement of the family migration project. In both cases, the imposition of visas for Ecuadorians (2003) and Bolivians (2007) has been notified in advance, leaving a window for the arrival of -in some cases undocumented- migrants. The intensity of the inflows in the enrolled population is clear as both nationalities practically doubled their presence at schools in less than one academic year.

Additionally, as a result of the intense migratory inflows not only from abroad but at local level, has driven into a heterogeneous distribution of the foreign population at territorial level. As we may expect, the enrolled population would directly reflect the movements and locations of the aggregate. Figures 4.17 to 4.20 show the evolution of the distribution of the enrolled population of foreign origin at municipal level. Darker shades indicate a higher proportion of foreign students enrolled, whereas uncolored municipalities are those without educational centers or not included.

Before interpreting the results there are two important clarifications that we should

Table 4.4: Enrolled population of foreign origin in Catalonia by group. Academic courses 2000/01-2007/08.

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
EU-15	2.287	2.844	3.438	4.304	4.851	5.388	5.970	6.539
Rest of Europe	1.427	2.519	4.471	6.616	8.728	11.314	13.750	16.618
Asia&Oceania	1.631	2.220	2.842	4.186	5.857	7.374	8.531	9.854
America	6.913	13.223	23.387	34.792	39.524	46.203	51.723	57.673
Africa	10.949	13.414	16.585	22.562	27.029	32.016	35.638	38.986
Total foreign	23.207	34.220	50.723	72.460	85.989	102.295	115.612	129.670

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
EU-15	9,9%	8,3%	6,8%	5,9%	5,6%	5,3%	5,2%	5,0%
Rest of Europe	6,1%	7,4%	8,8%	9,1%	10,2%	11,1%	11,9%	12,8%
Asia & Oceania	7,0%	6,5%	5,6%	5,8%	6,8%	7,2%	7,4%	7,6%
America	29,8%	38,6%	46,1%	48,0%	46,0%	45,2%	44,7%	44,5%
Africa	47,2%	39,2%	32,7%	31,1%	31,4%	31,3%	30,8%	30,1%
% of foreign pupils	2,5%	3,7%	5,4%	7,6%	8,9%	10,5%	11,7%	12,8%

Source: Author's elaboration based on *Estadística de l'Educació no Universitària (Catalan Department of Education)*.

take into account. First, the scale effect in smaller municipalities. As we have explained before, those municipalities in which enrolled population -and also the proportion of resident children- is small, the marginal effect of an increase of one student will be greater than in those municipalities with larger populations. That is the case of the municipalities of Ullà or La Portella with 24 and 26 foreign pupils representing more than 60 percent of the enrolled population. Without considering the scale effect the conclusions of our analysis should be erroneous while comparing the former municipalities with, for example, Salt. This municipality experiences the higher concentration of foreign students which represent 45 percent of the local enrolled population (1,394 students). Second, and as we have mentioned at Chapter 3, not all the municipalities in Catalonia have at least one school. As we could not have access to information related to the real areas of influence of schools that cover the demand for education for more than one municipality, we were not able to distribute -at least proportionally- the students accordingly.

The evolution of the enrolled population of foreign origin at territorial level shows how international migration inflows have impacted the schooling system at aggregated level⁸.

⁸For detailed results, see the tables of the percentage of foreign students by municipality and school

Table 4.5: **Enrolled population of foreign origin in Catalonia: Main nationalities. Academic courses 2000/01-2007/08.**

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Morocco	9.647	11.777	14.206	19.156	22.800	26.967	29.754	32.334
Ecuador	1.028	3.363	7.855	13.918	14.108	14.888	15.237	16.465
Romania	126	422	1.331	2.357	3.452	5.026	6.615	8.503
Bolivia	155	327	720	1.478	2.421	3.879	6.003	7.317
Colombia	1.088	2.613	4.217	4.677	5.258	6.008	6.479	7.115
Argentina	665	1.245	2.857	4.107	4.697	5.372	5.599	5.691
Peru	1.005	1.333	1.766	2.412	3.108	3.799	4.226	4.785
China	621	933	1.248	2.079	3.118	3.567	3.894	4.612
Dom. Rep.	916	1.101	1.338	1.701	1.965	2.349	2.650	3.077
Uruguay	164	414	775	1.458	2.006	2.393	2.575	2.691
Gambia	658	741	1.154	1.698	2.095	2.356	2.611	2.677
Brasil	343	481	648	832	1.007	1.430	1.919	2.443
Chile	341	579	865	1.201	1.458	1.880	2.141	2.347
Pakistan	283	395	450	665	963	1.534	1.982	2.120
Russia	262	414	620	905	1.130	1.382	1.594	1.810

Source: Author's elaboration based on Estadística de l'Educació no Universitària (Catalan Department of Education).

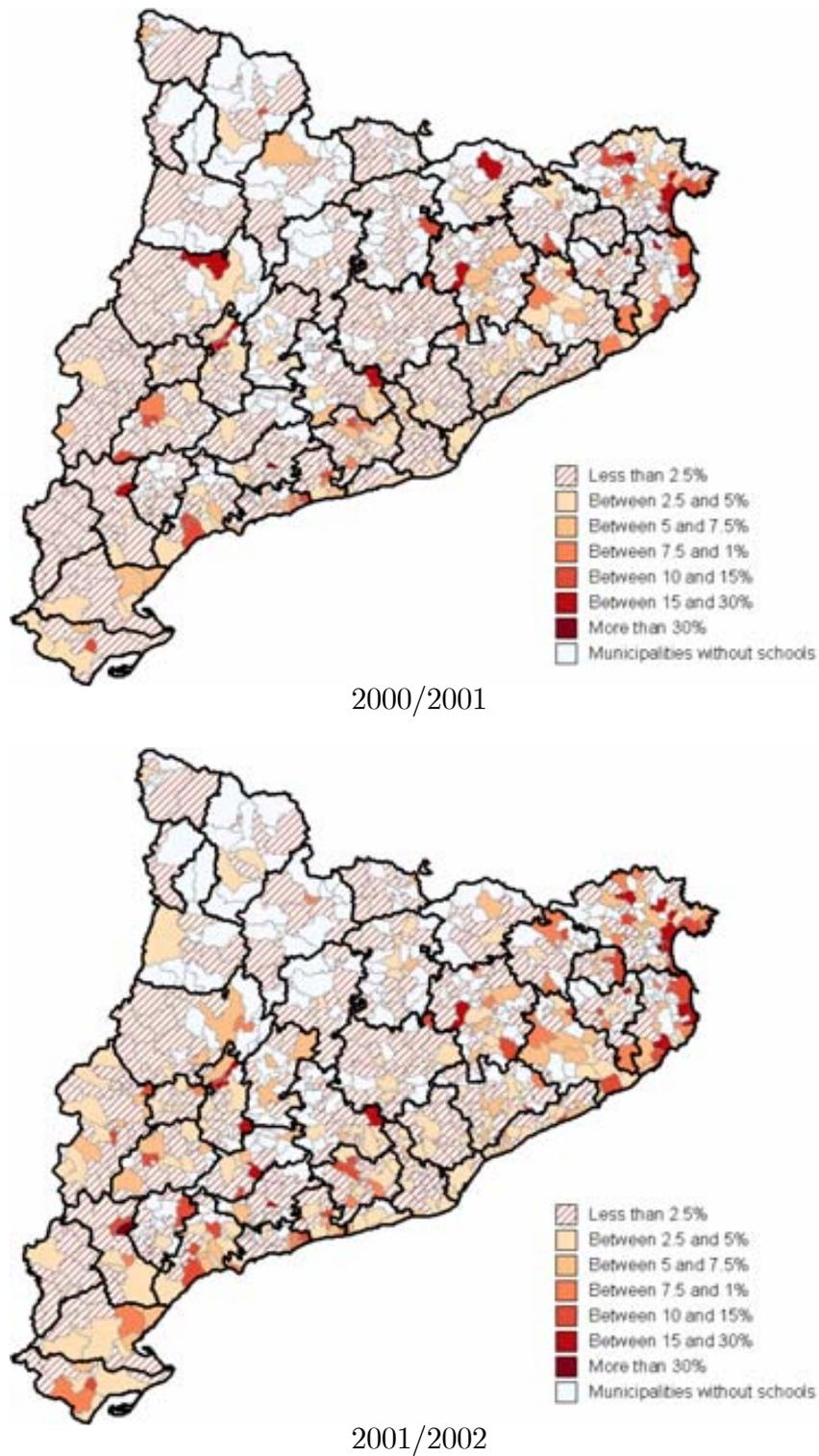
As we might expect, and following the aggregated distribution of the foreign population in Catalonia described in previous sections, the centers of high economic activity concentrate most of the non-national pupils. The development of the tertiary sector in counties as La Cerdanya (in the Pyrenees), l'Alt Empurdà (in the Mediterranean Coast bordering France) or the agricultural sector in the central county of Segarra, have easily transformed this areas into attraction nodes.

Consequently, the concentration in large cities and their surrounding areas have experienced -in absolute numbers- the highest growth. The enrolled population of foreign origin in Barcelona has been increased in 18,749 students followed by the surrounding municipalities of l'Hospitalet de Llobregat with 6,461 and Badalona with 4,081 pupils. With respect to the baseline school year 2000/01 it is reflected as an increase of 317 percent for Barcelona, 667 percent for l'Hospitalet de Llobregat and 1,137 percent for Badalona.

If not homogeneous, the increased demand for education has been reflected among the territory. The number of municipalities without pupils of foreign origin has decreased within the analyzed period: from 292 educational centers during the course 2000/01, the distribution reached only 72 municipalities without foreign students during the course year in Appendix 1.

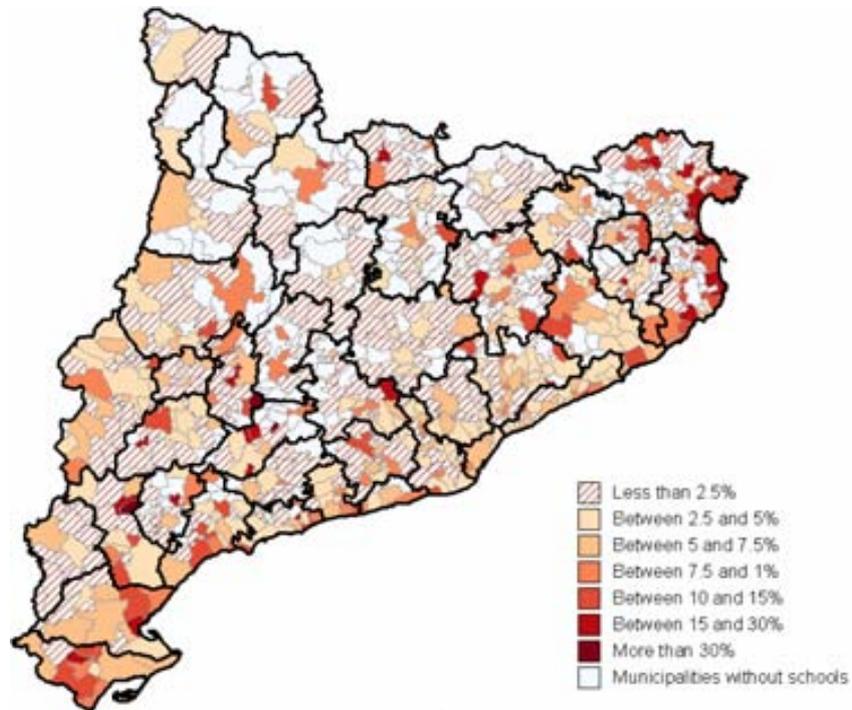
2007/08. The results shed some light on the generalized distribution across the Catalan territory and also about the size of the municipalities that remained without change. Most of the municipalities which have not enrolled children of foreign origin during the course 2000/01 reach the course 2007/08 with less than ten of them. Examples of this behavior are the municipalities of Rupit i Pruit or Vilallonga de Ter, finding the maximums in the municipalities of Riba-roja d'Ebre and Sant Gregori with 19 and 12 immigrant students respectively. However, we can also find the opposite situation in municipalities as L'Albagués or Montesquiu, where no foreign pupils are enrolled at the end of the analyzed period. Nevertheless, this fact is directly related to the variability of the enrolled population (not only of foreign origin) in remote areas where underage population at compulsory schooling ages is scarce.

Figure 4.18: Proportion of enrolled students of foreign origin in Catalonia by municipality and academic year.

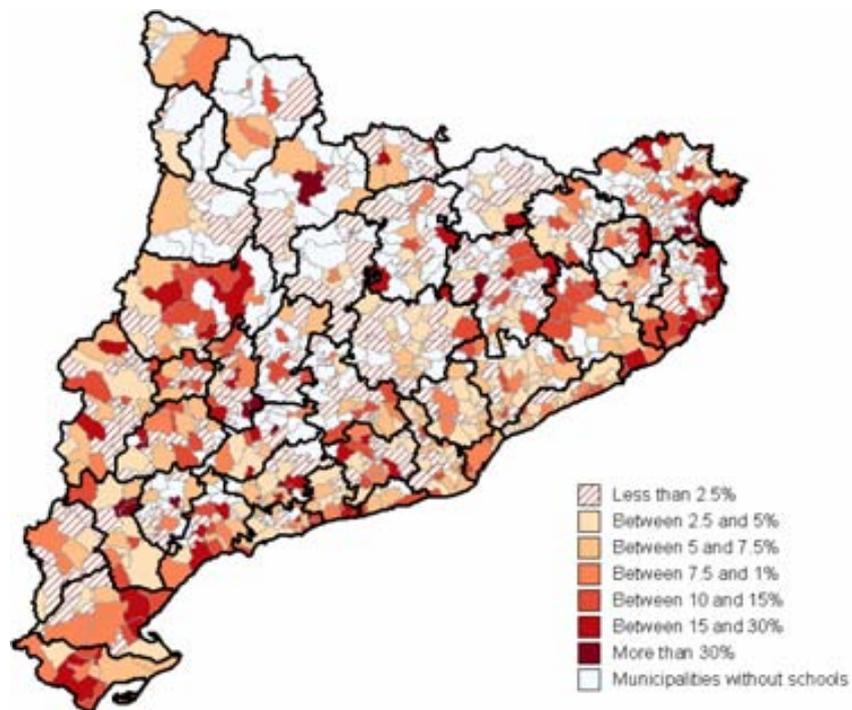


Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 4.19: Proportion of enrolled students of foreign origin in Catalonia by municipality and academic year. (cont.)



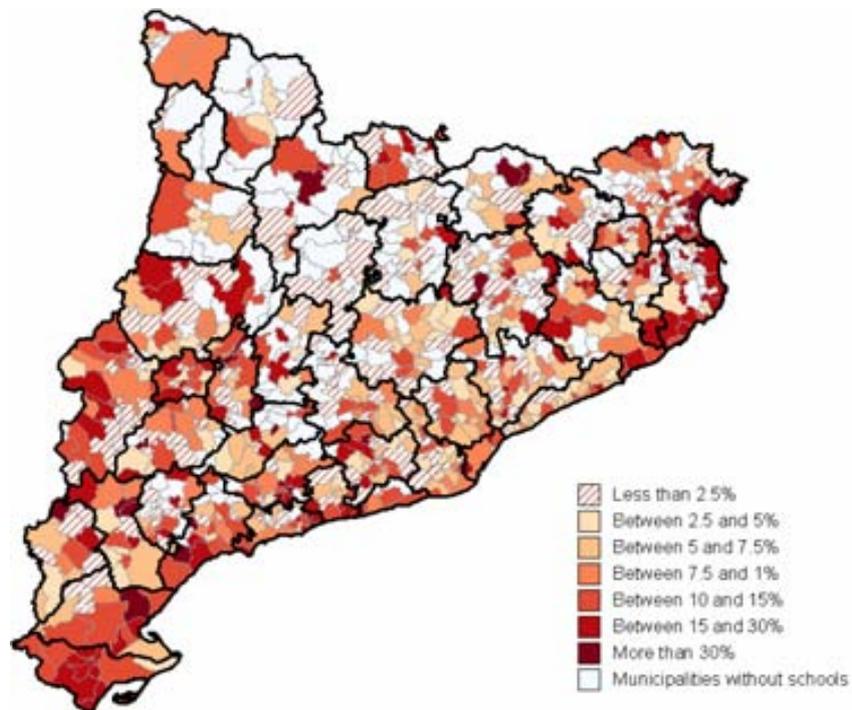
2002/2003



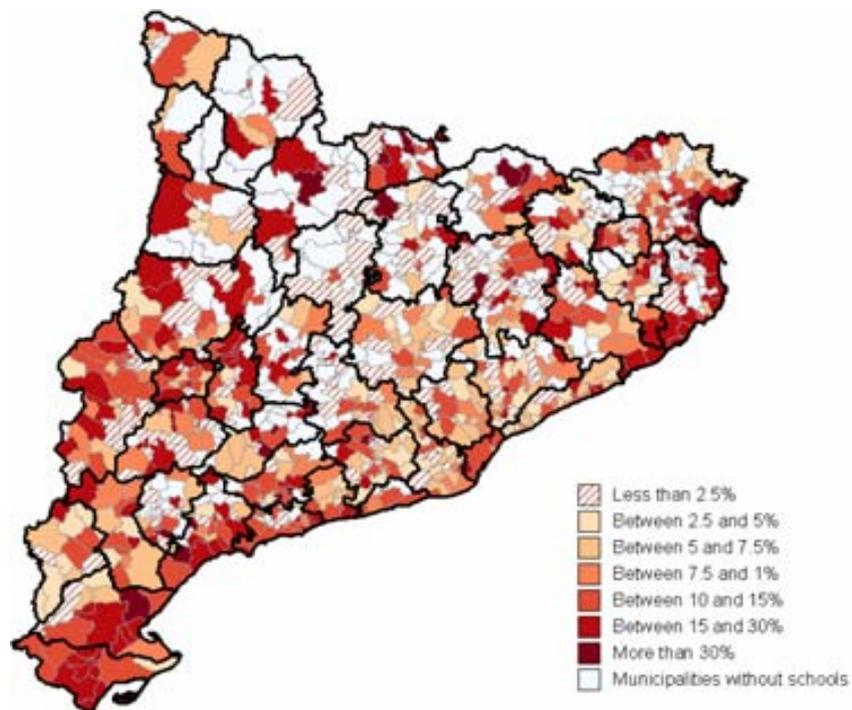
2003/2004

Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 4.20: Proportion of enrolled students of foreign origin in Catalonia by municipality and academic year. (cont.)



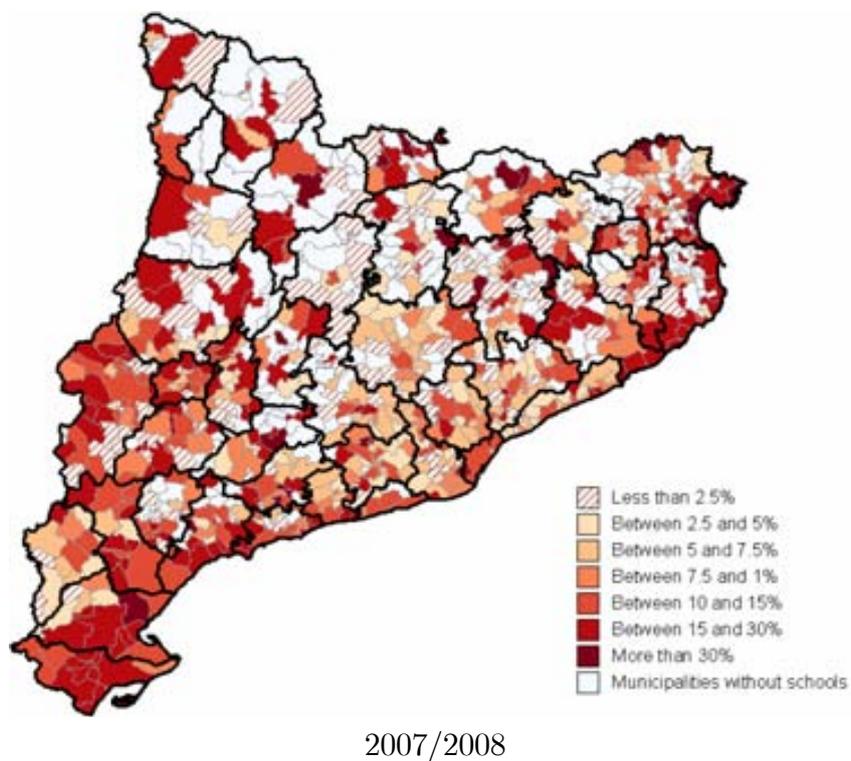
2005/2006



2006/2007

Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 4.21: Proportion of enrolled students of foreign origin in Catalonia by municipality and academic year. (cont.)



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

4.4 Composition of the enrolled population by educational stage 2007/08

Once we have analyzed the composition of the enrolled population in Catalonia during the period between the academic courses 2000/01 and 2007/08, the question that raises is how enrolled population is composed. It is clear that the arrival of children of immigrants has had an impact on the population at compulsory schooling ages but, how are they reflected on the enrolled population by educational level? In order to study how the enrolled population is composed by academic level, we will explore the data corresponding to the academic year 2007/08. This is the only year from the database provided in which educational level is reported in addition to nationality. Even though this study will provide a snapshot on a more detailed composition of the enrolled population during 2008, is during this year when inflows (especially at younger ages) became steady probably because of the economic downturn.

In order to obtain the best image of the enrolled population at non-university level, we will not constraint our study to the enrolled population at compulsory stages. We must stress that given the broader scope of this section in terms of the educational stages considered, the characteristics of the enrolled population reflected might not fully coincide to those already shown. More specifically, the educational levels listed on the database encompasses from kindergarten to upper secondary and vocational studies. To simplify the analysis, levels were grouped according to educational stage: Kindergarten, Compulsory Primary, Compulsory Lower Secondary, Upper Secondary, and Vocational Schooling. The former included Fine Arts, Design and Social Guarantee Programs.

As we have seen on section 4.1, the international inflows have not followed a homogeneous age or sex pattern, especially at younger ages. The same is true for the territorial distribution of the foreign population. Even if it is true that there are specific characteristics on the aggregate, the familiar migration decisions and the incidence of economic variables would determine the arrival of population at schooling ages. Therefore, the incidence of international migration inflows on the educational system has not been homogeneous neither by educational stage nor nationalities.

The proportion of students of foreign origin reached 12.9 percent -137,930 pupils- of the enrolled population in Catalonia during the school year 2007/08 (figure 5.1). Probably related to the mandatory character of the Primary and Lower Secondary education regardless the legal status of the children or their parents, is at these stages where the higher proportion of foreigners is found with 14.8 percent and 15.8 percent respectively. The incidence of legislation and the early entry into the labor force for both, foreigners

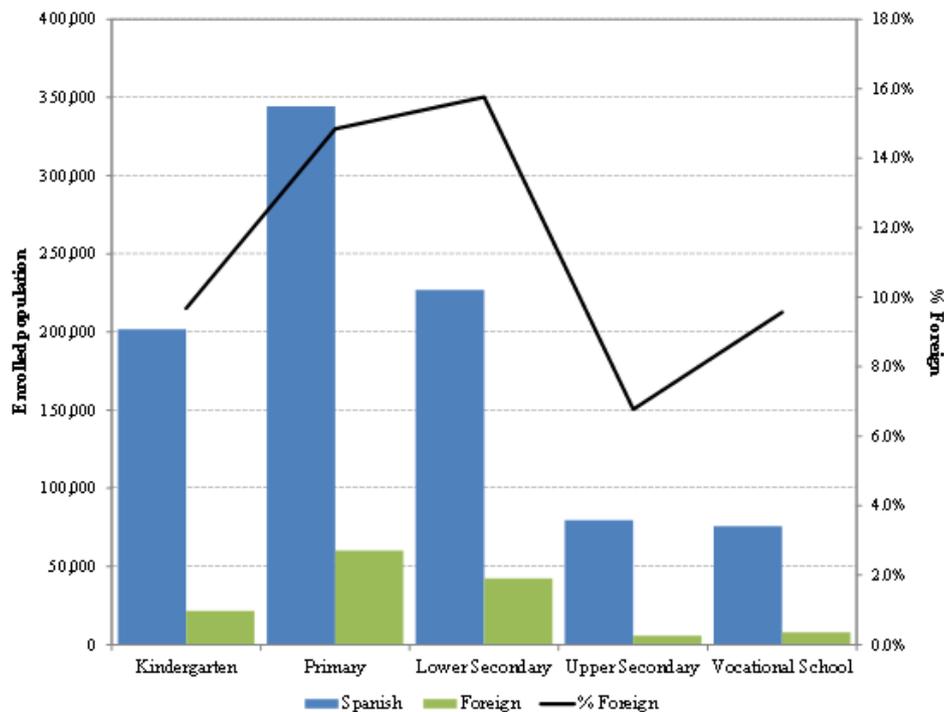
and natives, is reflected in the decreased enrollment at post-compulsory education. In addition, the proportion of students of foreign origin could also be affected by the decrease of the inflows at ages close to 18. As for the track chosen, 42 percent of non-nationals (5,781 students) at post-compulsory stage chose the academic track - Upper Secondary. On the other hand, the distribution among their Spaniard peers is almost homogeneous, with 51.2 percent enrolled at Upper Secondary (79,564 students).

Children of immigrants enrolled at pre-school stage, though more numerous, only represent 9.7 percent of the population at that level. This result could be affected by differential family formation processes between immigrants and natives, as well as children of immigrants entitled Spanish citizenship. Childbearing process of immigrants could be interrupted or retarded due to migration. Family formation of immigrants -especially considering their younger ages- is consequently influenced by the settlement process and the family reunion complementary task on the migratory project. In that sense, it is possible that children still live at the country of origin before reaching compulsory schooling ages while waiting for the family reunion completion before . On the other hand, migrants who have spend more time in Spain could have also acquired Spanish citizenship. Therefore, their children would be granted Spanish citizenship just as with those cases where nationality by assumption principle is applied. As explained on Section 2.3.2, some Latin-American nationals -as Argentinian or Ecuadorian- were the main beneficiaries of this measure. Consequently, given that parental characteristics are not available and that country of birth and residence coincide for the younger, children of foreign origin would be statistically underrepresented.

The distribution of the enrolled population by educational stage and origin is clearly illustrated in figure 4.22. As we might expect, the enrolled population is concentrated at compulsory education regardless origin. The rejuvenation of the enrolled population is represented on the proportion of children in pre-school stages where the youngest fifth portion is enrolled. For foreigners, pupils at primary and lower secondary levels represent 74.3 percent of the total, whereas 58.8 percent of the Spaniards are enrolled at the same stage. As we might expect, the main difference among the distributions could be found once the first educational transition is reached.

The proportion of youngsters enrolled at upper secondary and vocational school is almost the same on the aggregate as well as for Spaniards, denoting their predominant share on the distribution. Even when some of them might be registered as Spaniards, the participation of non-native youngsters on vocational courses is 38 percent higher than their involvement on the academic track. This could suggest a preference for vocational

Figure 4.22: **Enrolled population in Catalonia by nationality and educational stage 2007/08**

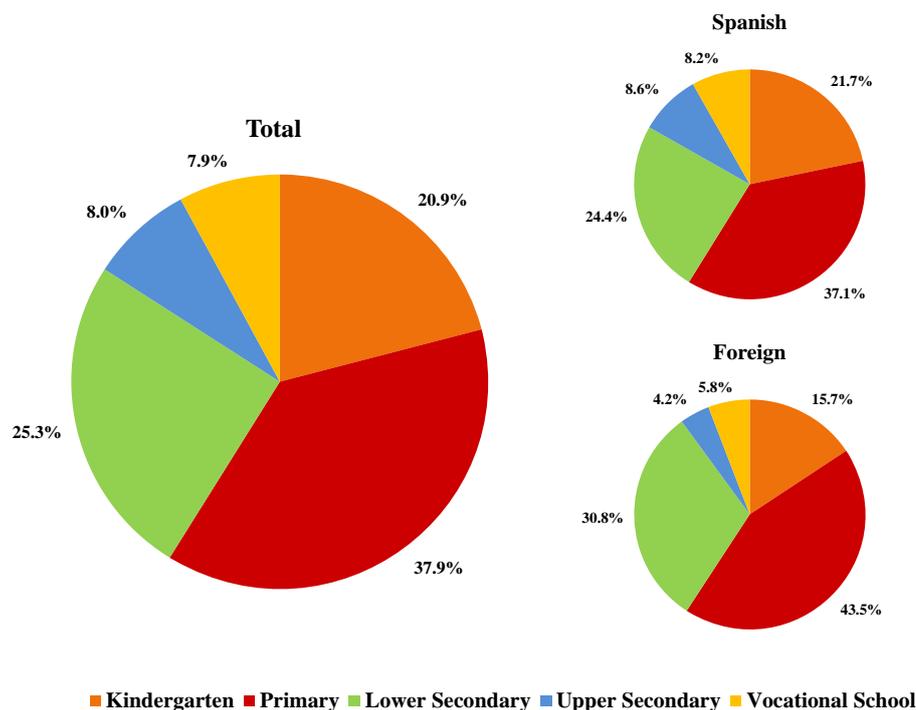


Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

education, but also the existence of barriers to higher education and therefore, to university studies. Barriers could be materialized as discretionary access to upper secondary for children in irregular situation, as well as discouraging their access to academic tracks. In that sense, even though the completion of vocational schooling could give access to university studies (see Chapter 2), only some of the higher specialization courses entitle this transition to higher educational levels. Thus, once the vocational track is chosen, access to university studies is limited. During that same academic year, the share of foreign students at Catalan universities reached only 3.5 percent of the total enrolled⁹. This proportion -that in absolute numbers represents 7,568 students- includes all university levels, from undergraduate to specialization and post-graduate courses. Therefore, it could have had an implicit bias related to the inclusion of students who have not participated in the local educational system before and specifically migrate for studying as those beneficiaries of international academic exchange programs.

⁹Estadística de l'Ensenyament universitari. Curs 2007/08 -University Education Statistics- (Idescat). Available online at: <<http://www.idescat.cat/pub/?id=aec&n=751&t=2008>>.

Figure 4.23: Enrolled population in Catalonia by educational stage 2007/08

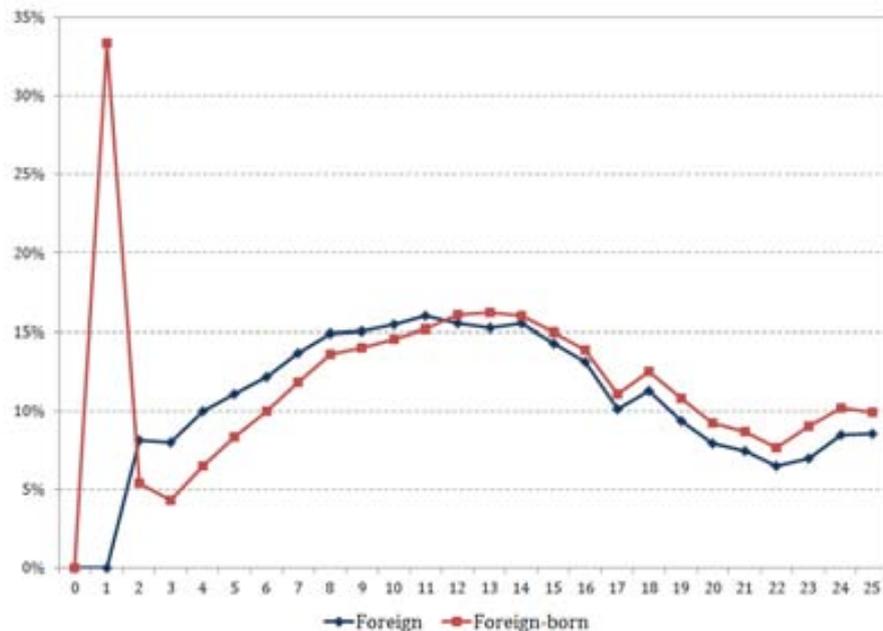


Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

After this first approach to the composition by origin and educational level of the enrolled population, the raising questions are addressed to those foreigners who dropout or at least are no longer accounted by official reports. Are they entering the labor market or is it just referred to the resulting statistical invisibility related to the Spanish citizenship acquisition of some of them? Given the absence of data related to nationality acquisition of the enrolled population, we could approximate the phenomenon by comparing the differential distribution according to nativity status and citizenship criteria.

Figure 4.24 illustrates the distribution by age of those who were born abroad (foreign-born) and those holding a nationality other than Spanish (foreigners). In order to shed some light on the naturalization effect generated on enrollment data -and the subsequent statistical invisibility-, we have considered pupils from zero to twenty-five years of age, allowing for the inclusion of pre- and post-compulsory ages. The gap between both curves could be interpreted as the effect of Spanish citizenship acquisition (for the part of the curve in which the number of foreign-born outnumber foreigners) and consequently as a reflection of the integration and settlement processes.

Figure 4.24: **Share of foreign and foreign-born enrolled population by age. Catalonia, 2007/08**



Foreign: Individuals holding a nationality other than Spanish.

Foreign-born: Individuals born abroad regardless their nationality.

Source: Author's elaboration based on the *Estadística de l'Educació no Universtitària* (Catalan Department of Education).

Consistent with the antiquity of the inflows -except for the peak generated at age one-, the number of children of immigrants born in the host country is increasing in time. As we can observe in Figure 4.24, most of them is younger than twelve years of age. At these ages the arrival of foreign-born children is mostly related to the completion of family reunion processes rather than a joint familiar project. Nevertheless, their share in the distribution by age of the reunified descendants is far from reaching the predominant role of youngsters between sixteen and eighteen years of age, probably as an effect of the legal constraints (Domingo (dir.) 2011; Domingo, López-Falcón and Bayona 2009, 2010). All in all, we must stress that nationality acquisition as well as migration processes have dynamic consequences on the population composition. On the one hand, because of the almost direct impact on the population structure of the inflows. On the other, because of the composition effect linked to nationality acquisition and, particularly affecting children born in Spain, their citizenship recognition by their parents' homecountry.

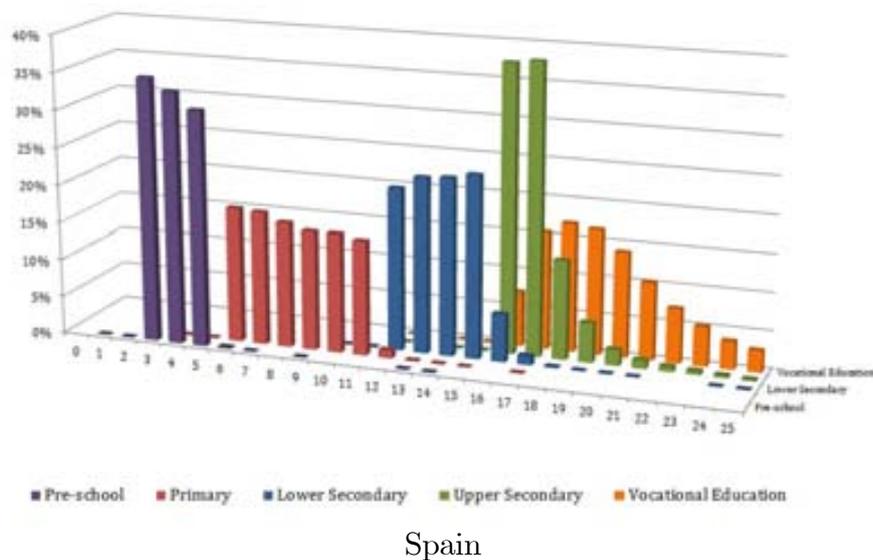
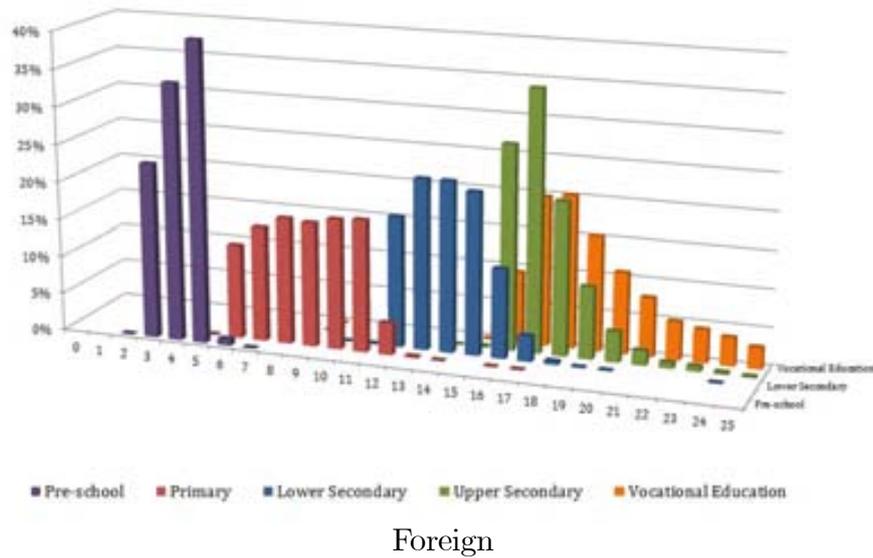
From age twelve onwards, the proportion of foreign-born children holding the Spanish nationality is increasing in time, probably as a consequence of their families naturalization after a longer period of residence. In that sense, we should not forget that access to post-

compulsory education for undocumented children is not granted by law, leaving the final enrollment decision to each educational center. Therefore, based on the current regulation and the evidence provided by the enrollment statistics, results might suggest that foreign-born pupils at post-compulsory stages are not only regular migrants but to a certain extent, also Spaniards. Consequently, the number of pupils with a migratory background reflected on the statistics could be underestimated.

Some of the questions that raise once the previous results are considered are: To what extent children leave the educational system because they reach the maximum compulsory age? Which are the differences by age for natives and foreigners enrolled at the same educational stage? How age differences and educational level influence the interaction between children of immigrants and natives? To what extent does it influence early drop-outs? In order to shed some light in this field, we will analyze the distributions by origin, stage and age of the enrolled population as shown on Figure 4.25. The graphic representation of these variables could help us understand the permanence and school continuation decisions, especially for those who have already overpassed the maximum recommended age by stage. Nevertheless, we must bear in mind the inclusion of social guarantee programs -mostly addressed to adults- in the vocational schooling category. Given the characteristics of the Spanish educational system, individuals older than eighteen could also be enrolled in post-compulsory levels or in courses addressed to obtain compulsory schooling certificates. For them, previous enrollment or attainment in the Spanish educational system is not a necessary condition. Therefore, for some of the foreigners enrolled, attending non-university post-compulsory stages should represent their first contact with the Spanish educational system.

The structure by age of children enrolled in pre-school stages apparently follows opposite trends while comparing the differential distribution of foreigners and Spaniards. The higher share of foreign children is found at the end of pre-school stage whereas for natives is during the first course - at age three. Before countries as Ecuador or Bolivia amended the citizenship recognition law, the number of children under three years old who were born in the host country systematically registered a deviation in the Padrón Continuo. As they were registered first as Spaniards -under the *ex lege* assumption- and later as nationals of their parent's homecountry, the number of children from one same cohort would annually differ between nationalities at early ages. It is particularly reflected in the number of infants holding a nationality other than Spanish: children under one year of age are clearly outnumbered by the population at age three when stocks and flows are accounted three years later.

Figure 4.25: **Enrolled population by age, educational stage and origin. Catalonia, 2007/08**



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

The distribution by age and educational stage of non-native pupils shows a higher proportion of students who are enrolled at ages other than the average mentioned by law. For example, the proportion of foreign pupils enrolled at lower secondary aged seventeen

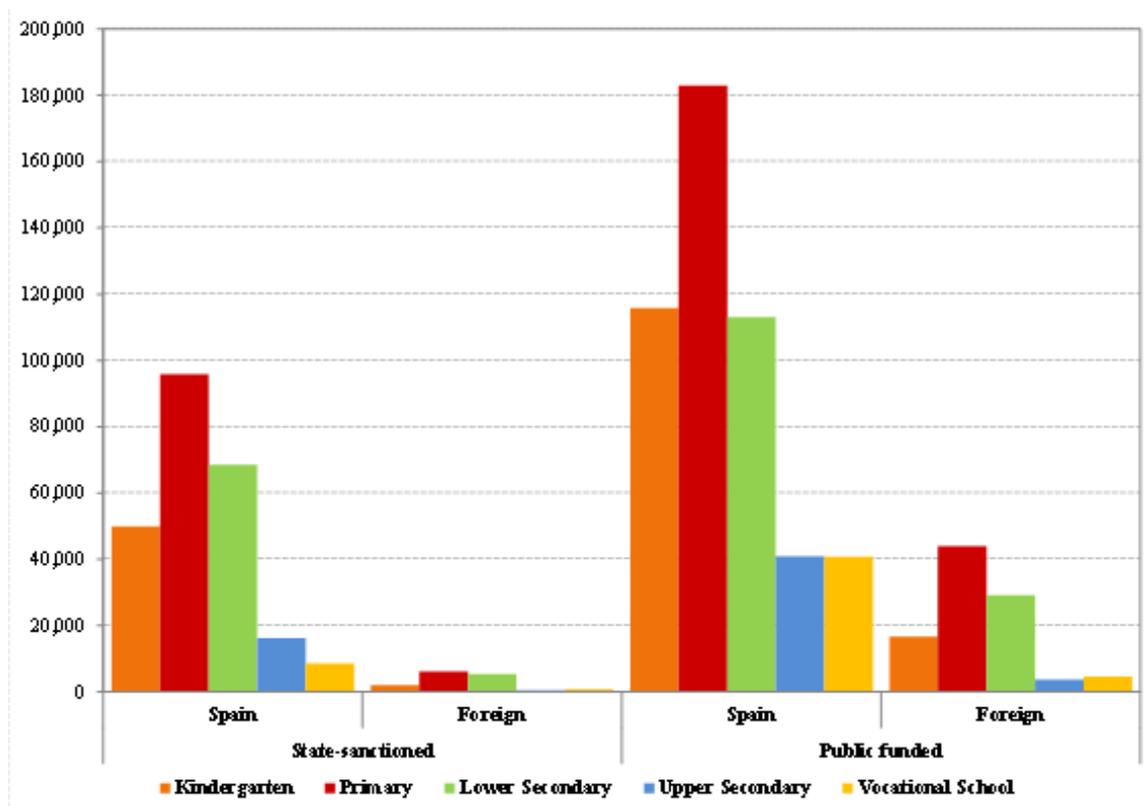
or older almost doubles that of natives. The same happens at upper secondary, where natives over eighteen years of age represent 10.2 percent of the Spaniards enrolled at this stage by 17.5 percent of foreigners. Even when their participation in post-compulsory and higher education is lower than that of their Spanish contemporaries, data suggest that foreign pupils remain studying longer than it is socially perceived. This could also be related to access to information and opportunities that allow pupils to continue studying at higher levels.

Unfortunately, the data provided does not allow us to explore neither the academic tracks of the pupils that are accounted in the sample, nor the academic records in terms of drop-outs, completion or course repetitions. However, we must stress the role legislation played during the analyzed school year 2007/08. At that time, and depending on their familiar circumstances, children of immigrants older than sixteen were not entitled a residence and work permit without a specific job offer. As a result, those who were previously undocumented or were not able to fulfill the requirements established by law, were conditioned to the submerged economy. The latent risk of exclusion of the foreign youth was subsequently increased given the possibility of becoming irregular when their parents were not able to sponsor them once age eighteen was reached.

As we have mentioned before, in addition to preferences and available resources, educational sectors play an important role in the structure and distribution by origin of the enrolled. Even though municipalities with only public or private centers would constrain familiar available choices by turning individual preferences irrelevant, results suggest that Spaniards have a strong preference for state-sanctioned centers. Figure 4.26 and Table 4.6 shows the students enrolled by sector, origin, and educational level.

The significant weight that pre-school stage represents in the enrolled population and especially among natives, is a clear reflection of the enrolled population rejuvenation. This process, linked to the arrival of inflows from abroad but also to the fertility recovery of natives in previous years, have in some cases exceeded the available public infrastructure thus motivating the increase of investments in the private sector. The private supply increase would not necessarily be homogeneous in price nor quality offered. For families, accessing the private sector requires not only higher monetary resources but also to information which could be unattainable for newcomers if there is no network behind. All in all, the relevance of the enrolled population at pre-school levels should not be left aside. On the one hand, early enrollment of children would benefit the social integration and the construction of networks among origins. Even when there could be a proportion of children with immigrant background that hold Spanish citizenship, the number of Spaniards

Figure 4.26: Enrolled population in Catalonia by educational stage 2007/08



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

enrolled at pre-school at publicly funded centers slightly overpass their lower secondary peers. In that sense, it would benefit the language proficiency of foreigners and their interaction with their native contemporaries representing a key instrument of integration policies. On the other hand, and particularly referred to educational policy, children enrolled in pre-school stages represent the basic 'potential' future demand for higher educational levels. Children today will be the teenagers and the adults of tomorrow, and therefore, the future consumers of higher education.

Nevertheless, we must not forget the relevance of the infrastructure and the economy as a whole: granting access to children at early ages regardless their origin, should help in the return or access to labor market of mothers after maternity leave, and therefore to ease the combination of career and family.

As for educational stage, we can see that, on the aggregate, the majority of children are concentrated at compulsory stages regardless their origin. Additionally, both groups experience a decrease once mandatory education has been completed. Given the current

Table 4.6: **Enrolled population by educational level, origin and sector. Catalonia 2007/08**

Nacionality	Level	State-sanctioned	Public funded	Total
Spain	Kindergarten	49,884	115,815	165,699
	Primary	95,837	182,892	278,729
	Lower Secondary	68,444	113,077	181,521
	Upper Secondary	16,162	40,951	57,113
	Vocational School	8,506	40,699	49,205
Foreign	Kindergarten	1,936	16,611	18,547
	Primary	6,064	44,012	50,076
	Lower Secondary	5,368	29,069	34,437
	Upper Secondary	393	3,725	4,118
	Vocational School	713	4,537	5,250
Total		253,307	591,388	844,695

Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

economic conditions, we could also consider to what extent the decrease between compulsory and non-compulsory education has been affected. The economic growth experienced in early years have definitely influenced the school continuation decisions of both, individuals and families, given the higher opportunity costs due to not earning while studying. Consequently, it is reasonable to expect that access to the labor market has been delayed but probably just for those who were able to overcome the associated costs.

4.4.1 School segregation by educational stage

The differential distribution and composition of the enrolled population of foreign origin would also be reflected in heterogeneous school segregation levels once educational stage is considered. In order to measure this effect, we have estimated the Segregation Index (Duncan and Duncan 1955a,b) for each municipality with at least one educational center and for all the municipalities reported in the database. The segregation index is defined as:

$$S_j = \frac{1}{2} \sum_{i=1}^N \left| \frac{x_{ij}}{X_j} - \frac{t_{ij} - x_{ij}}{T_j - X_j} \right| \quad (4.1)$$

where:

x_{ij} = population of the group X enrolled in the school i at the educational stage j .

X_j = population of the group X enrolled in the municipality at the educational stage j .

t_{ij} = total population enrolled in the school i at the educational stage j .

T_j = total population in the municipality enrolled at the educational stage j .

N = schools in the municipality offering the educational stage j .

i = school.

j = educational stage.

By definition, the segregation index will take values between zero and one, indicating an evenly distributed or maximally segregated population respectively. Based on the interpretation given to the general segregation index definition, (Massey and Denton 1988; Jakubs 1977, 1981), in our case values could be read as the proportion of foreign pupils that should change their educational center in order to obtain an even distribution at territorial and educational level.

Table 4.27 and Figures 4.27 to 4.32 show the total school segregation index and by educational stage for the twenty largest municipalities in Catalonia whose population overpasses 50,000 inhabitants¹⁰. The bars indicate the school segregation scores at municipal level, whereas the red line shows the resulting index for the aggregate. We will not differentiate between public and private centers in order to obtain the maximum information for as much municipalities as possible.

First of all, we must stress the role Barcelona and the largest municipalities have in the aggregate distribution. Barcelona represents the most populous and largest municipality of our sample and concentrates the higher number of educational centers. In terms of educational policy and infrastructure, it represents one Territorial Delegation by itself. Therefore, it is responsible for the allocation of public resources as well as the local inspectorate of education. The well-established schools as well as the social perception of the diverse quality and academic achievement that would be reached, turns the city into an attraction node for population of the neighboring municipalities such as L'Hospitalet de Llobregat, Badalona or Santa Coloma de Gramanet.

¹⁰The municipalities with more than 50,000 inhabitants according to the Padrón Continuo (Idescat) are: Badalona, Barcelona, Castelldefels, Cerdanyola del Vallès, Cornellà de Llobregat, El Prat de Llobregat, Girona, Granollers, L'Hospitalet de Llobregat, Lleida, Manresa, Mataró, Mollet del Vallès, Reus, Rubí, Sabadell, Sant Boi de Llobregat, Sant Cugat del Vallès, Santa Coloma de Gramanet, Tarragona, Terrassa, Viladecans, and Vilanova i la Geltrú.

Figure 4.27: School segregation between foreigners and Spaniards by municipality and stage. Catalonia, 2007/08

	Pre-school	Primary	Lower secondary	Upper secondary	Vocational school	Total
Barcelona	61.11	59.47	52.74	48.14	28.86	52.20
L'Hospitalet de Llobregat	48.90	48.42	47.48	42.66	35.30	45.05
Badalona	55.98	53.82	47.28	54.94	26.59	50.12
Terrassa	57.19	47.45	36.08	41.64	20.96	41.68
Sabadell	57.93	52.18	43.66	36.52	14.19	46.41
Tarragona	51.31	50.55	40.73	28.73	17.70	44.78
Lleida	57.82	53.40	38.56	36.70	22.77	43.19
Mataró	26.98	32.39	30.16	35.72	28.18	27.96
Santa Coloma de Gramenet	45.20	42.78	31.60	17.62	10.61	35.15
Reus	51.08	50.65	37.20	31.62	29.46	42.42
Girona	57.34	44.47	24.94	26.59	11.57	34.93
Cornellà de Llobregat	59.59	54.30	34.11	36.53	16.77	43.04
Sant Boi de Llobregat	49.22	51.03	32.93	29.21	13.35	39.17
Sant Cugat del Vallès	44.17	38.25	36.96	34.45	27.58	35.39
Manresa	47.35	44.68	25.27	22.71	14.34	31.48
Rubí	45.89	31.88	25.44	26.28	25.23	28.51
Vilanova i la Geltrú	33.49	37.72	25.11	30.88	31.64	28.79
Viladecans	50.19	44.25	28.82	29.34	15.79	39.19
El Prat de Llobregat	38.61	35.50	31.91	26.48	13.39	30.61
Castelldefels	30.07	43.46	39.43	27.41	57.57	37.91
Granollers	55.27	48.36	31.59	34.56	13.08	38.94
Cerdanyola del Vallès	72.21	61.17	47.64	28.60	0.00	53.53
Mollet del Vallès	41.05	37.23	39.09	26.58	3.62	33.68
Catalonia	47.44	43.58	37.70	38.25	26.72	39.34

Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Second, in terms of their contribution to the overall scores, we must highlight the relevance of the primary and lower secondary compulsory stages. As they account for the largest enrolled population, their contribution to the aggregate is generally the most significant among educational stages.

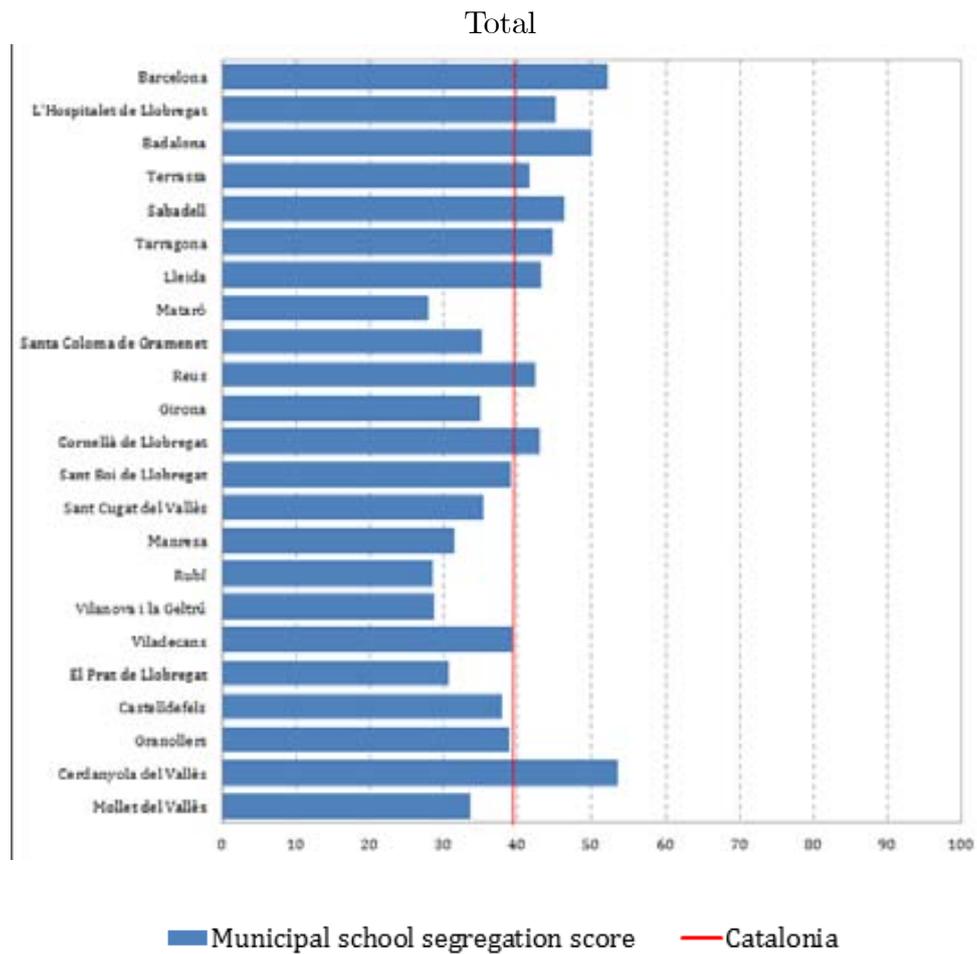
In addition, we should not left aside the institutional role in the final results. That is, not only policy instruments and catchment area definitions would have an effect in how pupils are spatially distributed across the territory. The number of available educational centers and their funding source would affect the aggregate school segregation scores. As previously explained, the number of publicly funded pre-school centers is scarce and most of the supply of education at this stage is covered by private institutions, not being listed in the database. As table 4.27 shows, in most of the municipalities explored, pre-school

reports the higher segregation of foreign children, that could also be interpreted as the stage with higher concentration of Spaniards. All in all, we cannot affirm to what extent the higher segregation at pre-school levels is the result of the constrained supply or also a reflection of those children of foreign parents who were born in Spain and hold the Spanish citizenship. On the other hand, the lower scores obtained in vocational schooling could be a reflection of the higher participation and the more even distribution of foreigners in this academic track regardless the constrained supply. This could indicate that, more than having an advantage in the enrollment process, Spaniards could have more access to information but also that their familiar and social network structure makes them consider early enrollment as the best choice.

The interaction between the educational stage and the geographical dimension should also be considered. Factors that determine school choice decisions are not only focused in the ethnic composition of the enrolled children in one particular school or the surrounding neighborhood. They also include values, academic excellence and outcomes, school facilities, religious and value-based education among others. For neighboring municipalities, and particularly in those with well established public transportation networks, parents may consider schools from more than one administrative unit as potential choices in order to fulfill their expectations without considering residential changes. To some extent, the circular movements between municipalities could partially explain the heterogeneous segregation levels by educational stage.

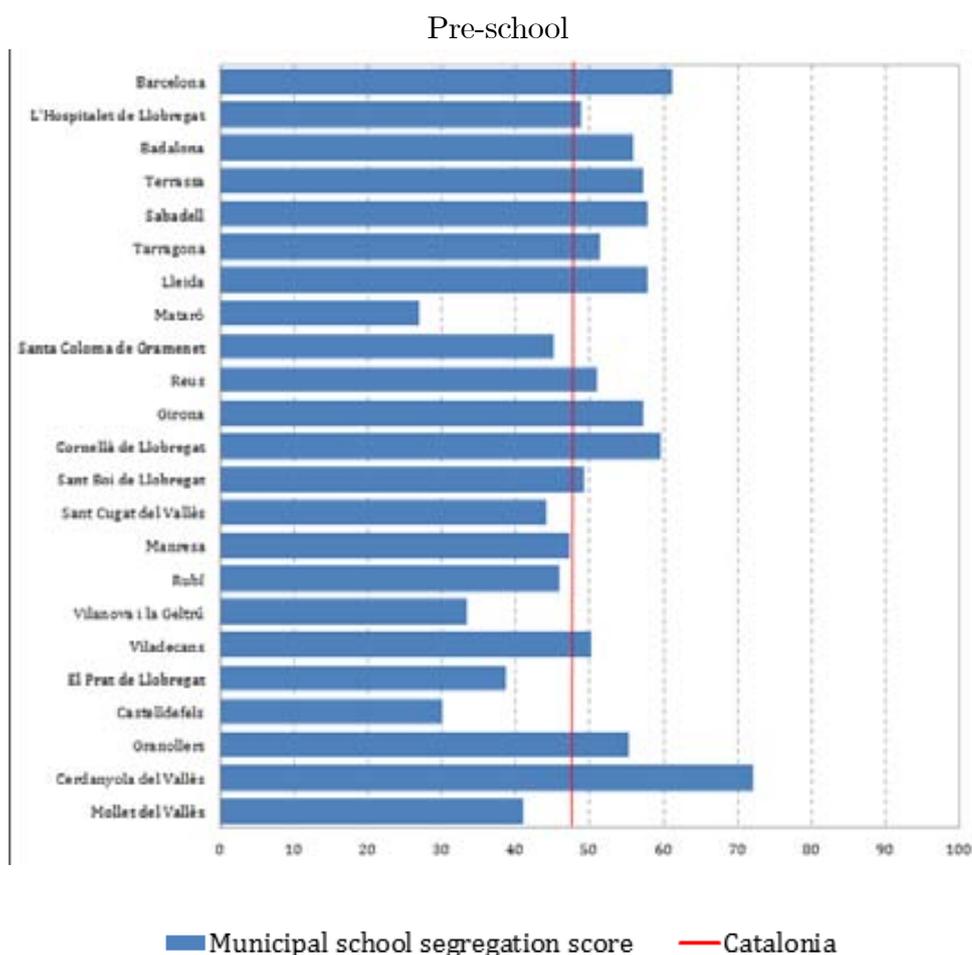
By comparing our results with those of Sánchez Hugalde (2009) for the compulsory stages during the school year 2002/03, the lower scores obtained suggest an improvement in the aggregated distribution of the enrolled population. The author's estimation showed an aggregated school segregation score of 50 points for compulsory primary whereas for the same stage our calculation scores 43.6 points. For lower secondary education, Sánchez Hugalde's (2009) calculations result in an aggregate score of 42.1 points whereas our estimation results on 37.7 points for Catalonia.

Figure 4.28: School segregation between foreigners and Spaniards. Catalonia, 2007/08



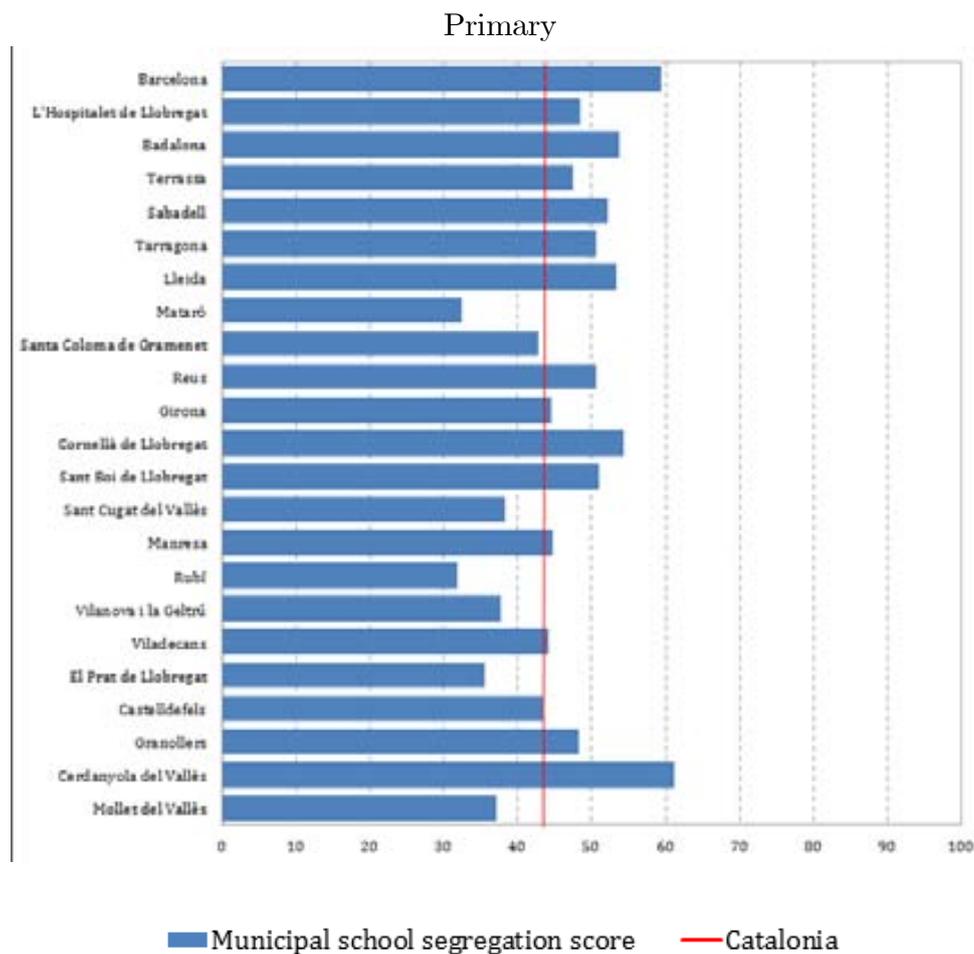
Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 4.29: School segregation between foreigners and Spaniards in Pre-school education. Catalonia, 2007/08



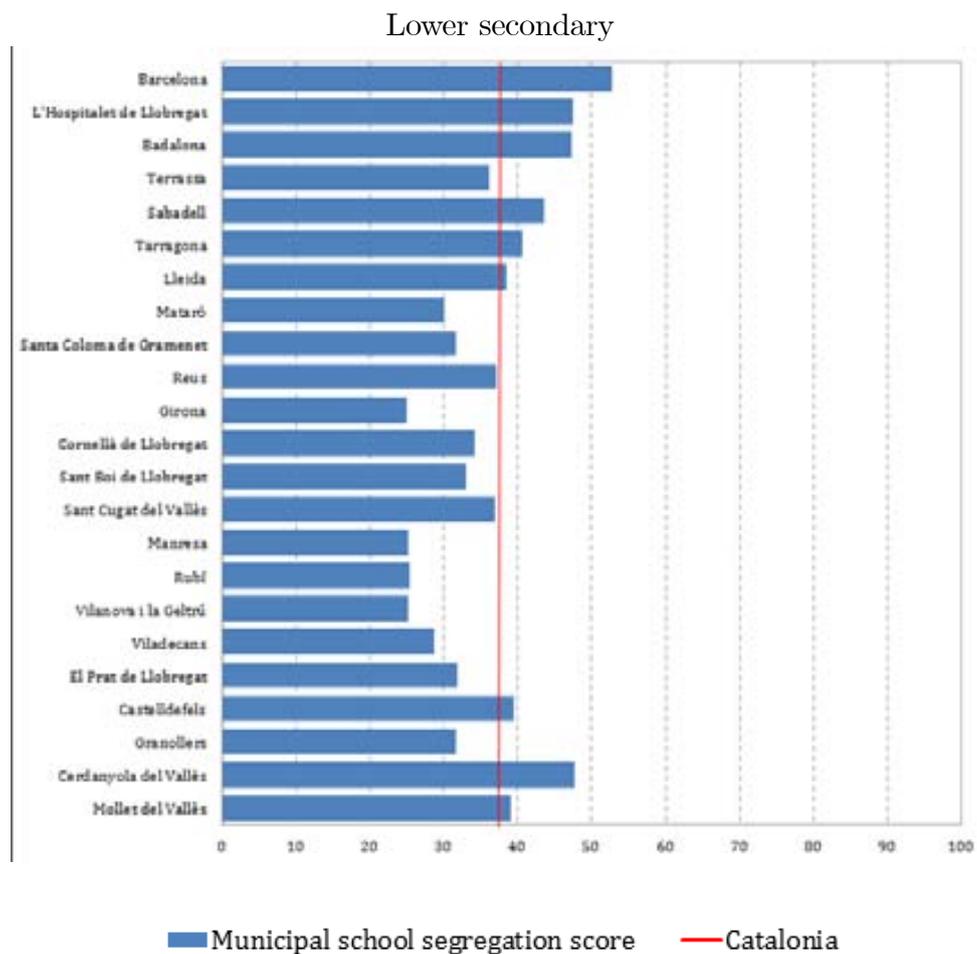
Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 4.30: School segregation between foreigners and Spaniards at Primary education. Catalonia, 2007/08



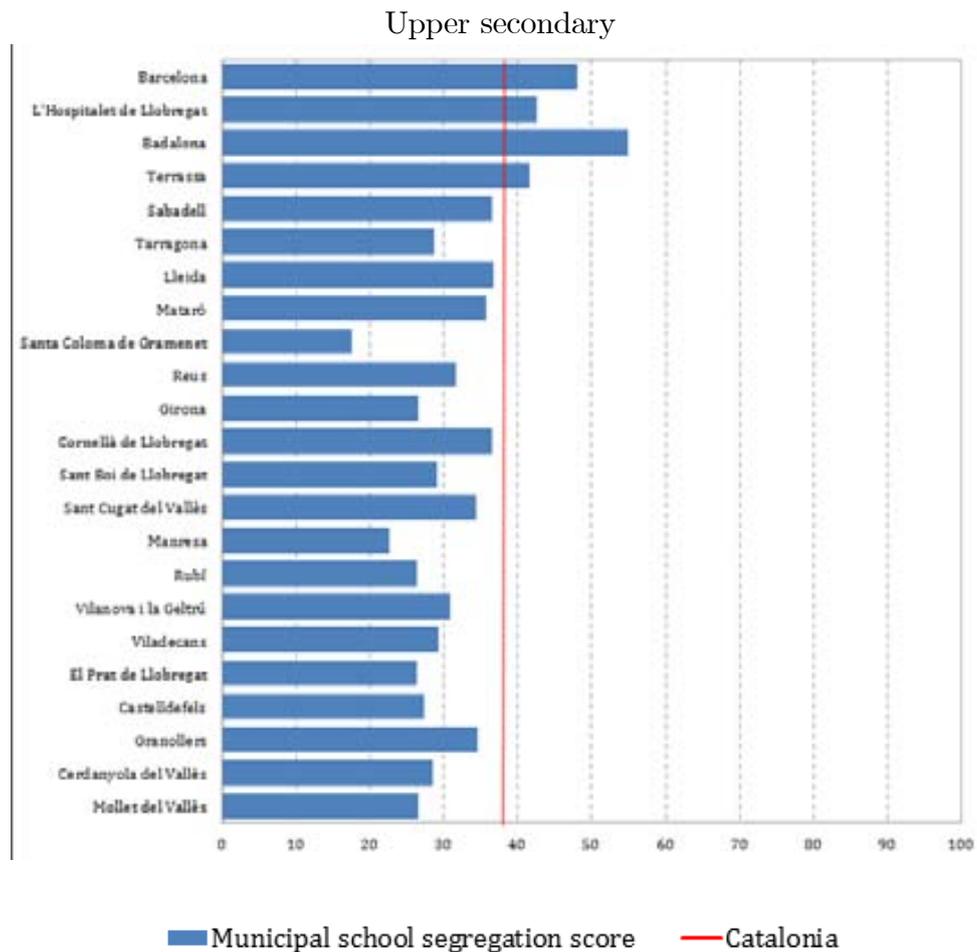
Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 4.31: School segregation between foreigners and Spaniards at Lower Secondary education. Catalonia, 2007/08



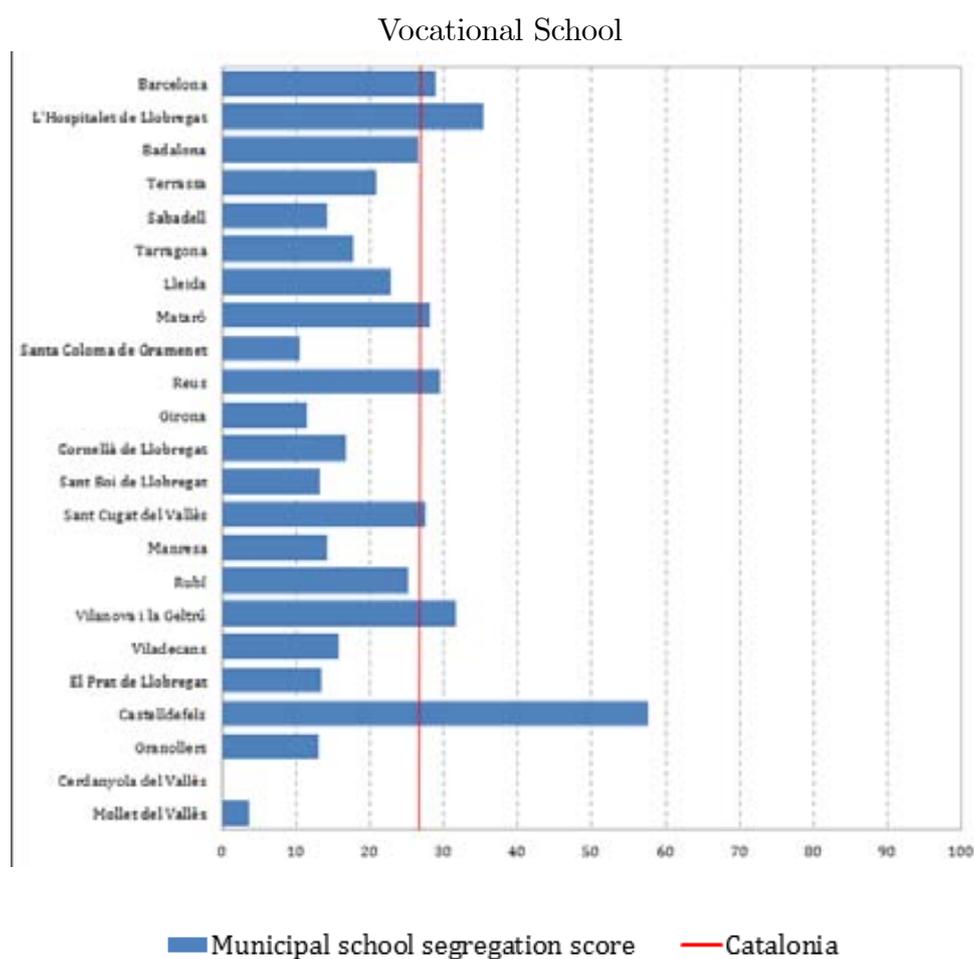
Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 4.32: School segregation between foreigners and Spaniards at Upper Secondary education. Catalonia, 2007/08



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 4.33: School segregation between foreigners and Spaniards at Vocational school. Catalonia, 2007/08



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

4.5 Conclusions

Migration is embedded in the life-course. It affects personal and familiar decisions with respect to childbearing, education and entry in the labor market among others. One of the most affected by international migration movements is children, which as tied movers have a passive role on the decision-making process. Compared to their parents, they are more sensitive to age of migration, enrollment and their integration in the host society; factors which would determine their future working life and, therefore, earnings.

The arrival of children of foreign origin has had a clear impact in the demand for education. Together with the fertility increase of the last years, international migration inflows have significantly increased the pressure on the educational system in a period when central planners' have estimated a decrease of the enrolled population. However, as we have seen before, the access of children of immigrants to the educational system diverges among stages. Regardless their nationality or origin, the enrollment of the younger individuals could be affected by childbearing decisions (i.e. fertility postponement) and informal child-care arrangements involving unpaid/paid care. In that sense, child-care arrangements of immigrants often rely on relatives or members of their own community whereas natives demand foreign family day-carers. In addition, the evidence provided by family reunion procedures suggests that the scarce arrival of children at pre-school ages could be related to their arrival to Catalonia at older ages. Consequently, parents delay the arrival of children to the very same age when they could be officially enrolled in compulsory primary education (Domingo, López-Falcón and Bayona 2011). Therefore, the progression by school generation between kindergarten and the first level of primary education would experience a substantial increase with respect to that population that has already been enrolled.

The decrease experienced in the number of foreign pupils enrolled in post-compulsory education compared to previous stages at the time of our study was dramatic. The low enrollment rates after the first educational transition indicates the incidence of opportunity costs on school continuation decisions. Despite older children of immigrants could also be underestimated by Spanish nationality acquisition as their younger peers, their scarce presence at higher educational levels could also determine their effective social and economic integration. This effect could be particularly affecting children of undocumented migrants whose access to education at post-compulsory levels is not granted. Even if natives could face the same situation, considering their age and legal constraints (not holding a work permit or being in irregular situation), non-nationals would not have access to the formal labor market. Therefore, their risk of social exclusion would be higher given the lack of opportunities.

All in all, there is still a lot to be made in the field of social policies addressed to tackle the disadvantages among members of one same society. The lack of public databases that allows the real social risk of exclusion of the younger population regardless their origin, could negatively affect the development of effective policies. In addition, the absence of databases that allows the study of children of immigrants and their familiar backgrounds generates the statistical invisibility of all the household members. To what extent policies have also considered as immigrants to those children of immigrants holding the Spanish citizenship who were born in the host country?

Educational attainment is a key element for the population as a whole. Even if it has been one of the traditional instruments of integration policies targeting the younger members of the foreign population, the benefits obtained by increasing the educational attainment and, consequently, the human capital stock in the country would be reflected at individual and macro level. Education matters not only for the expected future income depending on the maximum level attained and the attached job opportunities, but for the implications in the society. Better educated parents could encourage their children in pursuing higher education with the consequent value added. Considering the social classes of origin, education will affect the individual's ability to move up. For immigrants, it could also represent the opportunity to reduce the gap with respect to natives in terms of income and job opportunities.

Chapter 5

Geographic analysis of the enrolled population in Catalonia

The arrival of children from abroad has changed the classroom and schools composition and the demand for education across the Catalan territory. As a response, educational policies on access, distribution and enrollment of foreign children have been implemented at both local and Autonomical level. Even though there is no public source for academic achievement at school level, the negative social perception of immigration has directly affected the school decision-making process of natives. Probably because their access to information and resources is better than foreigners, the desertion of schools where foreigners represented a significant proportion has been relatively common during the last years. The ‘white flight’ of natives and the scarce response from the public sector has contributed to the existence of *ghetto* schools, especially in urban areas. In that sense, the educational system has experienced a contradictory policy during the last years. On the one hand, policies claim to fight against the concentration of foreign pupils in school as well as the prevalence of ghettoized centers. On the other, almost nothing has been made against the concentration of natives in centers with scarce -or even none- foreign pupils. In that sense, the concentration of pupils is only seen as a harm when they are of specific origins.

The aim of this section is to introduce the territorial dimension in the study of the enrolled population in Catalonia. In order to fulfill this objective, we will analyze the spatial component of education from two different perspectives. First, we will analyze the evolution of the enrolled population at territorial level. It would be used as an introduction to the school segregation phenomenon that will be explored on section 5.2. As we have mentioned on Chapter 1, previous empirical studies have confirmed the existence of school segregation in the Catalan educational system. However, the evolution of this phenomenon has not been analyzed given the lack of data. The second approach to

be covered is directly related to the school segregation of children of foreign origin in Catalonia. The study will cover first the evolution of the segregation at school and residential segregation, as well as the interaction of these phenomena at micro and macro level. At macro level, the study will tackle the evolution of the different segregation measures at aggregated level as well as for a sample of municipalities. Subsequently, we will reduce the territorial scope of our analysis by studying the school segregation at the Girona Province and afterwards at the city of Barcelona. The selection of these dimensions responds to data availability and previous findings. The Girona Province has experienced the highest school segregation levels and has experienced a particular white flight dynamics among municipalities. On the other hand, the analysis at micro level will be completed by including the municipality of Barcelona. We will study the local segregation within and between the districts that constitute the municipality of Barcelona.

5.1 Territorial distribution of the enrolled population in Catalonia

The territorial distribution and the settlement patterns of immigrants has not been homogeneous across the territory. As we have seen on Chapter 4, the settlement areas of the immigrant population mostly coincide with those where economic activity is concentrated. As tied movers, the migration project of the children of foreign origin is determined by that of their parents. Thus, they would be subject to their parents location while facing, in some cases, an extremely limited educational supply given the scarce population at schooling ages.

The increased arrival from abroad and the consolidation of the settlement process of those who arrived prior to the migration wave of the beginning of the century has been reflected in the territorial distribution of the younger foreigners. With the arrival of under-age children the educational system experienced a generalized demand for education and thus new challenges in order to satisfy the increased demand. During the academic course 2000/01 37.7 percent of the analyzed municipalities did not have enrolled population of foreign origin. Eight years later, during the school year 2007/08, the proportion only reached 4.5 percent. Even though the magnitude and intensity of the changes were not homogeneous in the territory, it shows the significant dispersion of the foreign population in the territory.

Figures 5.1 to 5.5 illustrate the share of each continental origin on the foreign enrolled population at municipal level during the school years 2000/01 and 2007/08. Darker shades

correspond to higher concentrations by municipality. The common denominator among nationalities is their increased enrollment during the analyzed period across the territory. The diversification of the origins composing the enrolled population is clear and also coincident with those of the resident population. However, we must take into account that not all the municipalities in Catalonia have at least one school and that some other should satisfy the demand for education of more than one municipality. As we might expect, the smaller municipalities will still be affected by a scale effect. Therefore, higher shares would not necessarily imply most numerous populations.

The differential evolution of the analyzed groups is not only related to the economic activity and the individual migratory project –also affected by social networks– but to the settlement process for those nationalities that arrived earlier. In that sense, there are clear attraction nodes along the Catalan territory that must be mentioned.

As we have mentioned before, Africans are one of the most settled origins in Catalonia, explaining the distribution and predominant role in the 2000/01 foreign enrolled population. As we might expect, the loss of their relative weight during the analyzed period is directly related to the diversification of the origins and the massive arrivals. Nevertheless, we must also consider the role that settlement could play in the distribution. Africans held a pioneer role in the migration processes to Spain during the second quarter of the 20th century. Probably related to proximity, Morocco represented the main origin of the African inflows significantly surpassing nationals of countries with historical ties as Equatorial Guinea. However, during the last years considered new sending countries –especially from Sub-Saharan Africa– increased their presence in Catalonia. The different settlement paces as well as their different structure by age could explain why some of the African nationalities have apparently reached what has been defined in the theory of cumulative causation as ‘point of saturation’ or network maturity (Massey and Zenteno 1999) in Catalonia. According to the theory the transition from an initial stage of migration to a takeoff stage allows to distinguish between pioneer migrants from followers. As we might expect, the saturation point would be reached after the initial period of growth, once migration rates have decreased. Therefore, we could distinguish between those origins whose second and 1.5 generations are –on average– older and the younger migrants who have not already formed a family. In that sense, the continuous arrival of Moroccans at young labor ages could explain why the saturation point for their nationals has not already been reached.

Several authors have pointed out the possibility of a positive discrimination to Latin-American and Eastern-European flows, in order to develop an ethnic substitution in the

Spanish migrations that gradually gained ground over the Moroccan flows (Izquierdo Escribano, 2004; Domingo and Martínez, 2006; Vono, Bedoya, and Domingo, 2008). This more or less undercover policy has received the support of the Spanish public opinion, that keeps a conflictive relationship with their Moroccan neighbors, not based on the suppose of the cultural distance, but in a traumatic shared history that has determined the construction of both identities (Stallaert, 1998). Consistent to the intensity of the aggregate inflows, Americans represent the origin that has experienced the most significant increase during the period. This group, mostly composed by Latin Americans, has practically extended their presence to the entire Catalan territory.

Also, Asians (mostly from Chinese and Pakistani origins) show in time one of the most homogeneous distributions across the territory. Even though there are still municipalities that show a higher proportion of children of Asian origin, this fact could be related to the existence of attraction nodes for Asian nationals or ethnic networks at those places.

A summary of the evolution of the main origin at municipal level for school years 2000/01 and 2007/08 is shown on figure 5.6. Without considering a particular threshold but simple majority, the maps illustrate which group was the most numerous at each municipality. Each group has associated one particular shade. Municipalities without schools and without foreign pupils are also differentiated.

As we can see, origins became more and more diverse during the analyzed period. During the school year 2000/01, Africans, as pioneer migrant and therefore more settled group, held the majority of the foreign enrolled population in most of the territory. All in all, as a result of the diversity of the later incoming inflows, the relative weight of the African pupils decreased during the analyzed period. As we might expect, they are significant differences in the settlement process between groups. With respect to families and children, pioneering groups -as Equatorial Guineans and Dominicans- could be close to the saturation point. That is, they have already reunified or build their families and therefore, their younger members are on average older as the recently arrived nationals who have not already formed a family at the host country.

Even though we have only analyzed the composition by origin of the foreign enrolled population, we must also consider the existence of scale effects. As we have mentioned before, marginal effects -with respect to the composition and weight of the foreigners- will be higher in smaller municipalities. In that sense, the differences between the first and the second nationalities could be determined by only one pupil, and therefore with significant effects in school segregation estimations. This phenomenon, directly connected to de- and re-population of remote municipalities by natives, also illustrates the settlement process

of migrants. In that cases, more than migrant networks, migration is mostly related to job opportunities -e.g. the expansion of the tertiary sector in the Pirinees- that allow the consolidation of the familiar project. In that sense, we must not forget that it is not only referred to migration but also to childbearing and family formation. Given the younger ages of the migrant population, it is possible that some of them have already spend some time in Catalonia and therefore, part of the enrolled children constitute the second generation of migrants. The role of immigrants in the economic development and the society as a whole explain the diverse mosaic of origins across the territory.

5.2 Separate but equal? School segregation in Catalonia

During the first decade of the 21st century, Spain confirmed its position as a new immigration country. It shifted from a traditionally sending region to one of the most important receiving countries in the European Union (Izquierdo Escribano, 2004; Domingo and Martínez, 2006; Vono, Bedoya, and Domingo, 2008). As we have mentioned on chapter 2, school segregation on Catalan schools have been shown by empirical evidence. Spatial segregation has been tested –among others- by Sánchez Hugalde (2009, 2007, 2007b.), Valiente and Rambla (2009) and the Síndic de Greuges (2008); whereas socioeconomic segregation was also approximated by Mancebón Torrubia and Pérez Ximénez-de-Embrún (2010). It has also been of political interest –and thus introduced in the political debate- given the interest of avoiding the subsistence of ghetto schools and its implications on the social integration of immigrants, besides the consequences affecting the aggregated educational attainment. However, the resilience of a double discourse has also been shown. On the one hand, the development of policies intended for the foreigners' complete integration in the host society whereas, on the other, the educational system allows the discretionality at micro level.

School segregation can be understood not only as the spatial uneven distribution of two or more groups of scholars, but also as the educational attainment differences which affect them. It may be a cause of future social segregation and consequently a source of social inequalities. In that sense, school segregation can also be related to parental socioeconomic status thus inducing progressive segregation. Consequently, unequal access to knowledge

and opportunities can be observed in the lower deciles. They also show a limited mobility in school choice decisions given travel costs, attaching them to a higher value of proximity. As Bordieu (1986) argues, school choice is less common in disadvantaged families due to limited economic, social and cultural resources.

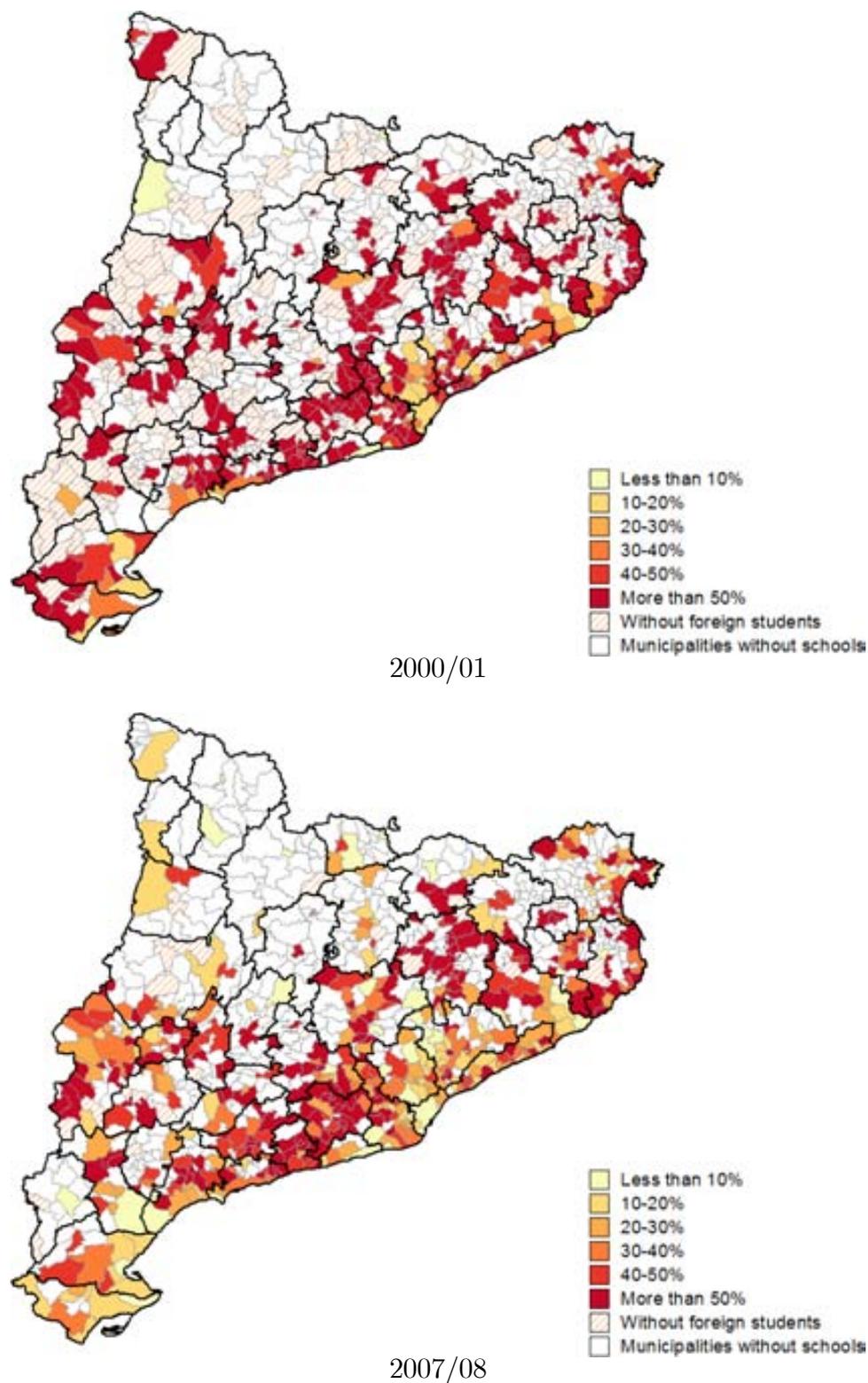
As for the enrollment process, every spring, the Catalan Ministry of Education opens the pre-enrollment process for public and state-sanctioned schools. Parents must provide a fulfilled form containing not only the household information but a prioritized list of three educational centers according to their preferences. Most of the demand is fulfilled according to the parental first choice preference. If demand exceeds the number of available places, the final decision would benefit those cases in which another family member is enrolled at the same school, proximity of the place of residence as well as the households' socioeconomic status. Additionally, the Catalan educational system also privileges children with disabilities, members of numerous families (3 or more children) and/or suffering from a chronic disease (for example, diabetes or celiac).

Given the absence of a public database that allows the study of social disadvantage and the educational attainment and school continuation decisions of the enrolled population in Catalonia, we will constrain our analysis to the spatial character of the phenomenon. We use and understand the terms school segregation, interactions and distributions as spatial and geographical processes. Based on the characteristics of the database provided and the focus of our research, we will not analyze to what extent pupils of a specific nationality or background interact with each other. Thus, following the spatial assimilation theory that predicts that all immigrants, regardless their origin, will be able to achieve residential integration with the dominant group given sufficient acculturation and social mobility (Vang 2012), we could understand that students would achieve school integration in time.

In that sense, we will only explore the distribution of the enrolled population by origin at meso level but we will not analyze how social interactions are built or the differential social and ethnic networks constructed inside classrooms and schools.

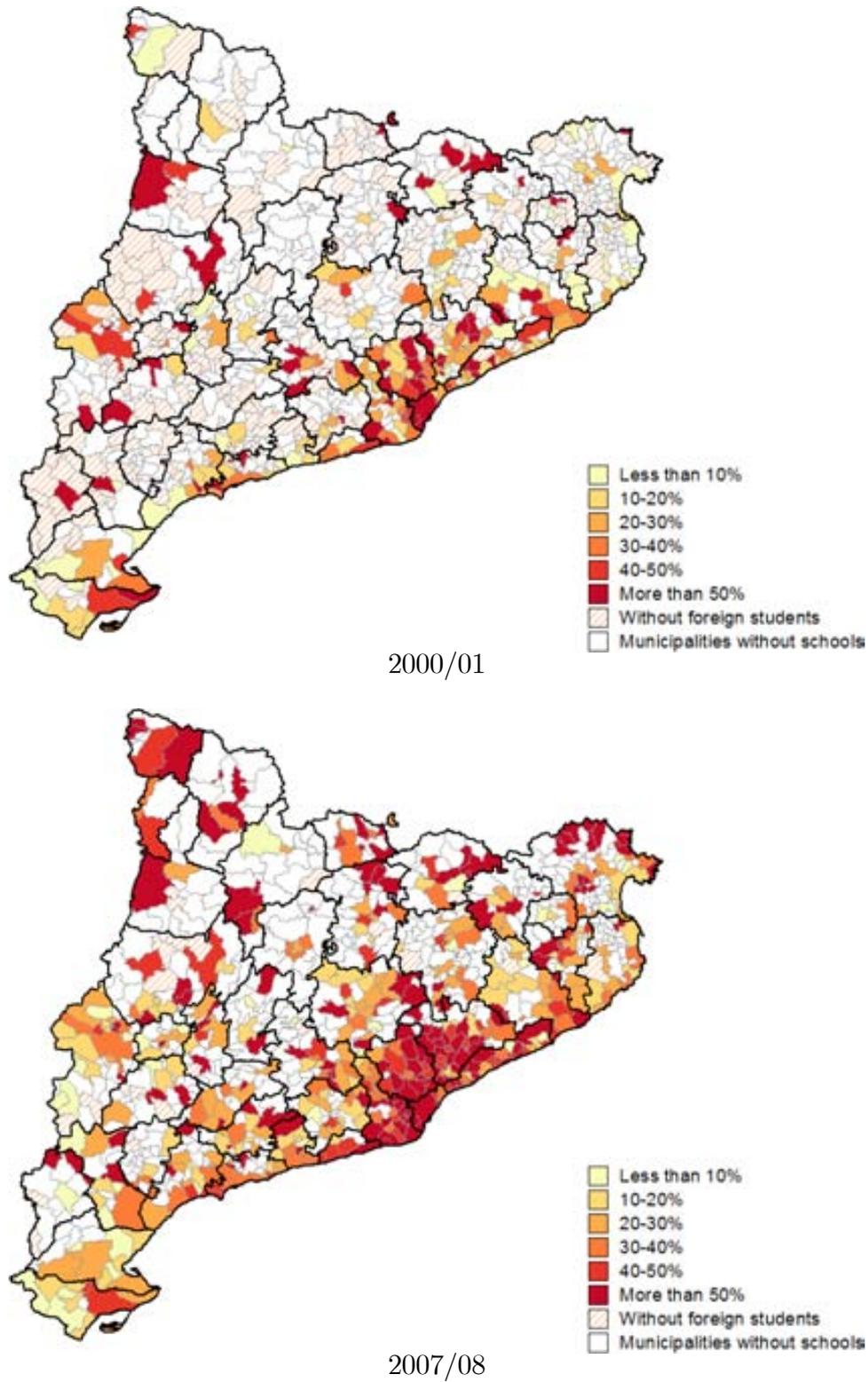
The aim of this section is to show the evolution and the incidence of the school segregation in the enrolled population distribution. In order to fulfill our objective, we will explore first the evolution of the distribution between and within schools for the period between the academic courses 2000/01-2007/08. As mentioned in Chapter 2, the database consists in school aggregated data for all Catalan territory. Unfortunately, we will not be able to explore its incidence on educational attainment, tracking or school continuation decisions. The relation between school and residential segregation will also be considered as well as the contextual determinants of the municipality.

Figure 5.1: Enrolled population of foreign origin: Share of African pupils by municipality. Academic years 2000/01 and 2007/08



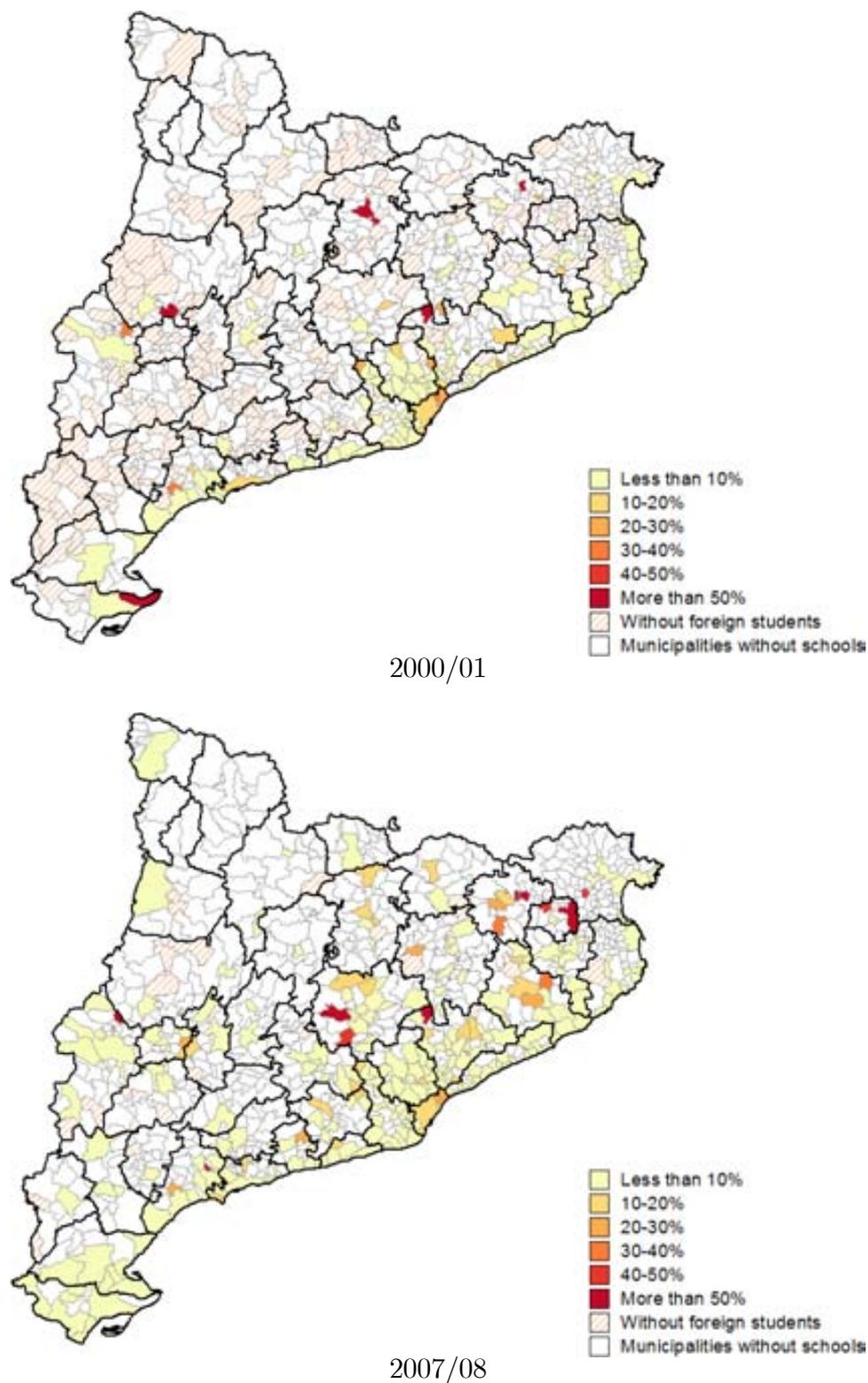
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.2: Enrolled population of foreign origin: Share of American pupils by municipality. Academic years 2000/01 and 2007/08



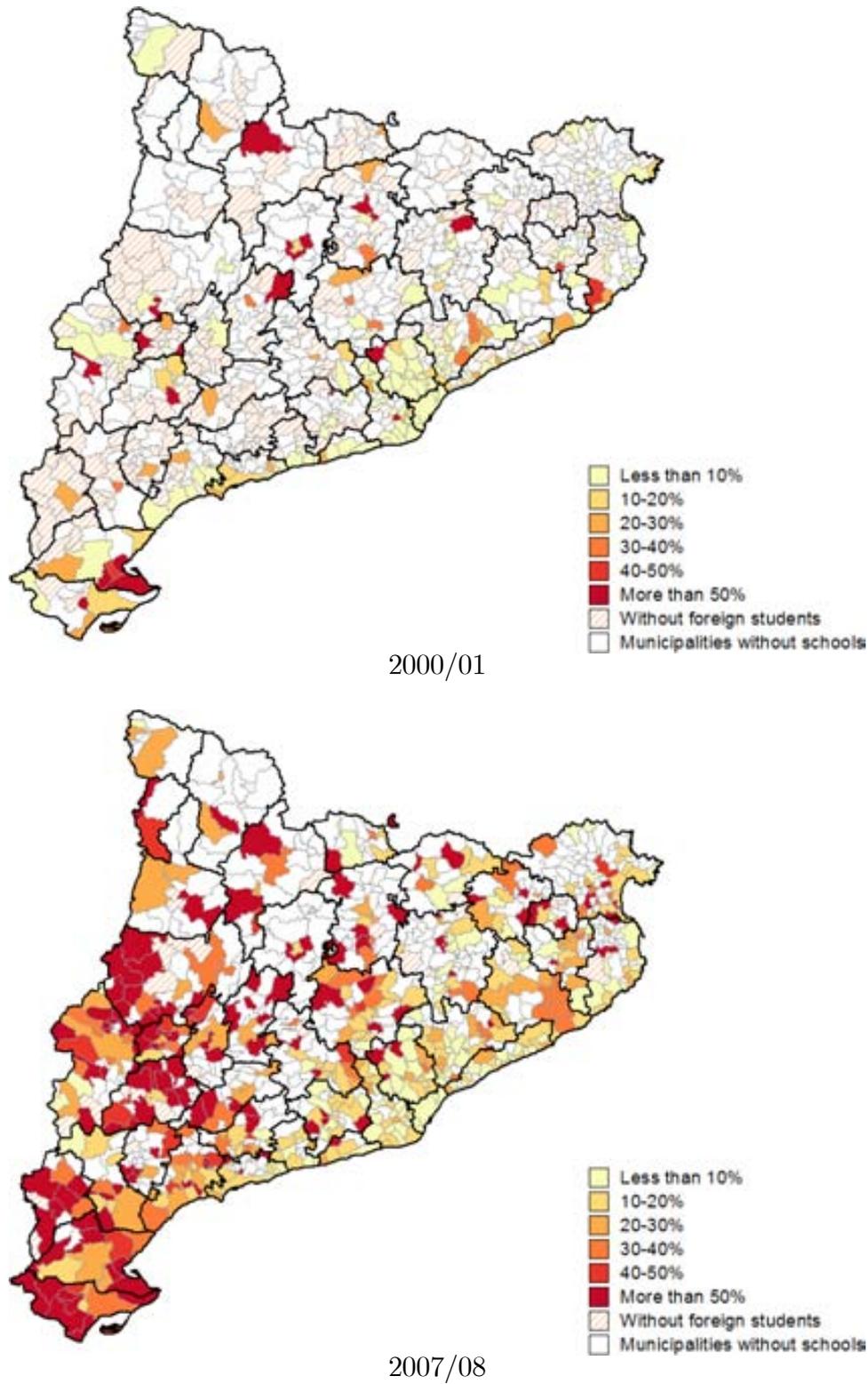
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.3: Enrolled population of foreign origin: Share of Asian and Oceanic pupils by municipality. Academic years 2000/01 and 2007/08



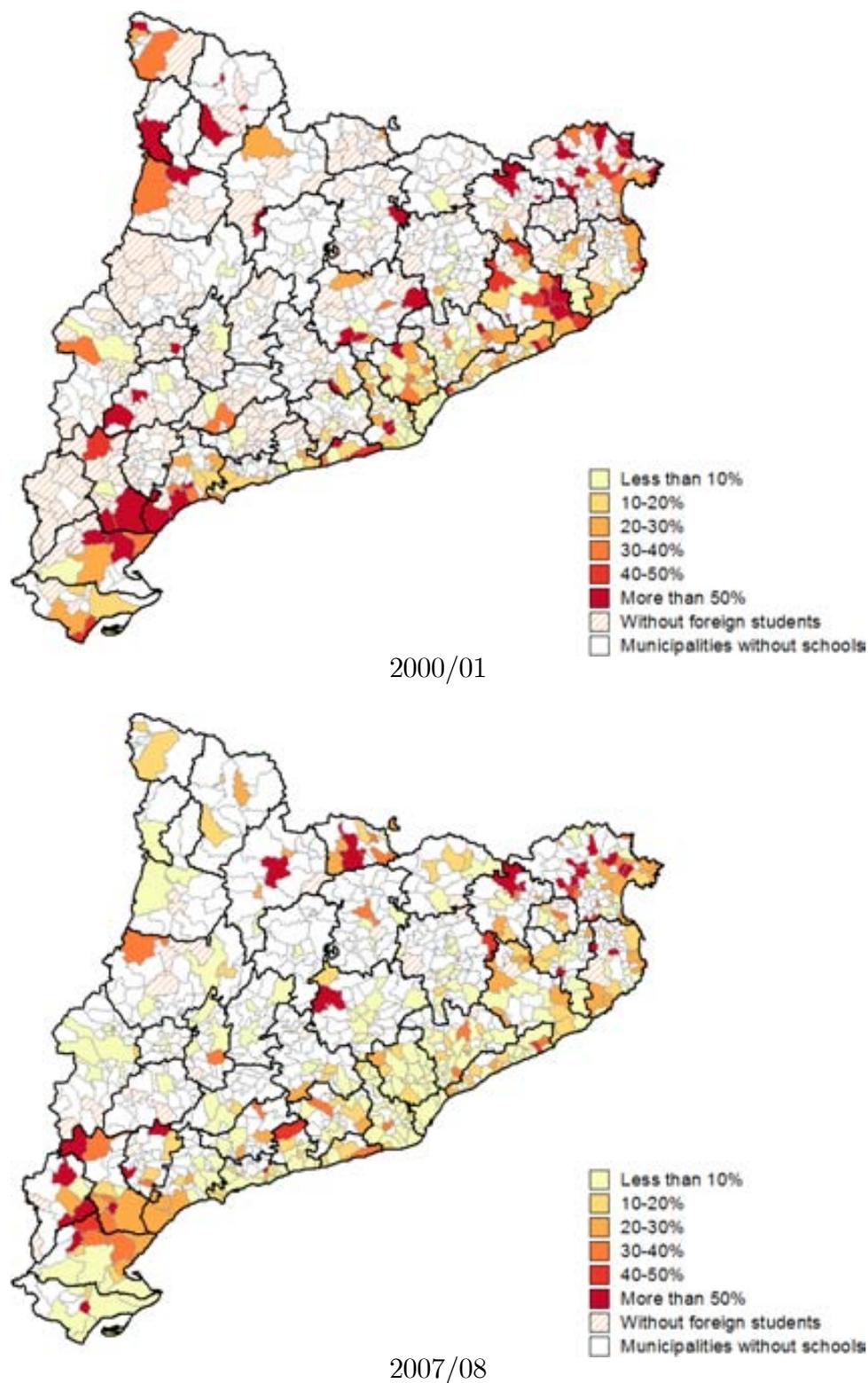
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.4: **Enrolled population of foreign origin: Share of European (non-EU15) pupils by municipality. Academic years 2000/01 and 2007/08**



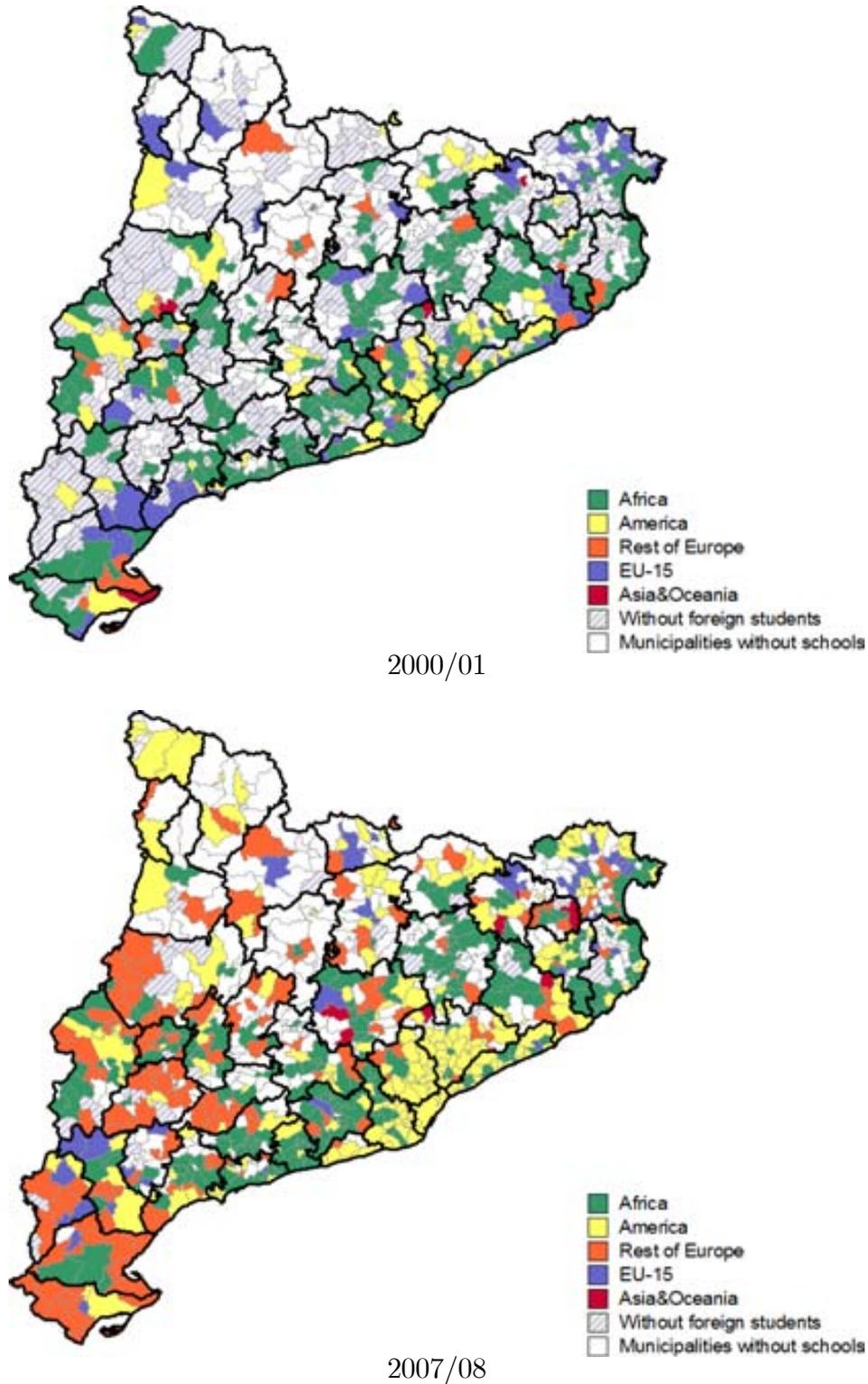
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.5: Enrolled population of foreign origin: Share of EU-15 pupils by municipality. Academic years 2000/01 and 2007/08



Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.6: Enrolled population of foreign origin: Main origin by municipality. Academic years 2000/01 and 2007/08



Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

5.2.1 Data

The main databases that will be used in our analysis are the *Estadística de l'Educació no Universitària* -Non-university Enrollment Statistics- of the Catalan Department of Education and the *Padrón Continuo* -Continuous Register- for the school and residential segregation analysis respectively.

To perform the school segregation analysis, we have selected a subsample of the original database following three basic criteria. First, we have selected only those municipalities with at least 5,000 inhabitants according to the 2001 Census definition. This operation was aimed to guarantee the maximum significance of the sample and to minimize the bias given generated by the scale effect –and thus the higher variance- generated by smaller municipalities. However, we must stress that not every municipality has an educational center on its territory. Therefore –and especially in the less populated areas- one same center can offer education for the population in the surrounding municipalities according to the areas of influence designed by the Department of Education. With respect to segregation measures, this operation would allow the relevance of the results especially considering the foreign origin enrolled population acquainted.

Second, in order to maximize the comparability of the results, we have only selected those schools from which information was retrievable for the entire period of analysis. Third, only those municipalities with at least two educational centers were considered. As we might expect, in those municipalities where only one center is available the school choice preferences are irrelevant given the inelastic educational supply. Therefore, all children –regardless their ethnic background- would be enrolled in the same place. Nevertheless, we must take into account that if the number of educational centers tends to two, the variance of the segregation index will increase given that it is more sensitive to small variations in the population enrolled. Finally, to guarantee the proper estimation of the segregation index at municipal levels, we have left out of the final sample those municipalities without foreign pupils during the entire period. We must stress that the final two selection criteria only left aside four municipalities with more than 5,000 inhabitants: Cervelló, Navarces, Tiana and Sentmenat.

These operations resulted in a total sample of 1,952 schools in 154 Catalan municipalities with 903,356 pupils enrolled students during the academic course 2007/08. As expected, data from the Continuous Register at census tract level of the resulting municipalities constituted the sample for studying the residential segregation counterpart. Data encompasses 4,386 census tracts at January 1st 2008 with 6,243,479 total inhabitants. The total and the enrolled population for each municipality included in our sample are shown in tables 5.1 to 5.4.

Table 5.1: **Sample characteristics: Enrolled and residential population in Catalonia. Selected municipalities 2008**

Municipality	Municipal register at January 1, 2008			Enrollment during Course 2007/08		
	Resident population	% Foreign	Census tracts	Enrolled population	% Foreign	Schools
Abrera	11,278	9.47%	6	965	7.88%	2
Alcanar	10510	26.56%	7	1,186	24.37%	3
Alella	9,260	9.01%	4	1,946	3.19%	4
Almacelles	6,295	12.63%	4	732	17.35%	2
Amposta	20652	18.43%	12	3,754	15.85%	8
Arenys de Mar	14,449	10.97%	7	2,199	8.28%	3
Arenys de Munt	8,023	5.70%	4	840	3.93%	2
Argentona	11,544	4.51%	5	1,304	3.68%	4
Badalona	215,329	13.18%	160	31,926	13.91%	71
Badia del Vallès	13,829	5.93%	12	1,988	8.95%	6
Balaguer	16,341	20.77%	9	2,875	18.26%	8
Banyoles	17,917	19.86%	12	3,509	19.98%	8
Barberà del Vallès	30,271	6.22%	22	3,419	7.25%	7
Barcelona	1,615,908	16.91%	1,482	215,220	11.46%	453
Berga	17,072	15.55%	13	2,399	16.47%	8
Blanes	39,107	17.34%	21	5,270	15.77%	10
Calafell	22939	18.33%	7	2,019	24.42%	3
Caldes de Montbui	16,518	10.16%	8	2,688	6.99%	4
Calella	18,615	24.13%	8	3,567	16.93%	5
Calonge	10,428	25.38%	5	1,009	22.10%	3
Cambrils	30,956	21.25%	14	3,415	16.78%	6
Canet de Mar	13381	9.26%	8	1,579	12.10%	4
Canovelles	15,816	22.60%	8	1,652	29.60%	4
Capellades	5,458	6.06%	3	1,326	6.86%	3
Cardedeu	16102	8.04%	8	2,315	9.24%	5
Cardona	5,176	5.06%	5	614	2.93%	4
Cassà de la Selva	9,256	13.71%	5	1,675	9.13%	3
Castellar del Vallès	22,626	5.45%	13	2,524	4.24%	7
Castellbisbal	11,795	7.08%	6	986	7.61%	2
Castelldefels	60,572	21.97%	26	6,647	16.96%	15
Castell-Platja d'Aro	10,150	30.23%	5	1,060	26.51%	3
Centelles	7,133	5.64%	4	1,405	6.05%	3
Cerdanyola del Vallès	58,493	9.93%	29	8,373	7.21%	18
Cervera	9,247	21.80%	5	1,645	22.19%	4
Constantí	6,401	23.03%	3	1,514	16.18%	5
Corbera de Llobregat	13,435	10.46%	11	1,538	12.48%	3
Cornellà de Llobregat	85180	15.71%	70	9,920	16.81%	24
Deltebre	11,445	10.79%	6	1,515	12.15%	4
El Masnou	22,066	8.40%	14	3,342	7.36%	10
El Prat de Llobregat	62,899	8.96%	39	8,049	9.31%	21

Source: Author's elaboration based on the *Padrón Continuo (Idescat)* and the *Estadística de l'Educació no Universitària 2007/08 (Catalan Department of Education)*.

Even though we have drastically reduced the sample size by number of municipalities and schools, the enrolled population considered represents 89.3 percent of the previously analyzed sample thus ensuring its significance. The territorial distribution of the munic-

Table 5.2: Sample characteristics: Enrolled and residential population in Catalonia. Selected municipalities 2008

Municipality	Municipal register at January 1, 2008			Enrollment during Course 2007/08		
	Resident population	% Foreign	Census tracts	Enrolled population	% Foreign	Schools
El Vendrell	34,931	15.90%	16	4,752	14.52%	7
Esparreguera	21,451	8.51%	11	3,059	6.73%	8
Esplugues de Llobregat	46,586	13.05%	29	7,092	11.84%	16
Figueres	42,809	26.80%	25	7,364	19.51%	15
Gavà	45,190	10.79%	28	7,630	7.05%	14
Girona	94,484	19.70%	59	18,950	13.21%	34
Gironella	5,016	9.45%	4	696	13.94%	5
Granollers	60,122	18.51%	39	10,905	13.76%	21
Igualada	38,164	12.49%	26	7,901	9.10%	17
La Bisbal d'Empordà	10,173	21.74%	6	1,812	25.11%	4
La Garriga	14,585	8.14%	7	3,585	5.63%	8
La Llagosta	13,645	13.63%	9	1,961	15.04%	6
La Roca del Vallès	10,032	5.08%	5	1,063	5.27%	3
La Sénia	6,225	22.02%	3	901	14.98%	2
La Seu d'Urgell	12,986	16.38%	7	2,498	22.50%	5
Les Borges Blanques	5,942	12.17%	4	1,278	10.80%	4
Les Franqueses del Vallès	16,978	11.13%	6	1,194	12.06%	2
L'Escala	9,829	29.50%	5	1,030	27.09%	2
L'Hospitalet de Llobregat	253,782	21.42%	226	31,939	23.26%	74
Llagostera	7,614	16.06%	4	972	20.06%	3
Lleida	131,731	18.23%	82	22,878	13.26%	51
Lliçà d'Amunt	13,809	3.42%	8	1,602	2.18%	4
Llinars del Vallès	8,839	8.82%	5	1,966	6.71%	4
Lloret de Mar	37,734	39.58%	14	3,707	25.52%	6
Malgrat de Mar	18,261	12.19%	7	2,837	8.28%	6
Manlleu	20,505	23.00%	12	3,382	24.28%	6
Manresa	75,053	16.06%	53	11,069	14.77%	21
Martorell	26,169	17.15%	15	4,291	14.24%	8
Matadepera	8,460	2.62%	4	1,794	0.45%	3
Mataró	119,780	15.56%	77	19,140	14.99%	35
Molins de Rei	23,828	5.51%	12	3,711	4.99%	10
Mollerussa	13,675	26.54%	6	3,264	19.00%	7
Mollet del Vallès	51,912	14.04%	31	9,113	10.84%	16
Montblanc	7,069	11.83%	5	1,240	7.50%	3
Montcada i Reixac	32,750	10.86%	16	4,842	9.48%	12
Montgat	10,059	5.46%	4	1,620	3.58%	3
Montmeló	8,870	8.02%	5	1,335	6.97%	3
Montornès del Vallès	15,058	14.88%	8	1,588	21.85%	4
Mont-roig del Camp	11,131	30.17%	5	1,237	24.33%	3
Navàs	6,133	9.36%	5	982	3.05%	3

Source: Author's elaboration based on the *Padrón Continuo (Idescat)* and the *Estadística de l'Educació no Universitària 2007/08 (Catalan Department of Education)*.

palities composing the sample are shown on Figure 5.7.

As we might expect, municipalities that concentrate the economic activity such as the capitals of the provinces or counties are the ones included in the sample explored.

Table 5.3: **Sample characteristics: Enrolled and residential population in Catalonia. Selected municipalities 2008**

Municipality	Municipal register at January 1, 2008			Enrollment during Course 2007/08		
	Resident population	% Foreign	Census tracts	Enrolled population	% Foreign	Schools
Olesa de Montserrat	22,914	9.57%	9	3,557	10.04%	7
Olot	32,903	18.81%	21	5,991	19.30%	12
Palafugell	22,109	24.25%	11	3,252	22.69%	7
Palamós	17,766	16.04%	11	2,998	12.04%	5
Palau-solità i Plegamans	13,916	6.78%	8	2,267	6.00%	5
Pallejà	11,011	7.13%	5	1,566	4.92%	5
Parets del Vallès	17,224	8.04%	11	2,757	6.57%	6
Piera	14,025	6.12%	7	1,812	7.34%	4
Pineda de Mar	25,931	17.26%	13	2,758	17.59%	8
Premià de Dalt	9,867	7.75%	6	1,495	9.03%	4
Premià de Mar	27,545	12.36%	16	3,696	12.85%	9
Puigcerdà	9,365	22.97%	5	1,640	20.37%	3
Reus	107,770	19.14%	73	17,941	16.69%	33
Ripoll	11,012	8.97%	9	1,736	9.74%	6
Ripollet	36,255	10.89%	20	4,762	9.95%	12
Riudoms	6,385	13.75%	4	1,224	14.79%	2
Roda de Ter	5,863	10.64%	4	728	17.17%	2
Roquetes	7,987	14.69%	4	1,311	16.48%	3
Roses	19,463	35.89%	9	3,005	24.83%	6
Rubí	71,927	13.64%	34	9,400	15.94%	19
Sabadell	203,969	11.95%	145	32,511	10.41%	73
Sallent	7,061	4.83%	8	933	7.07%	4
Salou	25,754	40.26%	10	2,376	21.09%	4
Salt	28,763	39.20%	16	3,479	40.07%	9
Sant Adrià de Besòs	33,223	7.62%	24	4,898	6.51%	9
Sant Andreu de la Barca	26,279	11.64%	8	3,534	12.20%	7
Sant Andreu de Llavaneres	10,009	10.10%	6	1,417	10.52%	3
Sant Boi de Llobregat	81,335	8.82%	51	12,557	8.07%	26
Sant Carles de la Ràpita	15,307	21.74%	10	2,038	17.81%	4
Sant Celoni	16,586	12.09%	9	2,427	10.09%	6
Sant Cugat del Vallès	76,274	12.84%	39	14,707	6.71%	21
Sant Feliu de Guíxols	21,726	17.66%	12	3,137	15.88%	7
Sant Feliu de Llobregat	42,628	8.50%	31	6,142	7.29%	12
Sant Fost de Campsentelles	7,939	3.19%	4	1,020	4.02%	2
Sant Fruitós de Bages	7,782	6.17%	4	1,364	6.82%	4
Sant Hilari Sacalm	5,744	14.90%	3	635	16.85%	3
Sant Joan de Vilatorrada	10,661	8.66%	5	1,495	7.56%	3
Sant Joan Despí	31,647	7.30%	21	3,941	8.86%	10
Sant Just Desvern	15,365	11.23%	9	2,514	4.93%	6
Sant Pere de Ribes	28,066	14.93%	17	2,395	14.03%	5

Source: Author's elaboration based on the *Padrón Continuo (Idescat)* and the *Estadística de l'Educació no Universitària 2007/08 (Catalan Department of Education)*.

As they concentrate larger resident populations, the number of enrolled children and - therefore- educational centers is mainly concentrated in Barcelona and its metropolitan area. In order to show which are the constraints that educational supply represent -and

Table 5.4: Sample characteristics: Enrolled and residential population in Catalonia. Selected municipalities 2008

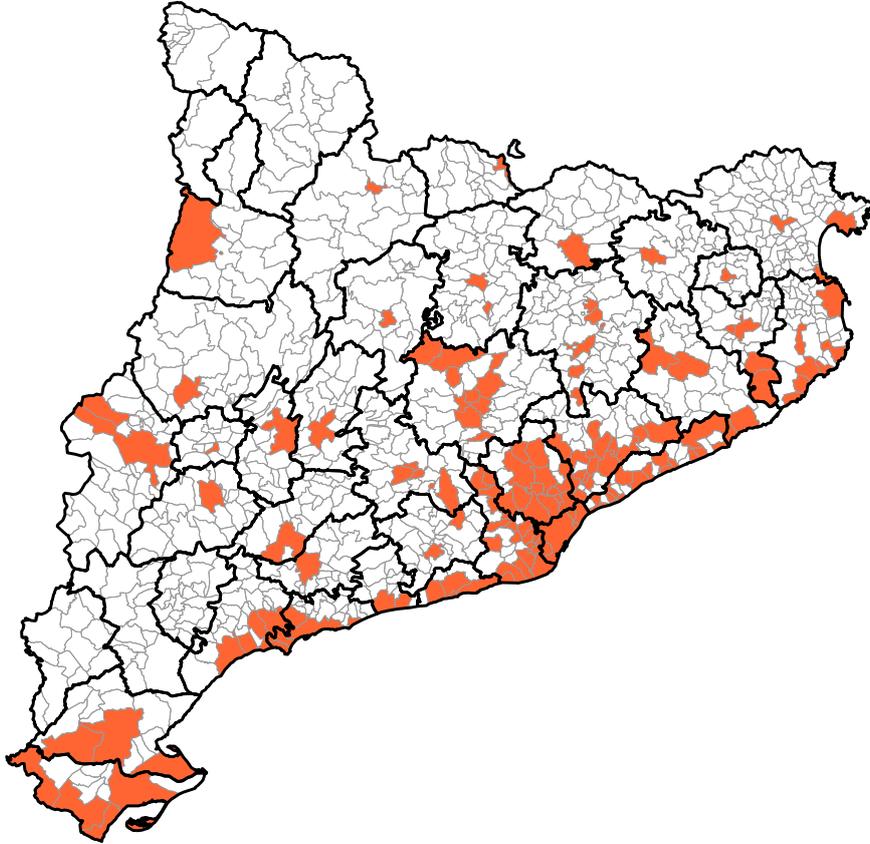
Municipality	Municipal register at January 1, 2008			Enrollment during Course 2007/08		
	Resident population	% Foreign	Census tracts	Enrolled population	% Foreign	Schools
Sant Quirze del Vallès	18,225	4.42%	12	1,998	3.40%	5
Sant Sadurní d'Anoia	11,909	8.46%	8	2,614	4.97%	4
Sant Vicenç de Castellet	8,275	6.91%	5	1,494	9.64%	4
Sant Vicenç dels Horts	27,461	7.87%	20	4,422	6.24%	12
Santa Coloma de Farners	11,412	15.48%	6	2,030	16.70%	3
Santa Coloma de Gramenet	117,336	19.50%	99	14,099	21.87%	36
Santa Margarida de Montbui	9,778	9.81%	7	1,117	14.95%	4
Santa Maria de Palautordera	8,614	11.56%	3	983	10.38%	3
Santa Perpètua de Mogoda	24,325	9.86%	14	3,352	8.68%	7
Santpedor	6,787	5.97%	4	916	6.44%	3
Sitges	27,070	24.37%	14	2,876	14.39%	5
Solsona	9,166	18.02%	5	1,841	14.39%	4
Súria	6,454	8.48%	5	858	5.59%	4
Tarragona	137,536	16.55%	89	23,542	12.72%	41
Tàrraga	16,149	21.41%	11	2,914	18.60%	9
Terrassa	206,245	13.54%	136	29,360	13.34%	60
Tona	7,805	8.92%	3	1,522	8.67%	4
Tordera	14,800	8.47%	7	1,544	7.45%	5
Torelló	13,680	11.84%	8	1,941	13.24%	5
Torredembarra	15,056	19.37%	7	2,366	16.65%	4
Torroella de Montgrí	11,441	29.77%	6	2,043	25.26%	4
Tortosa	35,734	21.13%	24	5,800	17.78%	14
Tremp	6,190	16.77%	5	1,208	15.31%	4
Ulldecona	6,987	29.07%	5	899	29.25%	2
Vallirana	13,752	6.70%	7	1,598	6.20%	4
Valls	24,710	14.50%	15	4,696	12.39%	11
Vic	38,964	23.00%	26	7,471	17.51%	12
Viladecans	62,573	8.03%	44	8,341	9.10%	18
Vilafranca del Penedès	37,364	16.59%	21	6,711	13.99%	14
Vilanova del Camí	12,428	9.15%	5	1,322	15.36%	3
Vilanova i la Geltrú	64,905	13.34%	39	9,374	10.86%	19
Vila-seca	20,039	19.28%	10	2,687	17.57%	7
Vilassar de Dalt	8,621	4.76%	6	1,442	4.58%	4
Vilassar de Mar	19,090	8.58%	15	2,470	6.80%	6

Source: Author's elaboration based on the *Padrón Continuo (Idescat)* and the *Estadística de l'Educació no Universitària 2007/08 (Catalan Department of Education)*.

therefore would affect the school segregation at local level- the municipalities by number of educational centers are shown on Figures 5.8 and 5.9.

In those municipalities in which demand for education has to be satisfied by less than two educational centers, familiar and individual preferences would be irrelevant. In addition, the same educational centers should also satisfy the demand of more than one municipality. Therefore, the composition and structure of the enrolled population in municipalities with less than two schools should not be considered as a result of only

Figure 5.7: **Sample description: Territorial distribution of the municipalities included**



Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

school choice processes but a direct reflection of the local population of that particular area.

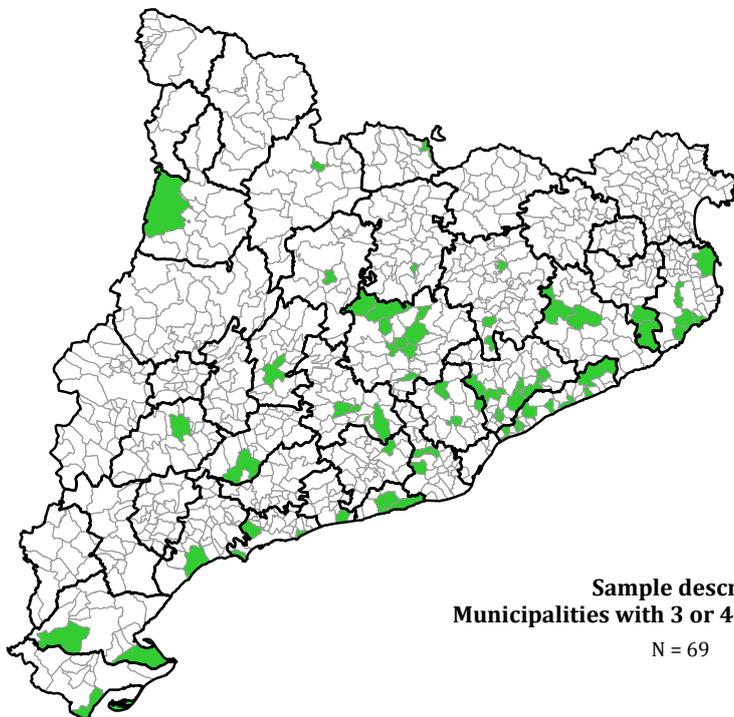
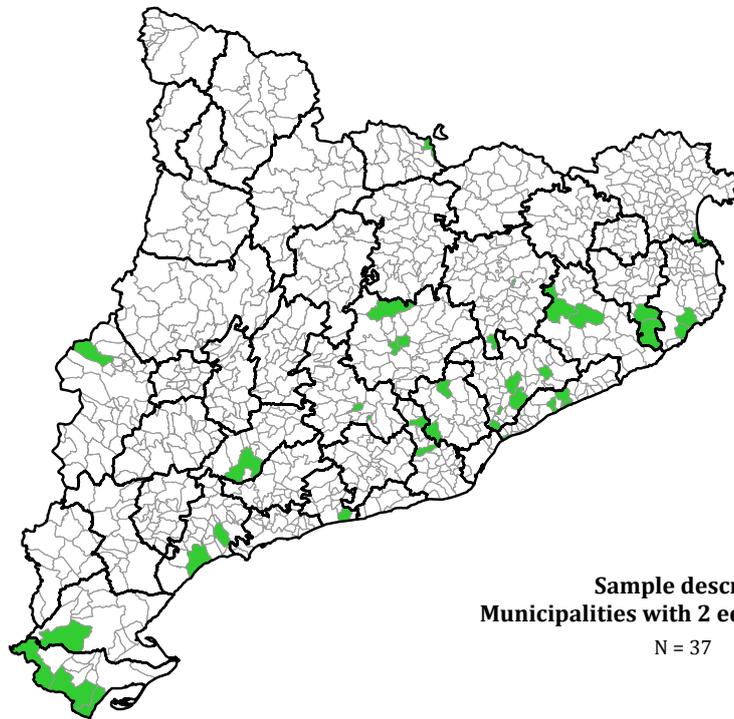
As for the composition, the enrolled population of foreign origin reached 13 percent of the total during the school year 2007/08. In absolute numbers, the number of foreign pupils in Catalonia shifted from 21,078 to 117,767 students between the courses 2000/01 and 2007/08. That is, a growth of more than 450 percent in 8 years. Table 5.9 show the summary of the composition of the enrolled population by origin.

Table 5.5: **Enrolled population in Catalonia by origin: Selected municipalities Academic courses 2000/01-2007/08.**

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Spanish	817.986	807.340	803.980	796.252	791.834	782.237	781.372	785.592
Foreign	21.078	31.281	46.685	66.486	78.856	93.343	105.191	117.764
Total	839.064	838.621	850.665	862.738	870.690	875.580	886.563	903.356
%foreign	2,5%	3,7%	5,5%	7,7%	9,1%	10,7%	11,9%	13,0%

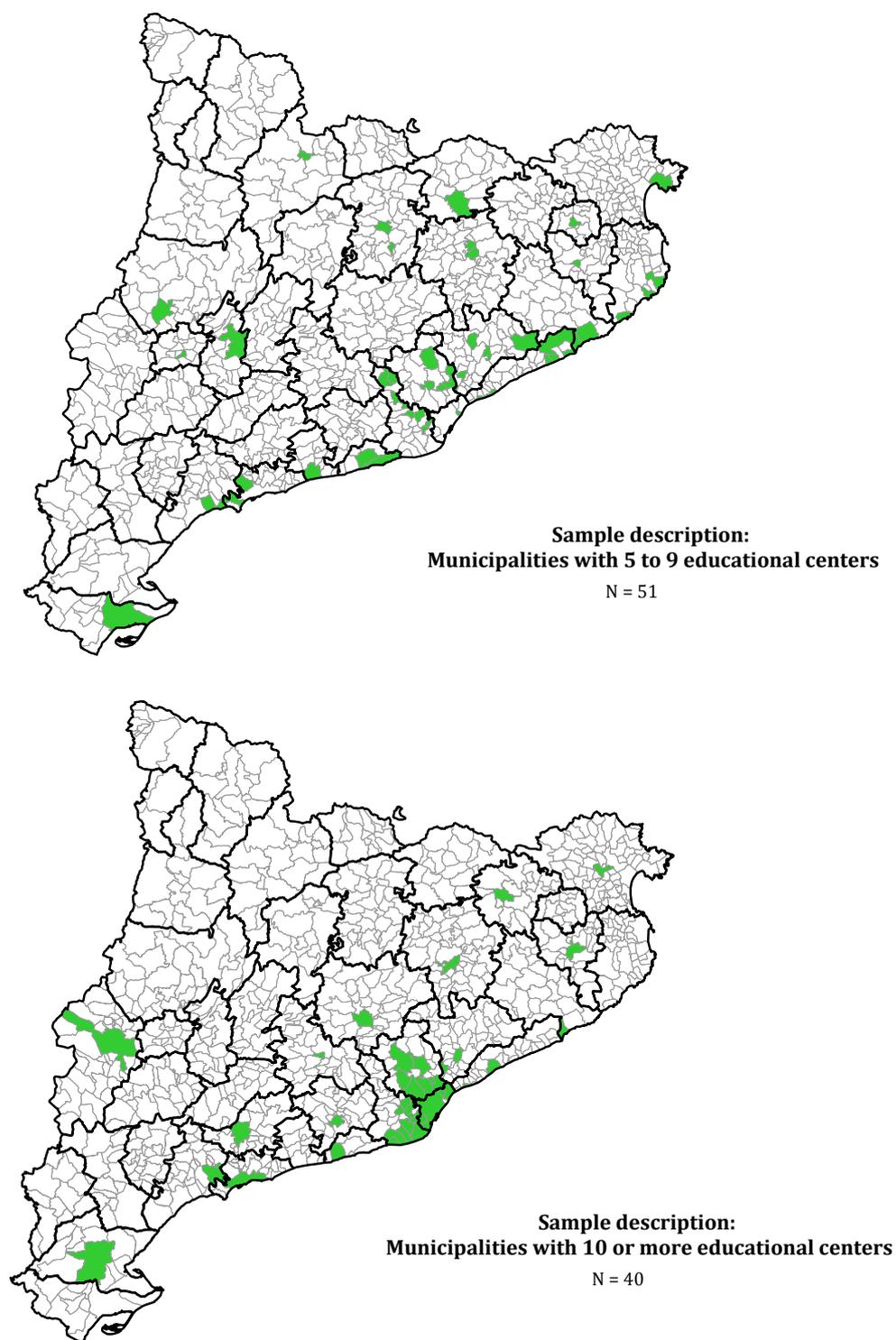
Source: Author's elaboration based on Estadística de l'Educació.

Figure 5.8: **Sample description: municipalities by number of schools. 2000/01-2007/08**



Source: Author's elaboration based on the Estadística de l'Educació. Catalan Department of Education.

Figure 5.9: **Sample description: municipalities by number of schools. 2000/01-2007/08**



Source: Author's elaboration based on the Estadística de l'Educació no Universitària. (Catalan Department of Education.)

5.2.2 Methodology

The distribution of the students in the school strata and the resulting school segregation among groups is not only the result of educational policy and school enrollment criteria, but a consequence of household preferences and school choice decision-making processes. Thus, reported data should be considered as the individual and familiar revealed preferences, particularly in those cases in which pre-enrollment process was completed during the established period. For children arriving once the academic year has started, at least temporary, household preferences could be overlapped by those of the educational system and the distribution of the available places. However, families could later apply for new enrollment in a school that fulfills or is at least closer to their preferences. As live enrollment data is not publicly available, it is not possible to estimate the proportion of children arriving once the school year has started at aggregated or municipal level. Given that the database provided has been previously adjusted for the live enrollment along the academic courses by the Catalan Department of Education, we will assume that families are satisfying their demand for education based on the best choices available given their preferences.

More formally, we will assume that school choice are the result of utility-maximizing household decisions based on the array of mutually exclusive school options determined by school catchment areas. Based on previous research (Butler et al. 2009; Lankford and Wyckoff 2006; Lankford, Lee and Wyckoff 1995; Lankford and Wickoff 1992) we will assume a general utility-maximizing framework among public and state-sanctioned choices. Thus, we would define $t = 1, 2$ as the educational sector as private or international schools would not be considered. Within each category, families (i) must choose between n mutually exclusive alternatives (j), in order to maximize their utility U_{itj} .

As we might expect, the familiar utility function would depend on a set of individual and contextual variables or attributes. The household socioeconomic characteristics, X_i , would determine the budgetary restrictions and the available resources for educational investments, given the consumption (C_i) in other goods and services. It may also be considered as a representation of the student inputs to education and a proxy for tastes (Lankford and Wyckoff 1992). School attributes (S_{tj}) may include school inputs, environment, religious aspects as well as socioeconomic characteristics of the students enrolled. Finally, the unmeasured factors in the school choice decision are captured in a scalar composite defined as ε_{itj} . In that sense, ε_{itj} captures both unmeasured school characteristics and their perception by each household. Nevertheless, depending on the households' preferences, school alternatives could also imply varying transportation costs (λ_{tj}) related to the distance that must be covered. Other things equal, greater distances implies greater

time and travel costs to school but we could expect that, at the margin, families would be willing to trade longer distances for other preferred characteristics of the center (Butler et al. 2009). Based on the local educational system characteristics, this assumption could directly affect the private or international schools based on the different -or in some cases, inexistent- catchment areas as well as some state-sanctioned centers. In those cases, there would be an implicit cost of exclusion if the household is located outside the center's catchment area.

Thus, the utility function could be written as:

$$U_{itj} = U(X_i, C_i, S_{tj}, \lambda_{tj}, \varepsilon_{itj}) \quad (5.1)$$

for:

$$\begin{aligned} t &= 1, 2 \text{ educational sectors} \\ j &= 1, \dots, n \text{ school alternatives} \\ i &= 1, \dots, N \text{ households} \end{aligned}$$

Consequently, families would select the school alternative tj that maximizes their utility function with respect to the rest of available alternatives given:

$$U_{itj} > U_{irs} \quad \forall t \neq r, j \neq s \quad (5.2)$$

In other words, the school alternative tj would be strictly preferred than the rest of

alternatives, being the probability of choosing tj :

$$P_{ij} = \Pr [U_{itj} > U_{irs}] \quad \forall t \neq r, j \neq s \quad (5.3)$$

As we might expect, the school attributes might also include the school composition by origin of the students enrolled. For some of the households, it might represent a harm for the academic achievement of their children. Considering x_{tj} as the composition by origin of the educational center tj as an element of the set of attributes X_i included in the households' utility function, the marginal utility could be thus defined as:

$$\frac{\partial U(\cdot)}{\partial x} = \left. \begin{array}{l} < 0 & \text{negative marginal effect (i.e. diversity as a harm to achievement)} \\ = 0 & \text{neutral marginal effects} \\ > 0 & \text{positive marginal effect (i.e. diversity as an asset)} \end{array} \right\} \quad (5.4)$$

For those families experiencing a negative marginal effect given the presence of immigrant children in schools, the incentives to allocate part of their available income in transportation and indirect costs in order to access a center with scarce presence of non-natives would be higher. Therefore, white or native flight from schools could be considered the result of these familiar strategies.

We will estimate the residential and the school segregation by applying, the traditional dissimilarity (Duncan and Duncan 1955b) and the segregation index (Duncan and Duncan 1955a, b). Despite their limitations, we have chosen to implement these methodologies given the quality of the available data and, especially, the comparability of our results to previous studies. They are by far two of the most popular measures of segregation given its easiness to compute and interpret. Segregation indices summarize the differences between the distributions of two or more groups across spatial units.

The segregation index, that could also be considered a particular case of the dissimilarity index, measures the situation of a particular group in a specific territory. We will estimate the segregation index (Duncan and Duncan 1955a, b) defined as:

$$S = \frac{1}{2} \sum_{i=1}^N \left| \frac{x_i}{X} - \frac{t_i - x_i}{T - X} \right| \quad (5.5)$$

where:

x_i = population of the group X in the spatial unit i.

X = population of the group X in the municipality.

t_i = total population in the spatial unit i.

T = total population in the municipality.

N = spatial units in the municipality.

By definition, the segregation index will take values between zero and one, indicating an evenly distributed or maximally segregated population respectively. Its value could also be interpreted as the minority proportion that should change their area of residence (or educational center) in order to obtain an even distribution (Massey and Denton 1988; Jakubs 1977, 1981).

Previous research has classified segregation as low for values below 40, moderate to those between 40 and 60; and, high for values above 60. Even though we have tested both results, we have found that an additional reference should be introduced in order to understand how the school segregation estimates are distributed. Consequently, we have considered that measures of central tendency could provide an accurate framework to show the distribution of our results. For each analyzed years, intervals were defined as:

$$\bar{X} \pm (\alpha + N) \cdot \sigma_x \quad (5.6)$$

where:

\bar{X} = sample mean.

α = significance level (0.5 in our case).

σ_x = standard deviation of the sample

N = number of standard deviations to be introduced.

Subsequently, we will estimate the dissimilarity index (Duncan and Duncan 1955b) defined as:

$$D = \frac{1}{2} \sum_{i=1}^N \left| \frac{x_i}{X} - \frac{y_i}{Y} \right| = \frac{1}{2} \sum_{i=1}^N |p_i^x - p_i^y| \quad (5.7)$$

where:

x_i = population of the group X in the spatial unit i.

X = population of the group X in the municipality.

y_i = population of the group Y in the spatial unit i.

Y = population of the group Y in the municipality.

N = spatial units in the municipality.

Then, p_i^x is the proportion of the group X that lives in the spatial unit i ; p_i^y is the proportion of the group Y that lives in the spatial unit i , and N is the number of spatial units in the territory. Therefore, in our case, it will take the value of half the sum across the $i = 1...N$ schools of the absolute difference between each school's share of the total number of foreign children in the municipality and its share of the total native children. The index varies between 0 and 1, where 0 indicates no segregation and 1 the complete segregation of the analyzed population.

The dissimilarity index can be interpreted as the fraction of the group X (or Y) that must change their place of residence –or educational center– in order to achieve a more homogeneous distribution in each spatial unit assuming that we have a complete population of schools and students. Geometrically, it can be estimated as the maximum distance between the Lorenz Curve and the 45 degree curve.

Based on Ransom (2000) we can assume that the asymptotic distribution of the dissimilarity index is normal¹. His results also indicate that D estimators are biased upwards but consistent with large sample sizes. This fact is related to a simple one-stage sample design that would apply for a dataset of schools but with only a sample of students within each school (Jenkins, Mickelwright and Schnepf 2005). In our case, the sampling variability is reduced by using population-level data for each educational center despite the reduction of the number of schools in our sample size.

In both cases, despite the limitation related to assigning a numerical value to the overall segregation of a municipality and hence not considering the spatial continuity among the units that compose it, their use has been mostly extended. On the one hand, because the introduction of more complex indicators has not already shown a significant improvement in the results obtained. In some cases, they have not corrected the bias introduced by the statistical sources used at the same time that the comparability with previous results has been lost (Bayona 2006).

Finally, in order to obtain an additional measure on how groups are concentrated at municipal level compared to the aggregate, we will estimate the Location Quotient (LQ) for the enrolled population in Catalonia. The location quotient measures the relative concentration of a given population in a specific territorial unit. In that sense, its calculation would shed some light in terms of what makes a particular municipality different or unique compared to the aggregate.

¹Results have been also tested to verify the normality assumption.

The location quotient can be defined as a ratio that compares a region to a larger territorial reference according to some particular characteristic or asset. It could be defined as:

$$LQ_i = \frac{\frac{x_i}{t_i}}{\frac{X}{T}} \quad (5.8)$$

where:

x_i = population of the group X in the spatial unit i .

X = population of the group X in the entire study area.

t_i = total population in the spatial unit i .

T = total population in the entire study area.

Therefore, values greater than 1 suggest that group X is overrepresented in the spatial unit i -in our case, municipality i - with respect to the average given its relative size in the study area. Therefore, values equal to one represent that the relative frequency of the population of group X in i is equivalent to that of the aggregate.

The main advantage of the location quotient is that results are relatively easy to interpret and map. To facilitate comparisons among groups and following Brown and Chung (2006) the class categories for mapping location quotients have been defined as:

- 1. 0.85 and lower
- 2. 0.85 - 1.2
- 3. 1.2 and greater

Values under 0.85 would indicate the under-representation of the foreign population; whereas LQ scores of 1.2 and greater indicate a significant concentration of the foreign. Scores between 0.85 and 1.2 would be considered as neutral.

5.2.3 Estimation of school segregation in Catalonia

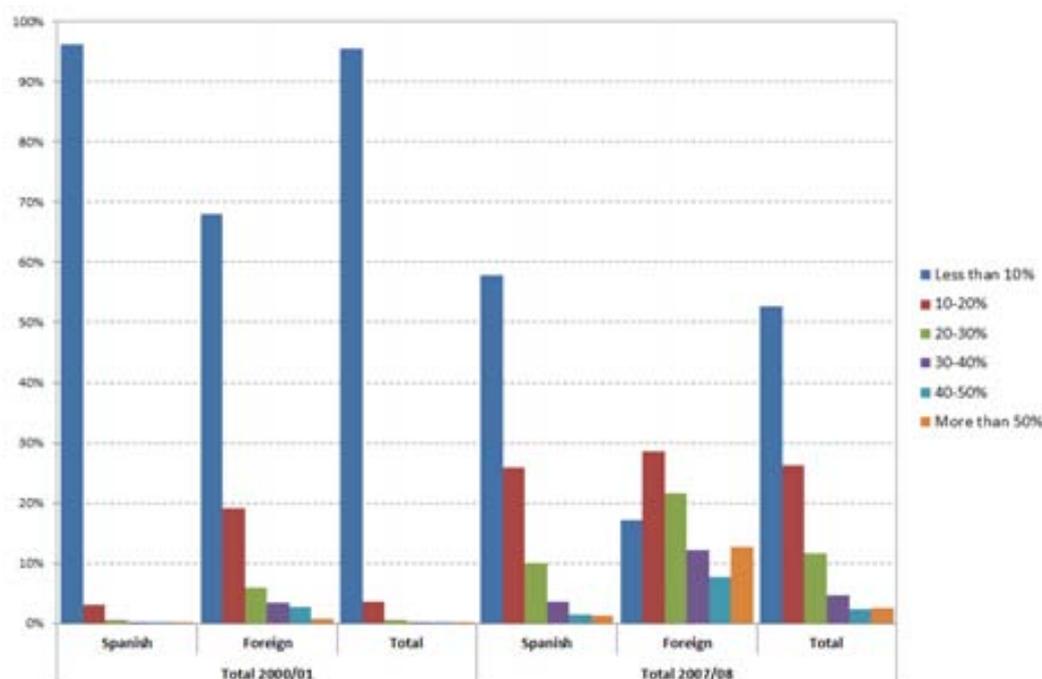
As mentioned above, not all Catalan schools have been considered in our study. We have only selected those in municipalities with at least 5,000 inhabitants according to the 2001 Spanish Census definition, and at least two schools for calculation purposes. The first sample selection resulted in 156 municipalities with 1,952 educational centers. However, during the first academic course considered -2000/01- there were two municipalities – Cervelló and Tiana- without enrolled population of foreign origin. Consequently, we incorporated this criterion in the final sample estimating the school segregation for only 154 municipalities.

The relevance of the study of school segregation has been shown in previous research. Segregation of children of immigrants in the educational system could affect not only the academic outcomes but their social integration in the host country. In that sense, a preliminary approximation on the evolution of the distribution of the enrolled population by origin at micro level is shown on Figure 5.10. It shows the distribution of the enrolled population by origin according to the percentage of foreign children enrolled at their same school during the school years 2000/01 and 2007/08.

As it can be observed, far from being effectively controlled, the segregation and concentration of children in schools with more than 50 percent of non-native pupils has been increasing over time. Even though the proportion of children enrolled in schools with less than ten percent of foreigners has decreased over time, it is clear that the preferences for this kind of schools is still prevalent. During the school year 2000/01, 96 percent of the native pupils were enrolled in schools with less than ten percent of foreigners. Eight years later, the proportion decreased to 58 percent -86 percent if schools under 20 percent of foreigners are considered. It is clear that the arrival of children from abroad has diversified the enrolled population composition but apparently their distribution does not correspond to the expected. In that sense, in 2007/08 54 percent of the non-nationals were enrolled in schools with more than 20 percent of foreigners. For those over 50 percent, the proportion is still of 12.6 percent whereas only 1.2 percent of their native counterparts assist to the same schools. This divergent distribution represent in absolute numbers 14,897 foreign and 9,561 native pupils. Therefore, the question that raises is, how effective school segregation and integration policies are given the existence of schools that clearly concentrate foreigners?

In order to analyze the evolution of the school segregation we have estimated the Duncan and Duncan (1955a,b) segregation index. Table 5.10, contains the descriptive statistics for the results. As one might expect, the variability of the index in smaller

Figure 5.10: **Distribution of the enrolled population according to the percentage of foreign children enrolled in the same school. Catalonia 2000/01-2007/08.**



Source: Author's elaboration based on the Estadística de l'Educació. Catalan Department of Education.

regions greatly depends on the effect of the arrival of foreign population. In that sense, the index will reflect significant changes with smaller variations of the enrolled population. As for the complete sample, the evidence suggests that the school segregation index follows a normal distribution. Municipalities in which educational centers are scarce will not be able to develop most of the known policy instruments to fight against school segregation given the constrained educational supply. In some of these cases, the definition of the school zoning policy and the access criteria are defined by the Territorial Delagation authorities of the Catalan Department of Education.

As we have explained on the Methodology subsection (5.2.2), to explore the distribution of the estimated school segregation index, we have calculated first four intervals based on central tendency measures. We have considered that school segregation scores could be classified as "Low" when values were lower than the central interval. The "Central" classification refers to values closer to the population mean with a significance level of 0.5 percent. Therefore, the addition of one or two times the estimated standard deviation resulted in the interval for "Moderate" or "High" school segregation respectively. Even

Table 5.6: Descriptive statistics for the School Segregation index. Catalonia, 2001-2008

School year	Mean	Std. Error	Var.	Min.	Max.	Conf. Int. (95%)
2000/01	36.11	1.16	208.27	2.72	64.34	(33.81, 38.41)
2001/02	33.13	1.17	212.32	1.12	66.36	(30.81, 33.45)
2002/03	30.71	1.09	181.53	1.86	66.63	(28.57, 32.86)
2003/04	29.70	1.03	162.00	1.03	55.50	(27.67, 31.72)
2004/05	29.92	0.99	149.83	2.40	54.59	(27.97, 31.86)
2005/06	28.46	1.03	163.16	1.39	56.80	(26.42, 30.49)
2006/07	27.77	1.07	174.97	0.56	65.75	(25.66, 29.87)
2007/08	26.86	1.05	168.70	0.50	76.43	(24.79, 28.93)

Source: Author's elaboration based on Estadística de l'Educació no Universitària (Catalan Department of Education).

Table 5.7: Descriptive statistics for the Residential Segregation index. Catalonia, 2001-2008

School year	Mean	Std. Error	Var.	Min.	Max.	Conf. Int. (95%)
2000/01	36.11	1.16	208.27	2.72	64.34	(33.81, 38.41)
2001/02	33.13	1.17	212.32	1.12	66.36	(30.81, 33.45)
2002/03	30.71	1.09	181.53	1.86	66.63	(28.57, 32.86)
2003/04	29.70	1.03	162.00	1.03	55.50	(27.67, 31.72)
2004/05	29.92	0.99	149.83	2.40	54.59	(27.97, 31.86)
2005/06	28.46	1.03	163.16	1.39	56.80	(26.42, 30.49)
2006/07	27.77	1.07	174.97	0.56	65.75	(25.66, 29.87)
2007/08	26.86	1.05	168.70	0.50	76.43	(24.79, 28.93)

Source: Author's elaboration based on Estadística d'Educació no Universitària.

though the inclusion of this description is not constant over time, the inclusion of central tendency measures allows a more accurate description of the distribution instead of applying a single classification criteria.

Figure 5.11 shows the distribution of the school segregation index scores at municipal level during the school years 2000/01 and 2007/08. Complementarily, we will consider a second classification criteria for the segregation index of the enrolled population in Catalonia. The introduction of this additional classification will shed some light on how has the school segregation between foreigners and natives evolved in time, and not only how the variables are statistically distributed. We will consider that municipalities experience low school segregation levels when segregation scores takes values under 0.4 (or 40 percent). For values between 0.4 and 0.6, school segregation would be considered as moderate and, consequently, values greater or equal to 0.6 would represent high school segregation levels. Results are shown in Figure 5.12.

If the distribution of the school segregation index scores can give us a hint on how the variable has evolved per se, the application of a second classification criteria gives insights into how school segregation changed over time. In that sense, we should consider both approximations as complements rather than substitutes. Nevertheless, both cases show the high correlation between the increasing number of enrolled population and the decrease in the index values. On the first hand, the application of central tendency measures indicates to what extent the school segregation index has remained invariant with respect to the sample distribution. In that sense, there has been an increase in the number of municipalities experiencing higher school segregation levels with respect to the rest of the sample. That is the case of the municipality of Barcelona. Being the Autonomic capital, Barcelona represents the most important attraction node for the migrant population coming from abroad or from the rest of the country. Nevertheless, the resulting calculations suggest that the educational centers are not assimilating children from abroad as the city itself does in terms of housing and settlement. In that same line, municipalities with smaller populations experience a higher variance in the segregation levels given the higher marginal effect of population changes. This so called scale effect, is for example reflected in the municipality of Matadepera. Located in the northern part of the metropolitan area of Barcelona, the proportion of foreign pupils in Matadepera did not overpassed 0.6 percent during the analyzed period. In absolute terms, the number of immigrant pupils were constrained to the interval between 6 and 9 out of a total enrolled population of 1,794 students.

On the other hand, while analyzing the evolution of the school segregation index (figure 5.12) we can observe how school segregation has not experienced significant changes, especially in the most populous municipalities. In that sense, the scale effect that we have mentioned before could affect the resulting segregation levels in two ways. In smaller municipalities by decreasing segregation levels could be just a result of the increased population of foreign origin but not necessarily a better distribution among schools. On the other, changes at school level could become invisible on the aggregate for larger populations. Despite the metropolitan area of Barcelona concentrates the majority of the foreign enrolled and resident population, as well as the majority of educational centers, school segregation is still in the higher levels. Results of both classification methods could suggest that the distribution of the foreign pupils in the local school strata of Barcelona is still far from guaranteeing the same opportunities and conditions for all the children regardless their nationality or socioeconomic background. This particular case, will be explored in detail in section 5.4.

As we have mentioned before, the results obtained by the segregation index could be affected by the proportion of foreigners in each municipality. In order to obtain a more exact indicator in terms of the predominance of the foreigners in specific locations that could be considered ethnic enclaves in the territory, we will analyze the Location Quotient (LQ) calculations for the enrolled population in Catalonia. The location quotient compares the proportion of population of a specific spatial unit with respect to the average (expected). Therefore, results indicate to what extent the analyzed group is underrepresented (LQ values lower than one), equally distributed or overrepresented (LQ values higher than one). Figure 5.13 shows the municipal location quotient values for the enrolled population of foreign origin for the school years 2000/01 and 2007/08.

The evolution of the enrolled population of foreign origin and how their territorial settlement has resulted in a more even spatial distribution can be observed. The values of the location quotient experience -on average- a 16.5 percent decrease given the generalized growth of the children of foreign origin enrolled. During the school year 2000/01 the enrolled population of foreign origin was overrepresented in 40.9 percent of the municipalities analyzed. In twenty percent of them, the share of foreign pupils was three times higher than the aggregate (shown in red in Figure 5.12). On the other hand, almost one third of the municipalities experienced the underrepresentation of foreign students during that same year. This proportion would decrease to 25.3 percent (39 municipalities) if only those with location quotient values under 0.5 are considered (mapped in dark blue).

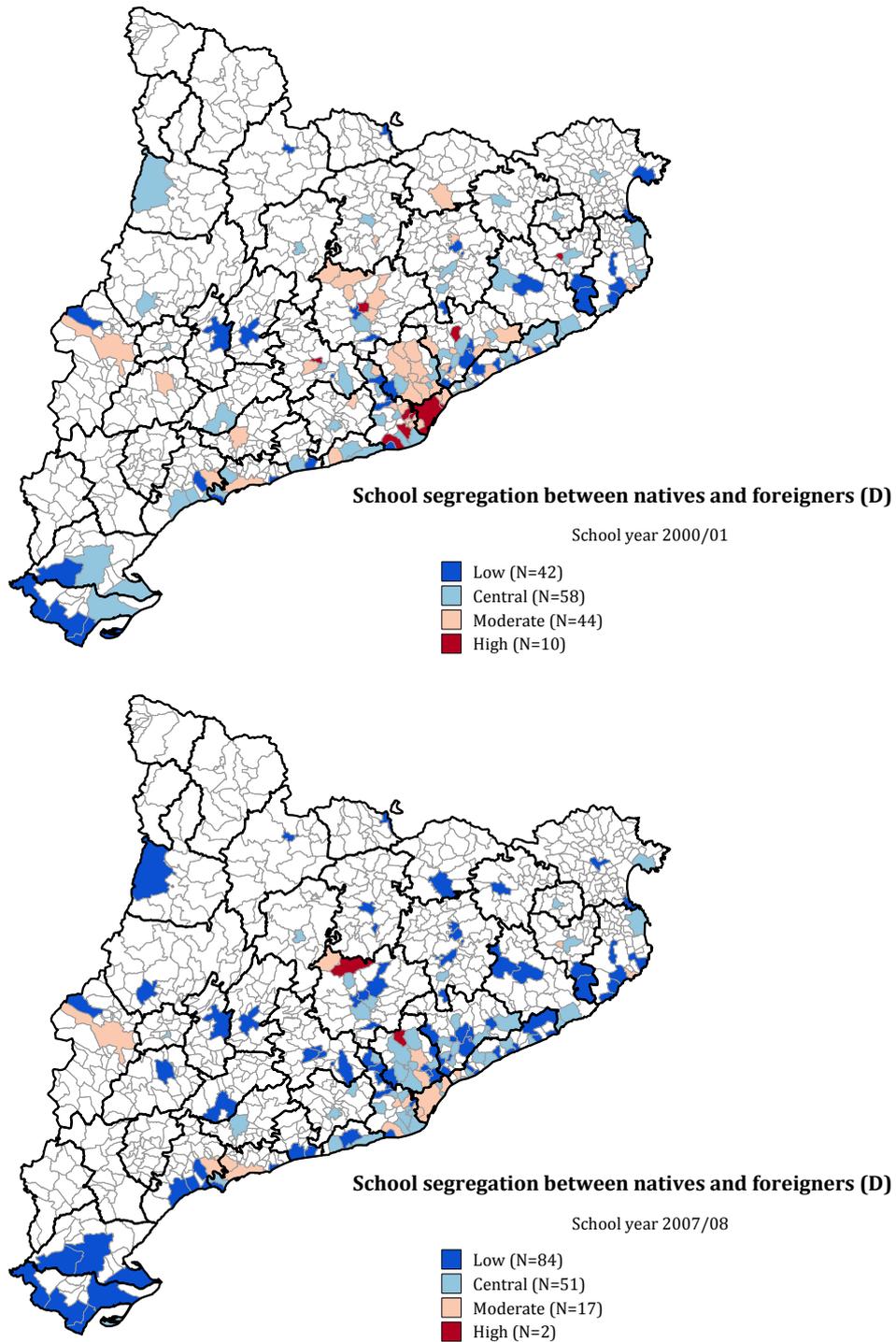
Seven years later, during the school year 2007/08, the location quotients for foreign pupils show an average value of 0.99 for the municipalities included in our sample. More

specifically, 53.2 percent of the municipalities experienced a share of foreign pupils lower than the aggregate, thus resulting in location quotient values under one. Therefore, results suggest that the presence of foreign children in the educational system in Catalonia followed a more homogeneous distribution during the last years.

Nevertheless, we must stress that even when the municipalities experience a more even distribution of the enrolled population of foreign origin, the results observed are still at meso-level. Consequently, we must consider the results as a more precise measure of the increased presence of children of immigrants in the educational system instead of an approximation of the school segregation among educational centers. In that sense, the comparison of the results obtained by calculating the segregation index and the location quotient at municipal level, confirms that even when the presence of immigrant children has been extended to almost the entire Catalan territory, the response experienced by the educational sector relies on the micro-level.

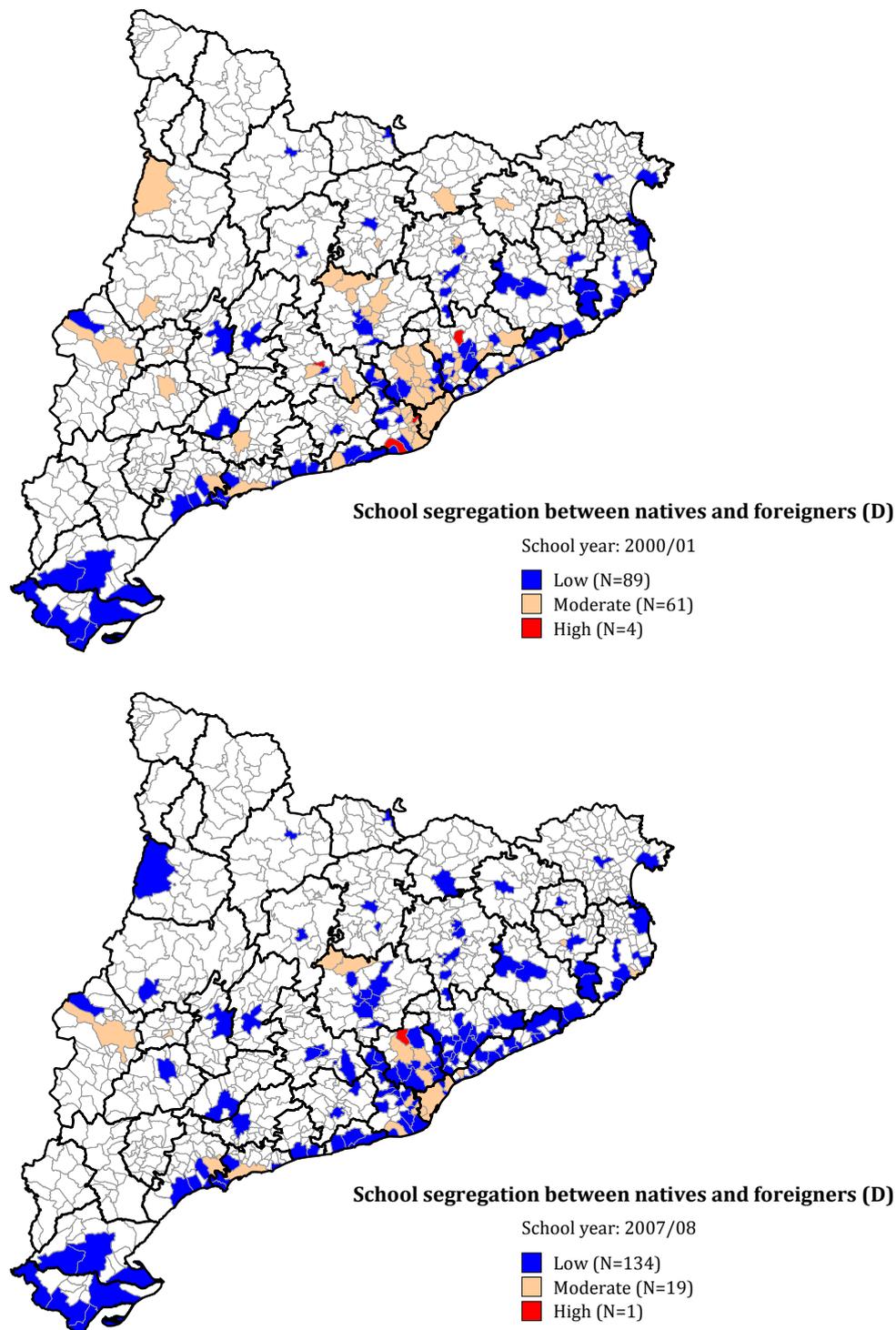
Even when the distribution of children of immigrants across the territory has experienced a significative increase throughout the years -as reflected by the changes in the location quotient values-, the heterogeneous assimilation of foreign pupils in the local educational system has preserved the disparities not only in terms of origin but in some cases linked to socioeconomic background. In that terms, settling additional or higher tuition fees would be one of the basic mechanisms that schools would use for discriminate pupils during the enrollment process. As we might expect, these mechanisms could be mostly applied by state-sanctioned or private centers thus directly inciding in the distribution of the enrolled population among educational sectors as we will see in the following sections.

Figure 5.11: **Distribution of the School Segregation Index between natives and foreigners. 2000/01-2007/08**



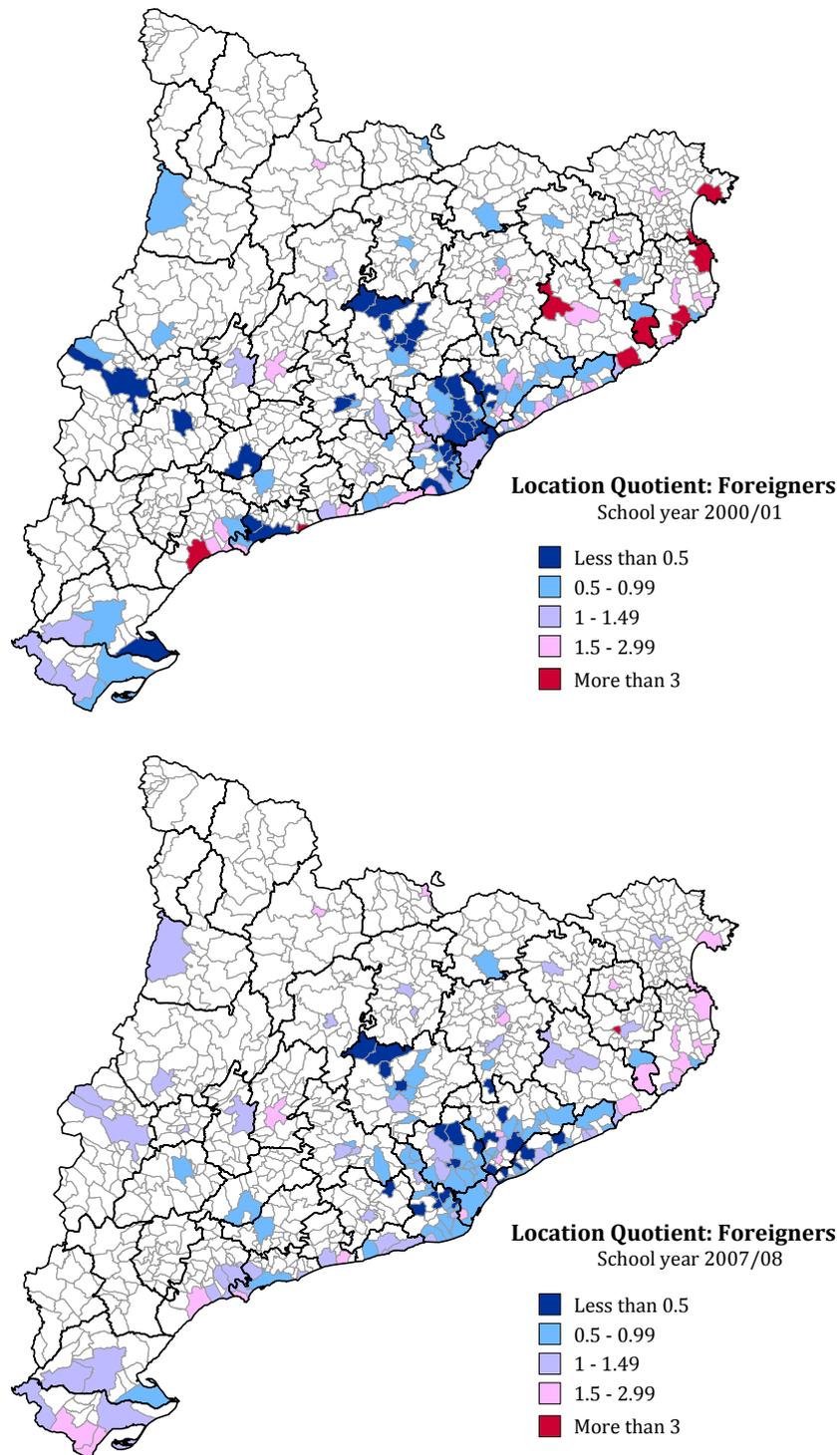
Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

Figure 5.12: School Segregation Index between natives and foreigners 2000/01-2007/08



Note: Low indicates values lower than 0.3; Moderate for values between 0.3 and 0.6; and High for values greater or equal to 0.6 Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 5.13: Location Quotient of the foreign enrolled population. 2000/01-2007/08



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

5.2.4 School segregation by educational sector

Depending on the local educational supply, the familiar school decision process would also include sectorial preferences of enrollment. Selection between public and state-sanctioned schools represent for some families not only the opportunity to enroll their children in a particular educational project consistent to their personal ideals and values, but the possibility of giving them access to a specific social network. In that sense, preferences are not only a matter of proximity. They could also be driven to sharing with specific socioeconomic background pupils, the school characteristics and the social recognition of the educational center, among others.

As education is mainly provided by the public sector, most of the enrolled population is concentrated in this side of the educational supply. The educational public sector in Catalonia integrates 1,296 schools (66.4 percent of the total) and provides education to 531,254 children (58.8 percent of the enrolled population). Therefore, the higher demand for education that the public sector might satisfy should not be left aside before considering socioeconomic background as the main cause for being enrolled in a public school regardless origin. This assumption could be especially applied in those municipalities in which supply for education is constrained to a scarce number of schools. Thus, when the number of educational centers available tend to one, individual preferences become irrelevant in the school choice process. Table 5.11 shows the enrolled population by sector and origin.

Table 5.8: **Enrolled population by sector and origin. Catalonia, 2000/01-2007/08.**

Sector	Origin	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
StateS.	Spain	357,742	355,149	353,581	350,879	348,653	348,923	350,637	352,073
	Foreign	3,185	5,014	8,000	10,849	13,179	15,223	17,296	20,029
	Total	360,927	360,163	361,581	361,728	361,832	364,146	367,933	372,102
Public	Spain	460,244	452,191	450,399	445,373	443,181	433,314	430,735	433,519
	Foreign	17,893	26,267	38,685	55,637	65,677	78,120	87,895	97,735
	Total	478,137	478,458	89,084	501,010	508,858	511,434	518,630	531,254

Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

Even though the arrival of children of foreign origin has changed the composition of the enrolled population in the aggregate, state-sanctioned schools have not experienced changes comparable to those of the public sector. During the academic course 2000/01,

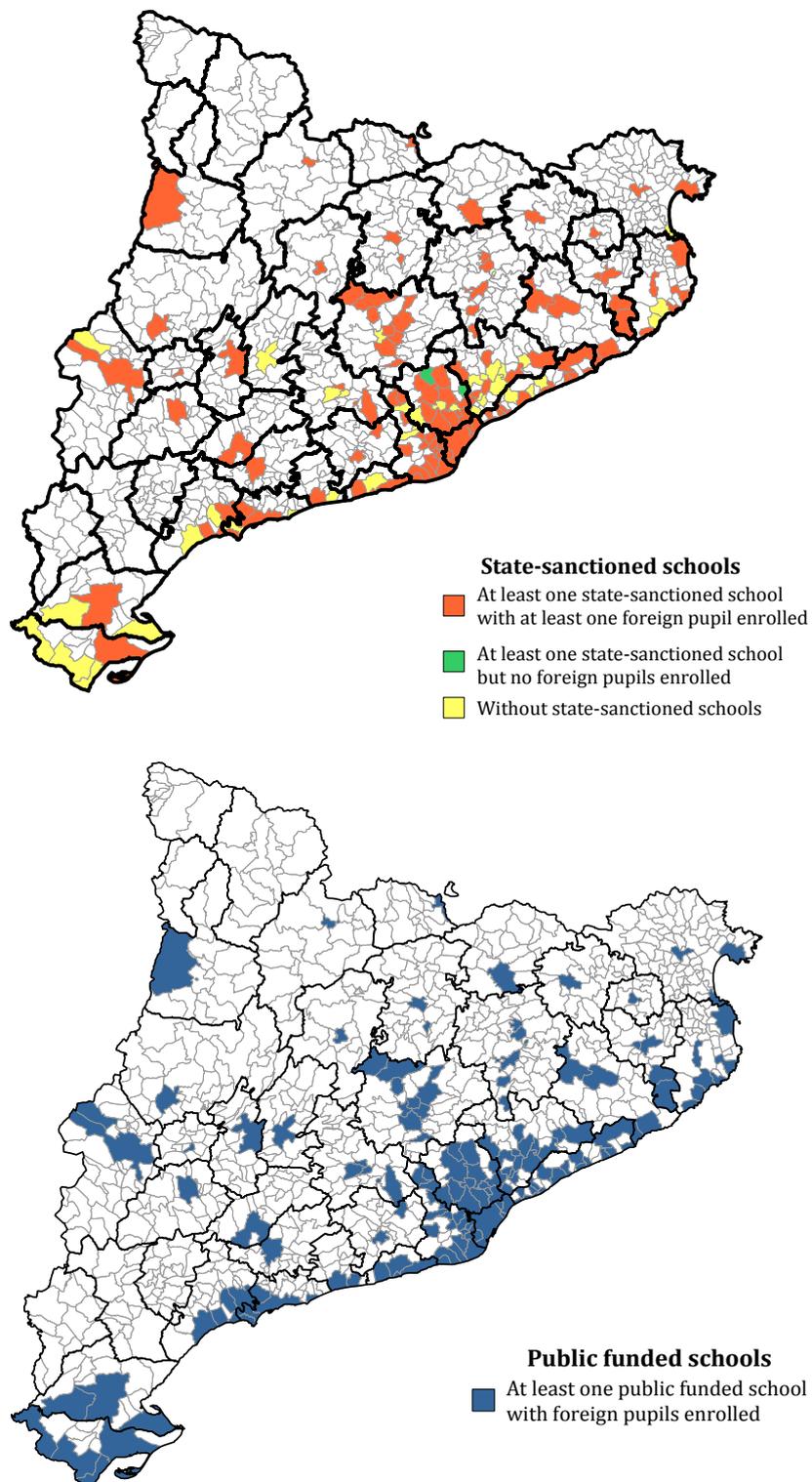
99.1 percent of the students enrolled in state-sanctioned centers held the Spanish nationality. Eight years later, their share acquainted 94.7 percent in state-sanctioned schools and 81.7 percent for the public sector. Therefore, the differential enrollment of foreign pupils by sector, suggests -in some cases- the existence of a selection bias towards children of immigrants favouring though school segregation.

There are several mechanisms and informal barriers that are still used as part of the selection criteria in state-sanctioned educational centers. Among them we could mention the inclusion of higher voluntary quotas or mandatory extra-curricular activities which require additional investments for families. Nevertheless, we must also consider that there are some municipalities in which the only available center is state-sanctioned. Figure 5.14 shows the territorial distribution of the educational centers included by funding source.

As we can observe in both maps, the distribution of centers by funding source is quite heterogeneous, particularly when considering the number of foreign children enrolled. First, only 112 out of the 154 analyzed municipalities have at least one state-sanctioned school. Among them, we can find two particular cases in which state-sanctioned schools have not reported any foreign pupil during the analyzed period: Matadepera and Palau-Solità i Plegamans. Even when both municipalities have already accounted foreign citizens at school ages since the 2001 Census, foreigners have not gained access to the local state-sanctioned school that satisfies more than fifty percent of the municipal demand of education.

Figures 5.15 and 5.16 show the territorial distribution of educational centers by share of foreign pupils and funding source. Leaving aside the scale effect mentioned before, the maps clearly show the uneven distribution of foreign students between educational sectors during the last years. Even when the number of educational centers differ, the proportion of the demand of education that each sector satisfies has been by far divergent. At the beginning of the analyzed period, publicly funded centers had on average a share of 3.8 percent foreign pupils by 1.2 percent of their state-sanctioned counterparts. During the school year 2000/01, the maximum proportion of immigrant students in state-sanctioned centers could be found in the municipalities of Llagostera (in the Mediterranean Coast) and La Seu d'Urgell (in the Catalan Pyrenees) with 7.7 and 7.1 percent respectively. Nevertheless, in absolute terms the number of foreign pupils clearly show the scale effect between them. The foreigners enrolled in state-sanctioned centers in Llagostera accounted 12, whereas La Seu d'Urgell enrolled 49 children from abroad. At the same time, the average proportion of foreign students represented 3.8 percent in publicly funded centers reaching a maximum share of 15.3 percent in the municipality of Salt with 292 foreign

Figure 5.14: Territorial distribution of the educational centers by funding source.



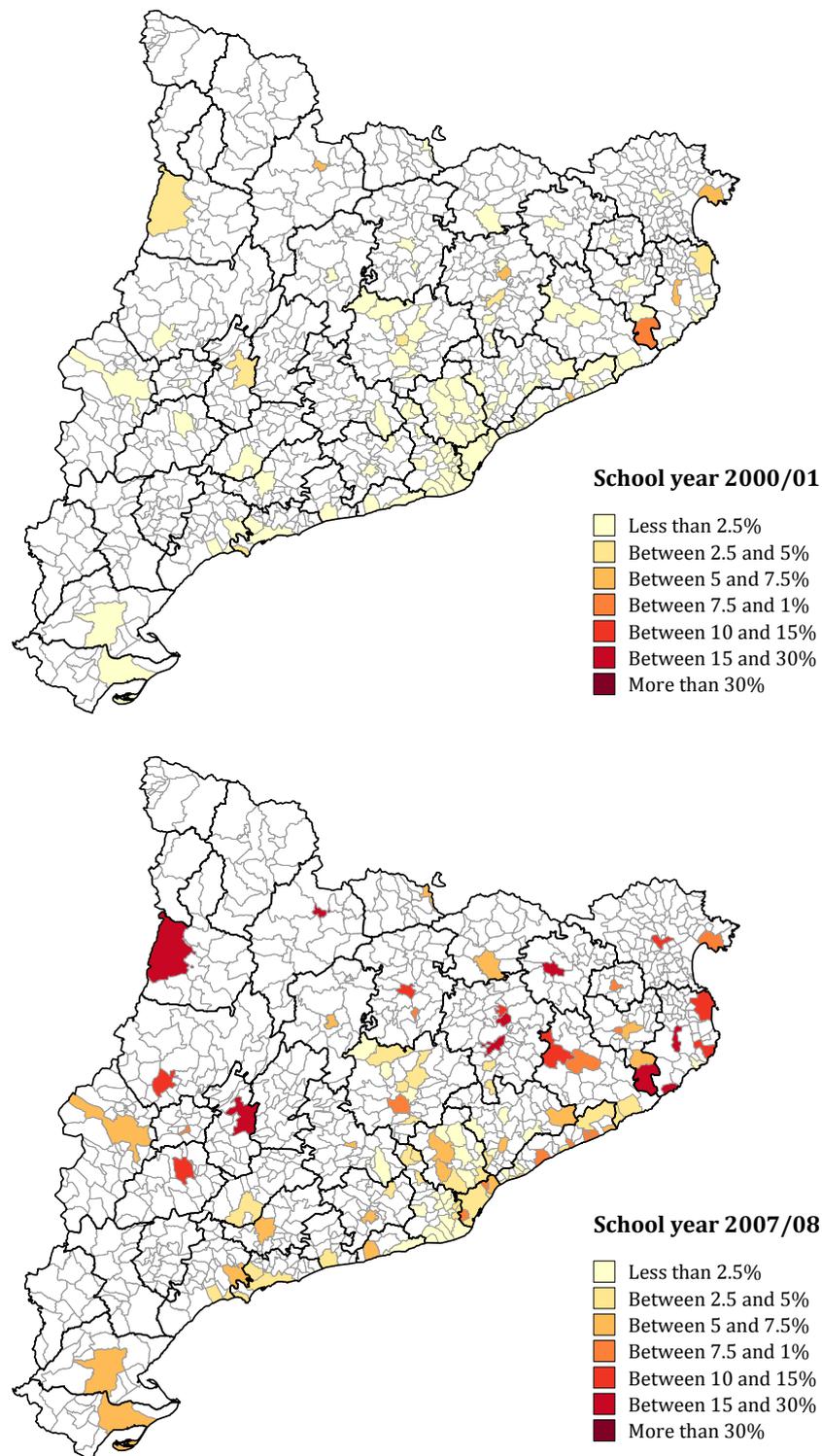
Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

pupils. As we have mentioned before, the municipality of Salt (located in the northern county of Girona) is by itself a particular case of school segregation of foreign pupils. The former, not only because of the sharp differences between sectors but by the white flight led by those who were able to cover the additional transportation costs. A deeper analysis for the Province of Girona will be carried out in the following sections.

Later on, the arrival of foreign children brought significant changes in the composition of the enrolled population. The share of foreign pupils in the public sector shifted on average to 15.7 percent whereas the state-sanctioned represented 6.1 percent. Even when the majority of the students were enrolled in publicly funded centers, we must stress that the presence of children from abroad was more than five times higher in 2007/08 than during the school year 2000/01. In absolute terms, the number of foreign pupils enrolled in state-sanctioned centers increased from 3,185 to 20,029 throughout the period. For the public sector, the foreign enrolled population grew from 17,893 to 97,735 pupils representing an increase of approximately 450 percent. As we might expect, the maximum thresholds were also increased. The municipality of Salt experienced once more the higher share of foreign students in the public sector with 51.5 percent -8.6 percent in state-sanctioned-, whereas the state-sanctioned maximum share reached 23.1 in La Seu d'Urgell -22.2 percent in the public sector-.

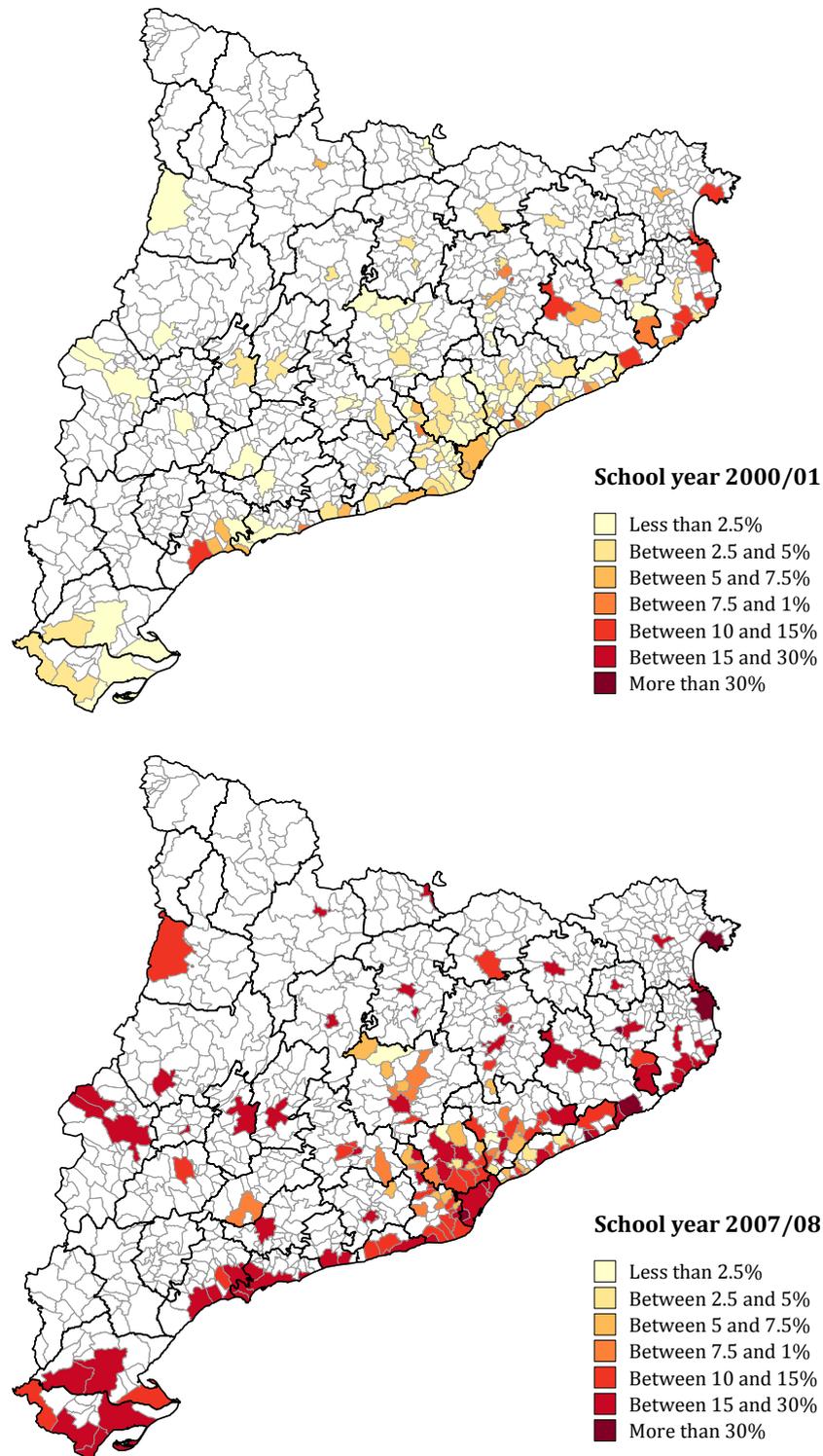
Even when the contrasting differences across municipalities and sectors would be influenced not only by the market and the households' preferences, but by local policies. On the one hand, the higher proportion of children of immigrants in one particular sector at municipal level indicates that there is at least one educational center that concentrates a higher proportion of foreign pupils than the aggregate. Therefore, an increasing trend would suggest the consolidation of highly-segregated centers and/or the failure of the mechanisms implemented to fight against school segregation. In some cases, public intervention has been targeted to constrain or determine the allocation of children in schools by the central planner. In that line, the municipalities of : Badalona, Mataró, Terrassa, Vilanova i la Geltrú, Reus, Vic, Manlleu, Olot, Banyoles, Figueres, Cervera and La Seu d'Urgell implemented a central enrollment office. Some of them, as the municipality of Vic, established a minimum threshold of immigrant pupils that educational centers may guarantee, thus determining an artificial distribution of the enrolled population.

Figure 5.15: Share of foreign pupils by municipality: State-sanctioned schools. Catalonia, 2000/01-2007/08



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 5.16: **Share of foreign pupils by municipality: Public funded schools. Catalonia, 2000/01-2007/08**



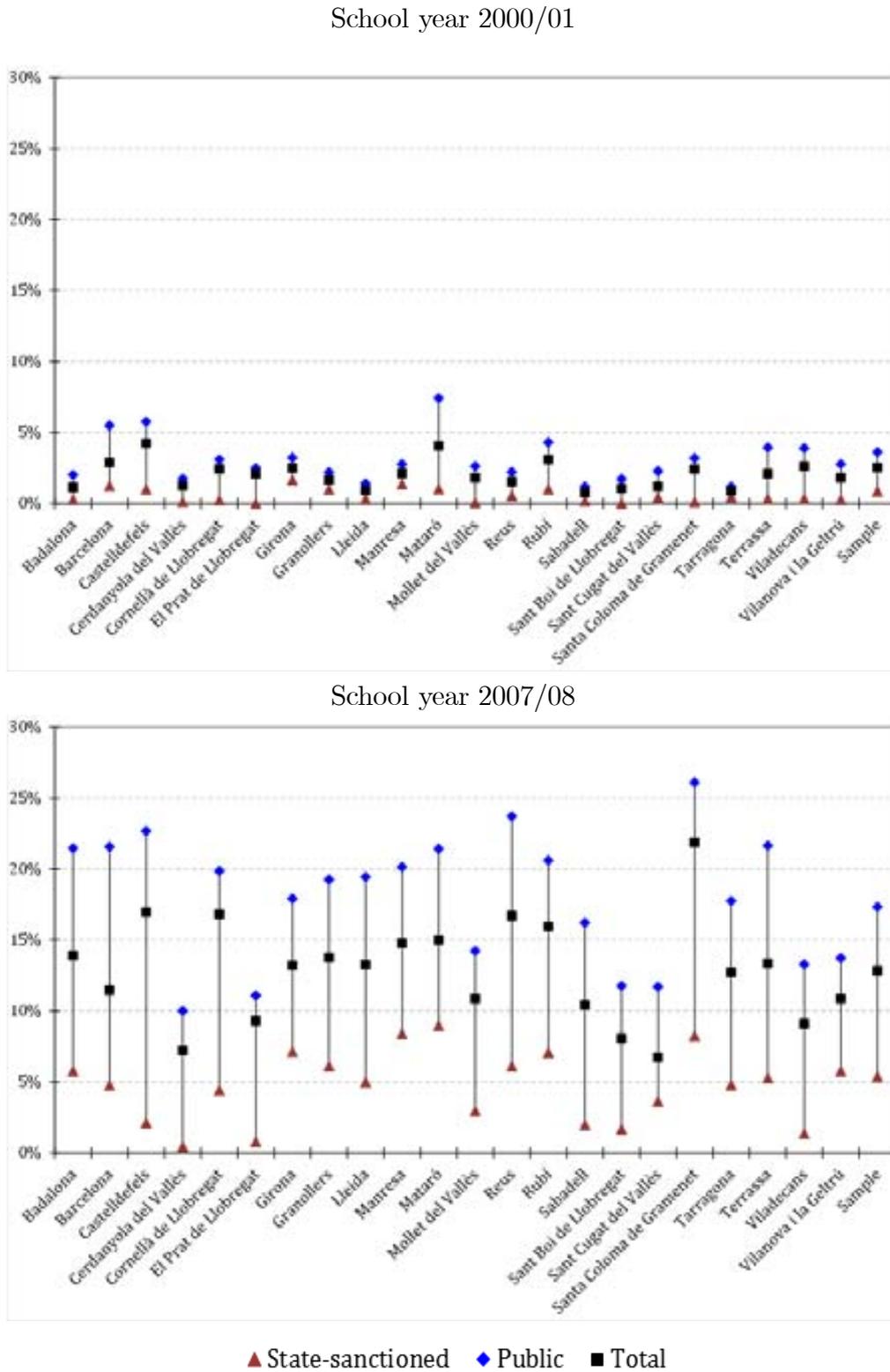
Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

In order to illustrate how distribution has changed in time, Figure 5.17 shows the share of foreign pupils by educational sector in those municipalities with populations greater than 50,000 inhabitants. To contrast the results with the aggregated allocation by sector, the sectorial share of foreign pupils is included in the last column of the chart. As we might expect, the municipalities listed are mostly those from the metropolitan area of Barcelona that concentrates an important share of the Catalan population, as well as the four provincial capitals of Barcelona, Girona, Lleida, and Tarragona. The resulting distributions could be analyzed under two different approaches. First, the horizontal comparison of the plotted results could give us a hint in how educational sectors are responding to the increased demand for education once the territorial dimension is included. Therefore, the results could be interpreted as the intra-sectorial differential response. Second, interpreting the plotted results vertically could shed some light on the inter-sectorial dimension at territorial level.

The heterogeneous distribution of the foreign population in the territory -particularly at younger ages- could explain good part of the differential allocation by sector. Nevertheless, the complex structure of the local educational supply and the absence of an aggregated policy that clearly provides the directives of the system's response to the increased demand of education, gives as a result the concentration of the foreigners in the public sector. Even when local authorities are supposed to have better knowledge of the composition and needs of their resident population, the arrival of the inflows from abroad received an insufficient response from the system. In that sense, the contribution to the creation to highly concentrated centers and the so called, ghettoized schools has not been only a result of the ethnic enclaves and the native flight but also a consequence of the lack of instruments that effectively contribute to at least give access to the same opportunities to accessing the educational system as natives. All in all, given the size of the municipalities included in the chart, we cannot consider scale effects as a trigger of the higher disparities between sectors.

The heterogeneous sectorial distribution of the foreign enrolled population by municipality shows how the educational system has satisfied the recent increase in the demand for education. By comparing the academic years 2000/01 and 2007/08 we can observe how the enrollment of children of foreign origin has been to some extent limited to the public sector. During the school year 2000/01, 14 out of the 23 municipalities listed on the chart have not enrolled foreign children at the state-sanctioned sector. At that time, the maximum share of foreign pupils reached seven percent at the public sector in the municipality of Mataró, whereas their maximum participation in the private only reached two percent in Girona.

Figure 5.17: Share of foreign pupils by sector: Selected municipalities. Catalonia 2000/01-2007/08



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

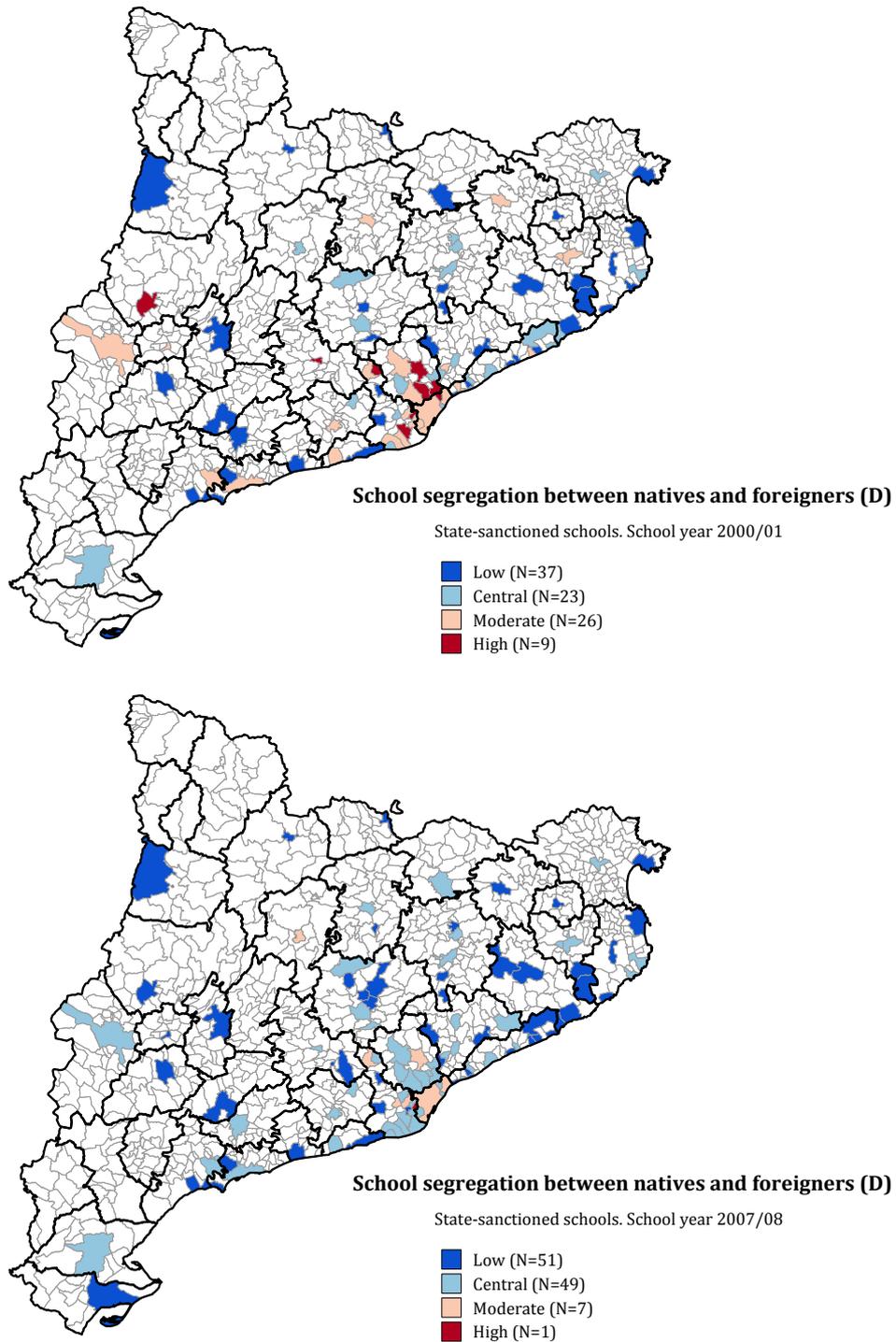
Even though the number of foreign pupils during the academic year 2007/08 represented more than four times the non-native enrolled population of 2000/01, the distribution among sectors was clearly uneven. In most cases, the public sector has been the one in charge of responding to the additional demand for education. At aggregated level, it satisfied the demand for education of 80 percent of the foreign children enrolled in this Autonomous Community. Based on the higher share of foreign pupils, as well as the higher demand for education they have satisfied throughout the years, we might a priori expect higher school segregation levels in the public sector.

In order to analyze how the school segregation has affected each educational sector, we have estimated the segregation index and the location quotient for each of them (Figures 5.18 to 5.23). Even when we will only show the first and the last analyzed year results, the complete set of tables and maps could be consulted in the Annex.

Following the same methodology applied in the previous section, we have first determined how school segregation index is distributed according to measures of central tendency. The mapped results for the state-sanctioned and the publicly funded sectors are shown in Figures 5.18 and 5.19. By comparing the resulting distribution by sector to the aggregated result shown on Figure 5.11, we can see how the school segregation index diverges once educational sector is controlled for. Regardless the municipal size, the marginal effects reflected in school segregation measures would be higher given the reduced number of units included in the calculation. Therefore, the variance of the school segregation index scores for the state-sanctioned sector will be -on average- higher than the one experienced by the public sector. Nevertheless, we must remember that even when previous results have shown the presence of foreign pupils in both sectors, the estimation of the school segregation index would be -by definition- constrained to those municipalities with at least two educational centers and one pupil of foreign origin. Consequently, the number of municipalities in which estimations could be performed are not consistent in time particularly for the state-sanctioned sector given the lower probability of experiencing an regular enrollment of immigrant children.

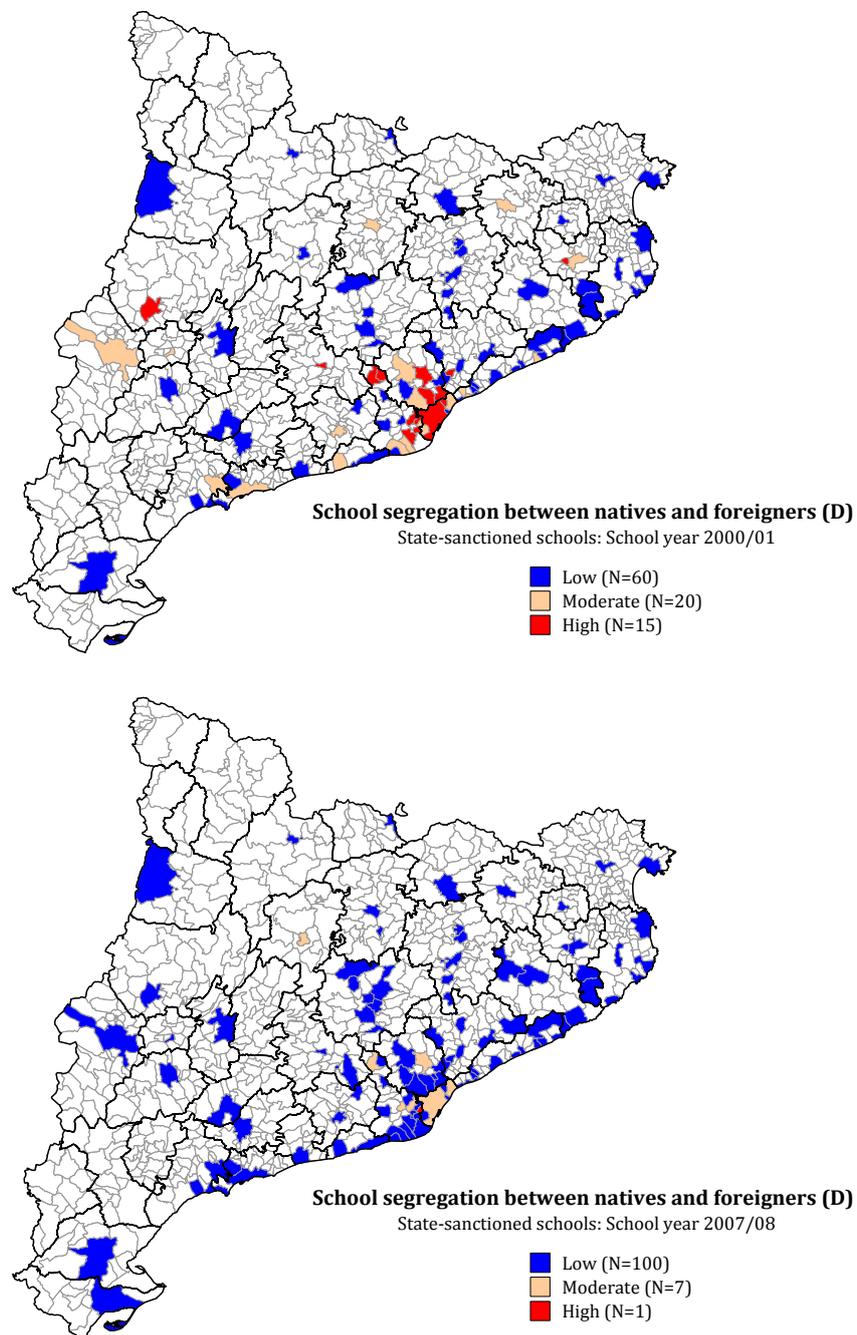
All in all, the differences experienced by the most populated municipalities show how the interactions between the educational system and the resident population could result in more segregated populations with respect to the aggregated distribution. That is the case of the municipalities from the metropolitan area of Barcelona, in which school segregation tends to the upper limit of the distribution, and accentuating the trend for the public funded centers.

Figure 5.18: **Distribution of the School Segregation Index between natives and foreigners: State-sanctioned schools. 2000/01-2007/08**



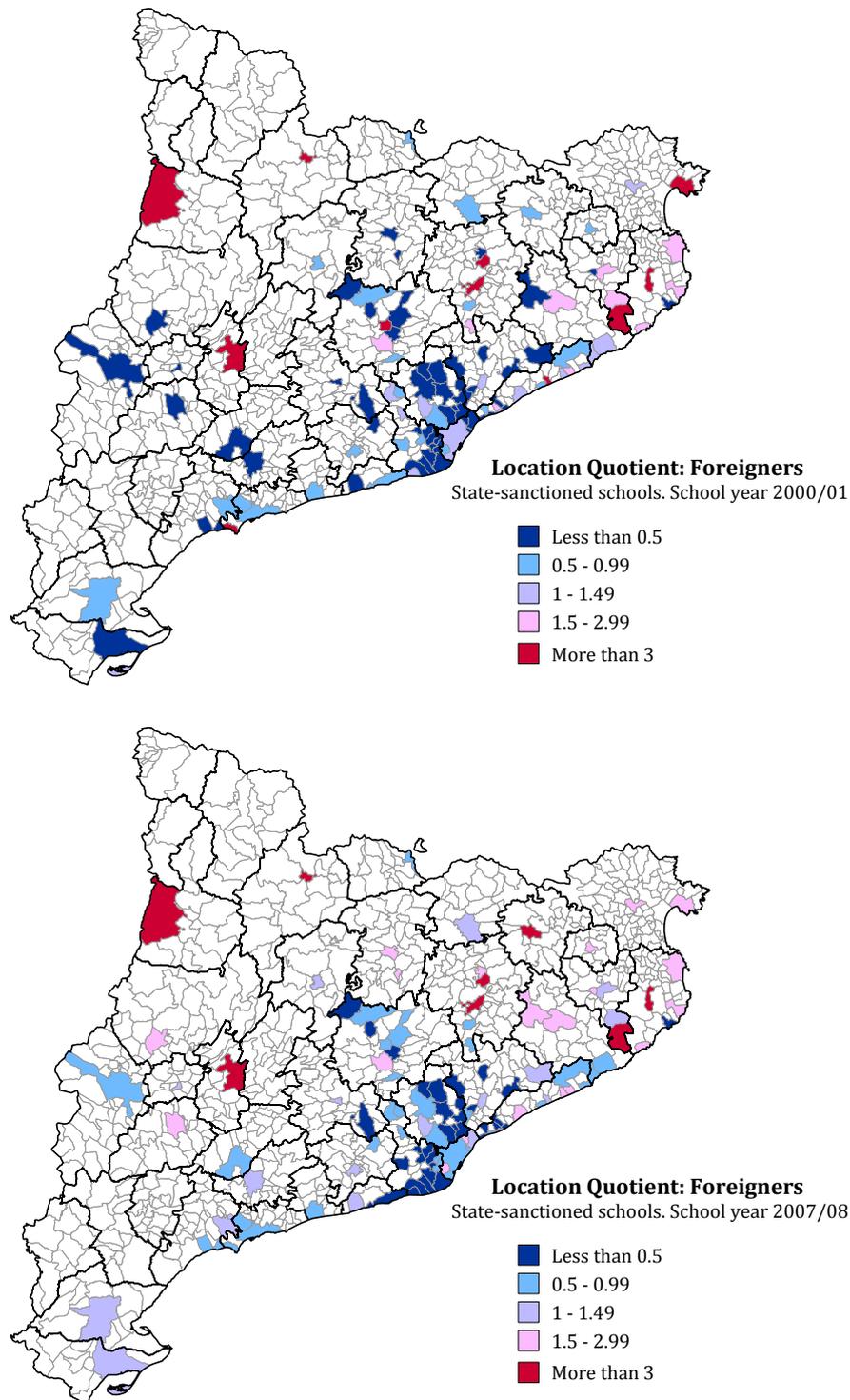
Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

Figure 5.19: School segregation index between foreigners and natives by municipality: State-sanctioned schools. Catalonia, 2000/01-2007/08



Note: Low indicates values lower than 0.3; Moderate for values between 0.3 and 0.6; and High for values greater or equal to 0.6 *Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).*

Figure 5.20: Location Quotient of the foreign enrolled population: State-sanctioned schools. 2000/01-2007/08



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Even when the additional demand of education result of the arrival of immigrant inflows from abroad has been mostly satisfied by the public sector, we must highlight one particular case in our database in which the public sector does not register students of foreign origin. The municipality of Navàs, registers more than 900 pupils enrolled in three different educational centers, two of them state-sanctioned. The remaining one -a publicly funded pre-school- did not registered any foreign children enrolled even when the Padrón Continuo shows that there were children at younger ages which could be potentially enrolled throughout the period of analysis. As we do not have access to individual registers, we could only assume that the absence of foreign pupils from the public pre-school was due to parental preferences of later enrollment or the private sector, or the effect of naturalization or erroneous registers.

By contrasting the distribution and the evolution of the school segregation index by sector, we can observe first, the generalized effect of the increased enrolled population of foreign origin in the distribution. A clear reflection is the variation in the number of municipalities in which school segregation could be calculated for the state-sanctioned sector. More specifically, the number of charter schools with at least one foreign pupil augmented from 402 in the school year 2000/01 to 597 in 2007/08. As a result, the number of municipalities in which school segregation index could be calculated increased from 95 to 108 during the last year. Second, and particularly related to the public sector, we can observe divergent behaviors in neighboring municipalities. In other words, it is possible to observe that school segregation in two or more neighboring municipalities are reflecting opposite trends. This could be linked to households incurring in transportation costs in order to satisfy their school choice preferences as we will later explain.

The school segregation index and the location quotient for the state-sanctioned sector are shown in Figures 5.18 to 5.20. In addition to the increased number of municipalities in which school segregation could be estimated, the arrival of immigrants at school ages from abroad gave as a result a decrease in the average sectorial school segregation index from 41.4 in the school year 2000/01 to 29 in 2007/08. All in all, while considering the distribution based on central tendency measures and the evolution of the school segregation index based, we can observe that even if a majority of the values could be considered as low there are cases in which higher segregation persists. For the academic year 2007/08 the results show that there is only one municipality that could be classified as highly-segregated. The municipality of Esplugues de Llobregat -in the metropolitan area of Barcelona- experiences in four of the eight analyzed years the higher segregation levels of the state-sanctioned centers with more than 80 points. The results could suggest the existence of mechanisms addressed to constrain or avoid the presence of the children

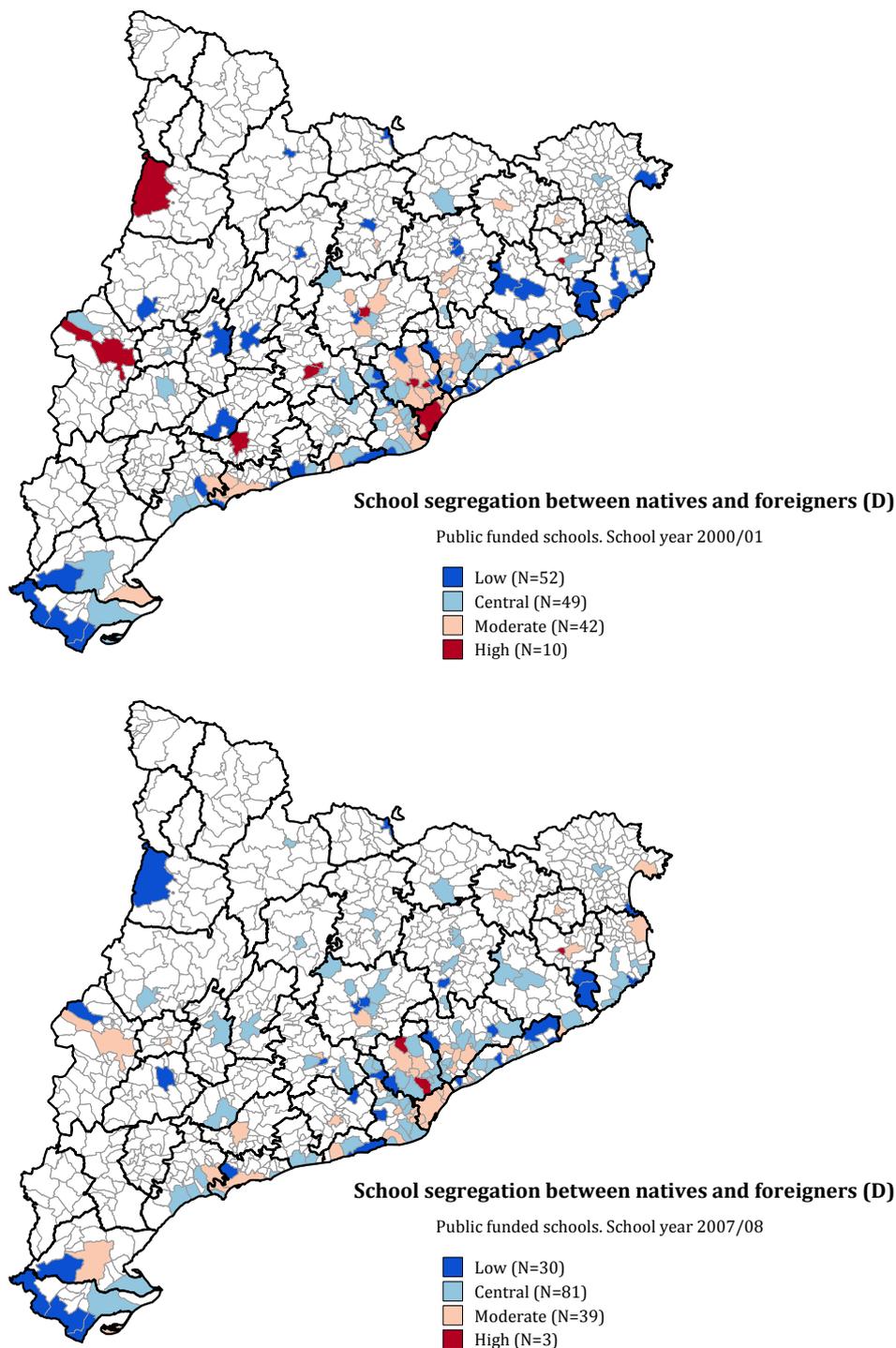
of immigrants in charter schools. Even when the educational stages offered compel from pre-school to high-school, one of the four state-sanctioned schools in Esplugues de Llobregat has not reported the presence of foreign pupils during the entire period of analysis. By contrasting the results to the municipal location quotient we can observe how the proportion of foreign pupils enrolled in the local state-sanctioned sector is below the sample's average by approximately 50 percent. Results suggest that the charter schools in the municipality not only had applied effective barriers to entry by granting access to only a scarce number of foreign pupils to their sector and an even more constrained educational offer schools regardless their nationality.

As we have mentioned before, the variance of the resulting segregation in the state-sanctioned sector is higher than the one experienced in public centers as a result of the lower number of units of analysis for its calculation. Despite the multiplier effect that scale effects that smaller municipalities would also experience, apparently the higher share of students of foreign origin has had a more significant contribution to the decreasing trend on the average school segregation.

Regarding the school segregation in the public educational sector (see Figures 5.21 to 5.23), the first difference in the estimation of the indicators is the continuous presence of children of immigrants in the 153 municipalities in which public centers are located. As we have mentioned before, from the 154 municipalities in our sample, only Navàs did not account for publicly funded schools. Second, the increased demand for education apparently has had a generalized effect in this sector in terms of how foreign enrolled population is spatially distributed and the decreasing trend of the segregation index.

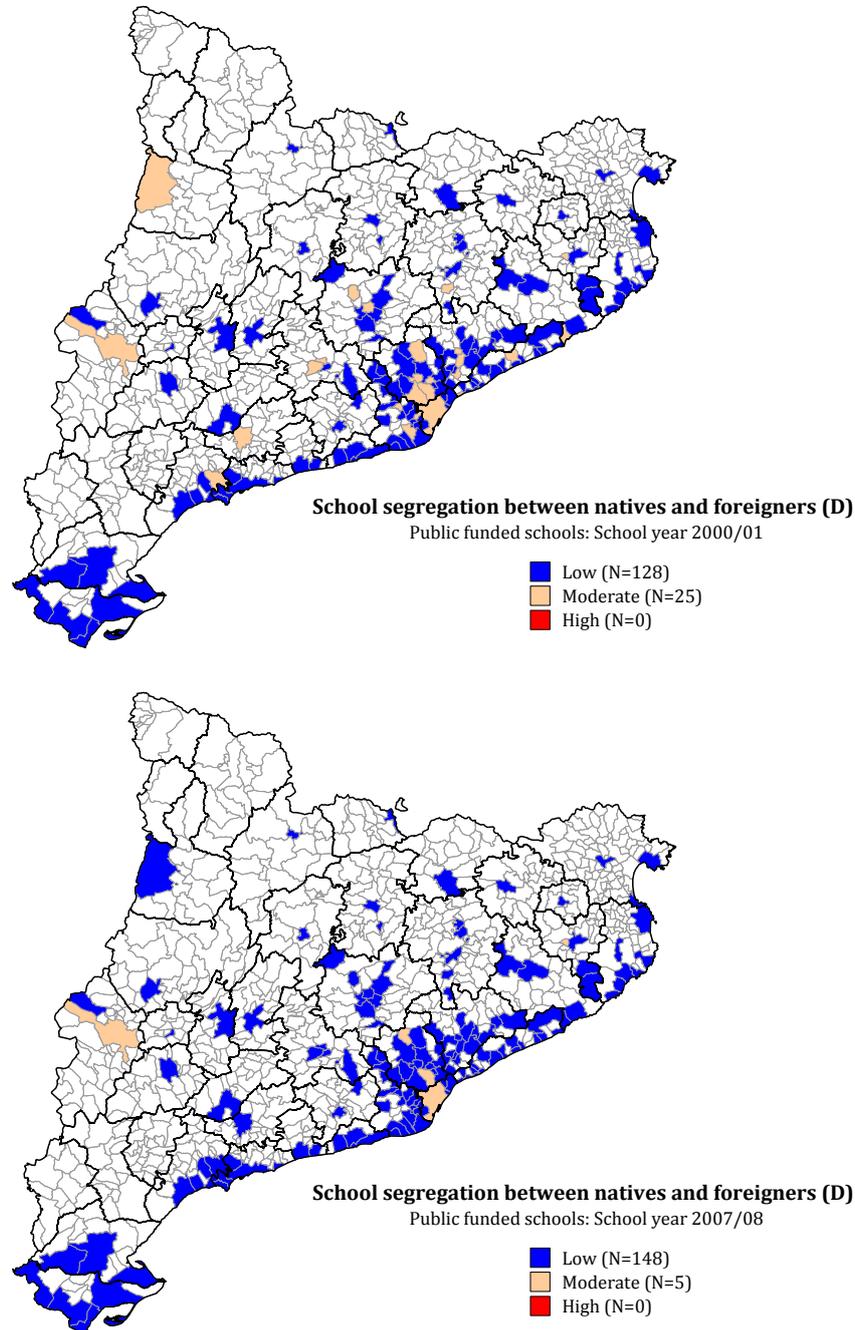
A clear example of how the smaller municipalities are affected by a multiplier effect and a greater variance could be seen in the municipality of Tremp. This municipality -located in the north-western border of Catalonia- accounts for three public educational centers. During the school year 2000/01, the municipality experienced school segregation levels on the upper limit of the distribution with a school segregation index of 45.5 points. At the end of the analyzed period, during the school year 2007/08, the local school dissimilarity index reached 3.5 points and the lower threshold of the distribution. All in all, the foreign enrolled population experience a major growth shifting from 3 to 170 pupils in eight years. However, as the location quotient shows, the foreign enrolled population was clearly underrepresented during the period of analysis.

Figure 5.21: Distribution of the School Segregation Index between natives and foreigners: Public funded schools. 2000/01-2007/08



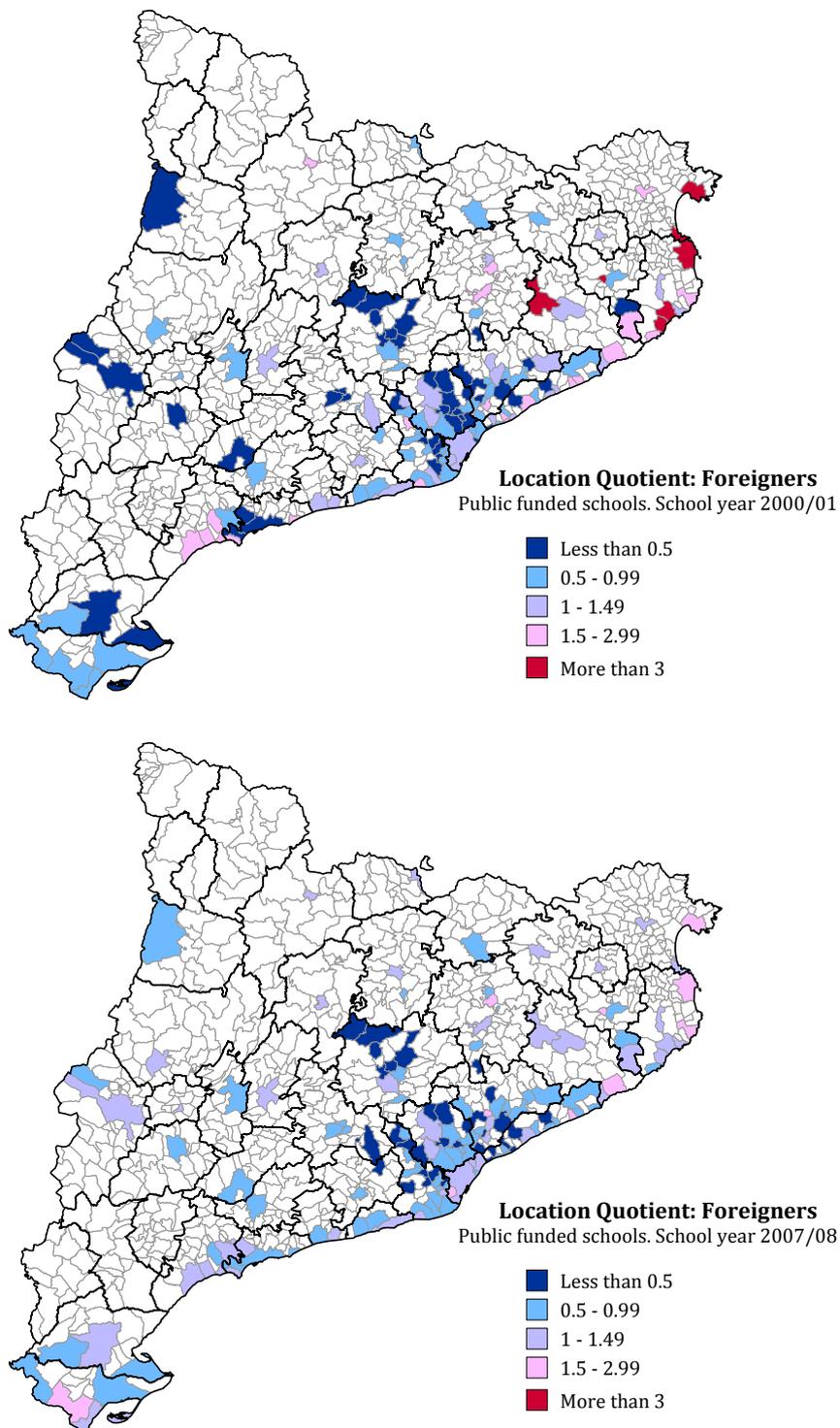
Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

Figure 5.22: School segregation index between foreigners and natives by municipality: Public funded schools. Catalonia, 2000/01-2007/08



Note: Low indicates values lower than 0.3; Moderate for values between 0.3 and 0.6; and High for values greater or equal to 0.6 *Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).*

Figure 5.23: Location Quotient of the foreign enrolled population: Public funded schools 2000/01-2007/08



Source: Author's elaboration based on the *Estadística de l'Educació no Universitària* (Catalan Department of Education).

In regard to how preferences affect school choice decisions in contiguous areas is clearly illustrated in the municipalities of Salt and Girona. On the one hand, by analyzing the intrasectorial segregation, we could observe how charter schools have even improved their segregation levels. All in all, the results could suggest foot voting decisions in the municipality of Salt. That is, families if not migrate, commute everyday, between the municipalities of Salt and Girona based on the more beneficial situation based on their school preferences. As we have previously mentioned, foot voting situations could mostly affect native families as they have more access to resources, particularly information. In the margin, foot voting could constitute the trigger for native flight from specific educational centers. As a result, the municipality of Salt experience higher segregation rates and the concentration of immigrant children in one sector. More specifically, the share of foreign pupils accounts 51.4 percent (1,314 pupils) during the school year 2007/08 whereas the neighboring county capital of Girona experienced only 17.9 percent -1.914 pupils-. The contrasting distribution of the enrolled population in the state-sanctioned sector results in 7.7 percent of foreign pupils in Girona (589 pupils) by 9.5 percent in Salt (80 pupils).

As we might expect, this does not represent a particular case in the Catalan educational system. Even when school catchment areas are supposed to be fulfilled based on the place of residence for public and state-sanctioned centers, we could also assume that the incentives for foot voting are higher in the largest municipalities. By considering the case of the metropolitan area of Barcelona, the well developed transport and communications infrastructure decreases the marginal costs for commuting. Therefore, the incurring costs for choosing an educational center that satisfies the household's preferences should be lower than those in more isolated or less communicated areas. Also, if data for private and international schools were available, we could be able to observe that the incentives to commute for the families enrolled would be higher based on the differential selection criteria used.

In sum, it is clear that not only the share of foreign pupils in the educational system could affect the interpretation and estimation of the segregation index but that a determining factor is clearly how they are distributed across the school strata. Nevertheless, we must not forget the potential effect that the educational stages offered in each educational center could play in the spatial distribution of students. As we have seen in the previous chapter, the participation of the foreigners in the educational system could experience significative variations according to the stage. That is the case of, for example, vocational schooling or social guarantee programs which experience higher participation of immigrants.

5.2.5 **Spatial interactions among nationalities: How preferences are reflected at territorial level?**

Familiar and individual choices play an important role in the school selection process. Even when the available supply for education could be constrained in terms of the constrained number of schools available by catchment area, families could increase the available choices while considering potential mobility well by commuting or residential change.

As we have mentioned before, familiar and household preferences are not only related to academic or curricular variables, but to some extent, to social perception of the nationalities represented in the enrolled population. As academic achievement data is not published and there are no other sources of institutional performance indicators, choices are mostly influenced by educational centers' social perception or reputation. Therefore, subjective perception of academic performance depending on the pupil's origin or immigrant background would in some cases determine the white flight of natives from schools in which the most negatively perceived nationalities are present. Nevertheless, this phenomenon could also affect the earlier educational stages, thus preserving the existence of ghettoized centers and avoiding the social interaction between nationals and non-nationals since early childhood.

In order to analyze how interactions among origins have changed throughout the years, we will study the evolution of the Dissimilarity Index (Duncan and Duncan 1955a,b) among origins. As we have mentioned before, we will consider the interactions -and the so called assimilation process- based on the spatial integration of the different nationalities. Therefore, our study would not be focused on how social networks are built inside and outside the classroom at individual level, or how individuals interact based on the nationalities of their closer friends. Consequently, the evolution of the school composition by nationality at meso-level could shed some light in how preferences have been influencing the final composition and -to some extent- the access to social and ethnic networks of the enrolled population.

On the previous section we have observed that the number of children of foreign origin enrolled by sector is not homogeneous in time, particularly affecting the state-sanctioned sector. Consequently, the study of the interactions by nationalities represents one of the challenges while studying the evolution of the enrolled population. The heterogeneous distribution of the enrolled and the variance related to the size of the municipalities considered, results in a systematical information loss once individual nationalities are considered. To minimize the impact of information loss, we will constrain our analysis to nationalities by continental origin. Nevertheless, in order to provide an inframunicipal

estimation of the interactions among groups at significant level, we will deeply analyze the municipality of Barcelona in Section 5.3.

Even when existing literature on school (de)segregation considers mostly the white or native flight from educational centers with higher proportion of immigrant pupils, we should also consider the existence of preferences among foreign origins. The existence of social and/or ethnic networks contributes to access to information -particularly for the recently arrived migrants- that, as we might expect, may also include the social perception and preferences on the local educational system. Differences in settlement patterns among groups could also determine, first, the territorial distribution and, second, the structure by age of the children at school ages. The familiar structure of migrants could be affected by the completion of the familiar migration project and the childbearing decisions of the foreigners. Consequently, the longer the elapsed time between the arrival of the inflows and the observation, the larger number of children with immigrant background.

Regarding the origins considered, the enrolled population has been divided in the following according to the reported nationality: Spain (natives), EU15, Rest of Europe, Africa, America, and Asia and Oceania. The inclusion of the continental origin instead of single nationality simplifies the comparison among municipalities while keeping a constant definition in time. First, we will calculate the index of segregation considering all the possible combinations among the six groups listed. Second, we will compare the results obtained to the residential segregation indexes in order to analyze to what extent the social interactions at school level follow a different pattern while compared to the residential spatial assimilation of migrants.

Based on the evolution and the diverse composition of the inflows, we might expect that contact between groups -estimated using dissimilarity index scores- increases in time. In addition, the scattered distribution of the foreign population at territorial level would contribute to the arrival of foreign children at schooling ages not only in the economic attraction nodes and main cities in Catalonia. Consequently, we might expect that the interaction or contact between nationals and non-nationals would have experienced an increase at residential and school levels. However, the spatial distribution of the foreigners enrolled shown in the previous section as well as previous results, give us a hint on the contradiction between residential and school segregation levels. Table 5.12 shows the contact among origins measured by the segregation index for the enrolled population in Catalonia. Even when the table only contains the segregation index scores for the baseline and the last analyzed year, annual estimations (also at municipal level) may be consulted in the Annex.

Table 5.9: **School dissimilarity index among groups. Catalonia, 2000/01-2007/08**

		2007/08					
		America	Africa	Asia	EU-15	Rest Europe	Spain
2000/01	America	-	49.0	47.2	51.8	43.1	44.7
	Africa	63.9	-	62.7	61.6	48.9	55.7
	Asia	59.3	73.8	-	64.8	50.3	60.5
	EU-15	63.1	66.8	73.9	-	49.8	51.9
	Rest Europe	60.7	72.2	74.2	58.3	-	48.0
	Spain	57.1	63.4	75.7	65.7	70.9	-

Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

The dissimilarity index scores varies between 0 and 1, where 0 indicates no segregation and 1 the complete segregation of the analyzed population. Therefore, in terms of contact, the higher (lower) dissimilarity scores are, the lower (higher) the spatial interaction between groups.

Results suggest that at aggregated level the contact and interactions among groups have experienced an improvement in time, probably as a result of the increased presence of foreign pupils in the territory. Nevertheless, as we can observe in Table 5.2, the dissimilarity scores are not homogeneous once origins are considered. In general, the contact between the dominant group (Spaniards) and the rest of origins show a consistent pattern regardless the improvement in the scores shown. Asians, EU15 Europeans and Africans show the higher dissimilarity scores and therefore, the lower contact with natives. To some extent, this decreasing trend on the dissimilarity scores between the school years 2000/01 and 2007/08 could be seen as the result of the increased inflows from abroad which, in some cases, are still not sufficient to guarantee their representativeness across the territory. Such is the case of EU15 nationals and Asians, whose presence has not been widely spread across the school strata. In addition, we should not leave aside that international schools are not included in the sample and, particularly for EU15 Europeans, an important proportion of their population in schooling ages is not enrolled in the Spanish educational system. Their relative isolation could be confirmed by the dissimilarity scores that show scarce interaction with the rest of the origins despite the increase of non-national pupils.

The opposite is experienced by individuals from non-EU15 countries which lead some of the most significant growth rates among the enrolled population, particularly for Romanians and Bulgarians. Nevertheless, as we can observe Africans are still experiencing a limited contact with nationals. This particular case could suggest that rather than being

the result of their scarce presence or their uneven distribution across the territory, the higher dissimilarity between Africans and Spaniards is the result of preferences in the school choice process.

All in all, school segregation, preferences and the related decision-making processes are not exclusive for natives. The rest of the combinations could give us a first hint in how the different groups interact among them. As we have seen in previous sections, Americans -mostly Latin-Americans- have experienced the most significant growth due to the numerous inflows and the intensity of the phenomenon itself. At school level, the increased presence of Latin Americans situated them as the majoritary group in a relative short time and resulting in an increased interaction with the rest of the enrolled regardless their origin.

At aggregated level, it is possible to analyze the interactions groups by educational sector due to the consistency in the data (see Tables 5.13 and 5.14). Based on the results, we can observe that the dissimilarity index scores are systematically lower -hence indicating a higher interaction among groups- in the public sector.

Table 5.10: School dissimilarity index among groups: State-sanctioned centers. Catalonia, 2000/01-2007/08

		2007/08					
		America	Africa	Asia	EU-15	Rest Europe	Spain
2000/01	America	-	61.9	51.6	54.8	46.0	43.9
	Africa	80.3	-	72.7	76.1	61.4	66.4
	Asia	61.1	85.2	-	66.9	60.7	61.3
	EU-15	66.9	86.4	78.1	-	54.9	55.4
	Rest Europe	64.7	84.3	75.0	54.3	-	49.4
	Spain	64.4	77.1	83.5	73.2	77.9	-

Source: Author's elaboration based on the Estadística de l'Educació no Universitària (Catalan Department of Education).

The results suggest that the composition of the enrolled population in state-sanctioned schools minimizes the contact between Spaniards and foreigners (Table 5.13). As we have seen in the previous sections, the disparities among sectors and the informal barriers generated at state-sanctioned schools generates an almost counter-cyclical dynamics in terms of the distribution of the foreigners enrolled. Even when studies mostly deal with the segregation of immigrants, the concentration of nationals in charter schools could suggest the self-segregation of natives. If we assume that dissimilarity scores are a direct reflection of preferences, Americans and Europeans should be the most preferred origins, whereas Africans represent the less preferred.

Table 5.11: **School dissimilarity index among groups: Public funded centers. Catalonia, 2000/01-2007/08**

		2007/08					
		America	Africa	Asia	EU-15	Rest Europe	Spain
2000/01	America	-	46.7	45.6	50.9	42.4	38.2
	Africa	60.8	-	60.5	58.2	46.4	46.6
	Asia	58.2	71.2	-	64.2	57.3	57.5
	EU-15	61.8	62.5	72.6	-	48.3	46.7
	Rest Europe	58.8	68.7	73.9	59.6	-	41.5
	Spain	50.8	52.5	70.3	59.6	64.9	-

Source: Author's elaboration based on the *Estadística de l'Educació no Universitària (Catalan Department of Education)*.

Apparently, the participation of African pupils in the state sanctioned sector is to some extent limited to a reduced number of students. The elevated dissimilarity index scores obtained for this origin could suggest that in addition to the informal barriers and selection mechanisms that could be implemented by charter centers. For those who gained access, results suggest that the contact among origins is significant only in some centers.

As it can be observed, the dissimilarity among origins at the public sector has experienced a rapid decrease in time (Table 5.14). Especially for Spaniards, scores show a significant increase related to the generalized access to schools of children of foreign origin. Apparently, Americans are the ones who interact more with natives with 38.2 points for the school year 2007/08. The result is consistent with the state-sanctioned sector scores, possibly a combined result of the generalized enrollment of particularly Latin American children and a secondary effect of citizenship acquisition. That is, the preferred access to the Spanish nationality that Latin American nationals experience could introduce a bias in the estimator. Consequently, the estimation of the interactions between Spaniards and Latin Americans based on nationality could be overestimated once place of birth or migratory background is considered.

EU15 nationals represent one of the origins with lower interactions with the rest of the groups. As we mentioned above, the relative lower contact that Europeans experience could be the result of the enrollment in international schools, but also of their reduced population at school ages.

Considering the basic regulation on school enrollment, and particularly the proximity criterion, to what extent are the school and the residential dissimilarity indexes related? Are interactions among origins reflecting the same trends? In order to give insights in these directions, we will calculate the dissimilarity index for the resident population in

the 154 municipalities included in our sample based on the Padrón Continuo -Continuous Register- data provided by Idescat. It should be emphasized that as we do not have access to the exact ages, educational stages or places of residence (for those who commute) of the enrolled population, we will estimate the residential dissimilarity index based on the resident population by municipality. Despite the limitations that this estimation could bring, the residential dissimilarity scores would provide us a hint on the aggregated trends experienced by by origin. Table 5.15 show the estimated dissimilarity scores at aggregated level for the years 2001 and 2008.

Table 5.12: **Residential dissimilarity index among groups. Catalonia, 2001-2008**

		2008					
		America	Africa	Asia	EU-15	Rest Europe	Spain
2001	America	-	49.4	44.7	43.2	39.5	31.6
	Africa	60.3	-	63.7	64.5	45.8	49.7
	Asia	54.1	71.2	-	54.4	56.4	54.0
	EU-15	49.1	65.2	63.3	-	48.6	44.5
	Rest Europe	56.4	66.4	67.3	49.4	-	40.1
	Spain	39.3	51.7	61.3	48.6	57.5	-

Source: Author's elaboration based on the Padrón Continuo (Idescat).

It is evident from Table 5.15 that the contact among origins at residential level increased in time. Nevertheless, the resulting scores for the resident and the enrolled population show clear differences. First, we can observe how the resulting interactions between natives and the rest of the groups is higher at residential level. These might suggest that despite individuals of foreign origin are being spatially assimilated, preferences are determinants while choosing educational centers. Consequently, the composition and the interaction of the enrolled would not necessarily reflect the overall population.

The determinant role of preferences in the households' school decision-making process could be easily identified while analyzing the interactions between Africans and the rest of the origins. The diverse inflows from abroad has increased the spatial interactions among all the groups but the African nationals, the only group surpassing scores over 60 points. While contrasting the resulting scores from 2001 and 2008 we can observe how their interaction with EU15 nationals remained almost steady. More specifically, the dissimilarity index between EU15 and African nationals decreased from 65.2 points in 2001 to 64.5 points in 2008 showing how preferences could affect the settlement process in terms of contact among groups. Proximity and, therefore, interactions could also be influenced by the antiquity of the inflows and the existence of well established ethnic enclaves that may lead into a relative isolation of the groups.

On the other hand, the rapid decrease of dissimilarity scores for Asians might suggest that incoming nationals experience a more even territorial distribution than the rest of the origins.

The comparison of the school and the residential dissimilarity index scores could give us insights in how groups interact among them in dwellings and schools. As we have seen so far, the spatial assimilation of the groups evolves at two different speeds depending on which population is being considered: resident or enrolled. Even when the spatial distribution of the population -not only of foreign origin- could also be influenced by social perception and preferences, a clear determinant of where and how it is distributed in the territory is housing price and, therefore, available income. In that sense, as investments in housing would also determine the budgetary allocation for living expenses, we could expect that income could have a greater influence in residential rather than school choice processes. Therefore, higher familiar income would allow higher educational investments as well as potential commuting in order to satisfy their school choice preference leading to differential residential and school distributions depending on how enrollment criteria are fulfilled and guaranteed by central planners.

Figure 5.24 shows the graphic representation of the differences between residential and school dissimilarity scores by funding source for 2001 (orange) and 2008 (green). Negative results indicate that residential dissimilarity scores are greater than school dissimilarity at the same territorial level.

We must not left aside that scores are calculated using different populations. On the one hand, population at schooling ages does not necessarily reside in the municipality in which their educational center is located. On the other, as we do not know the exact ages of the enrolled population of foreign origin during the analyzed period, residential dissimilarity scores reflect the aggregate spatial interactions rather than the exact age counterpart.

As we can observe, interactions at residential and school level show clear differences by educational sector. For charter schools, the resulting positive differences in the scores -indicating higher dissimilarities among origins at school level- suggests the effective use of mechanisms that avoid the diversity experienced at residential level.

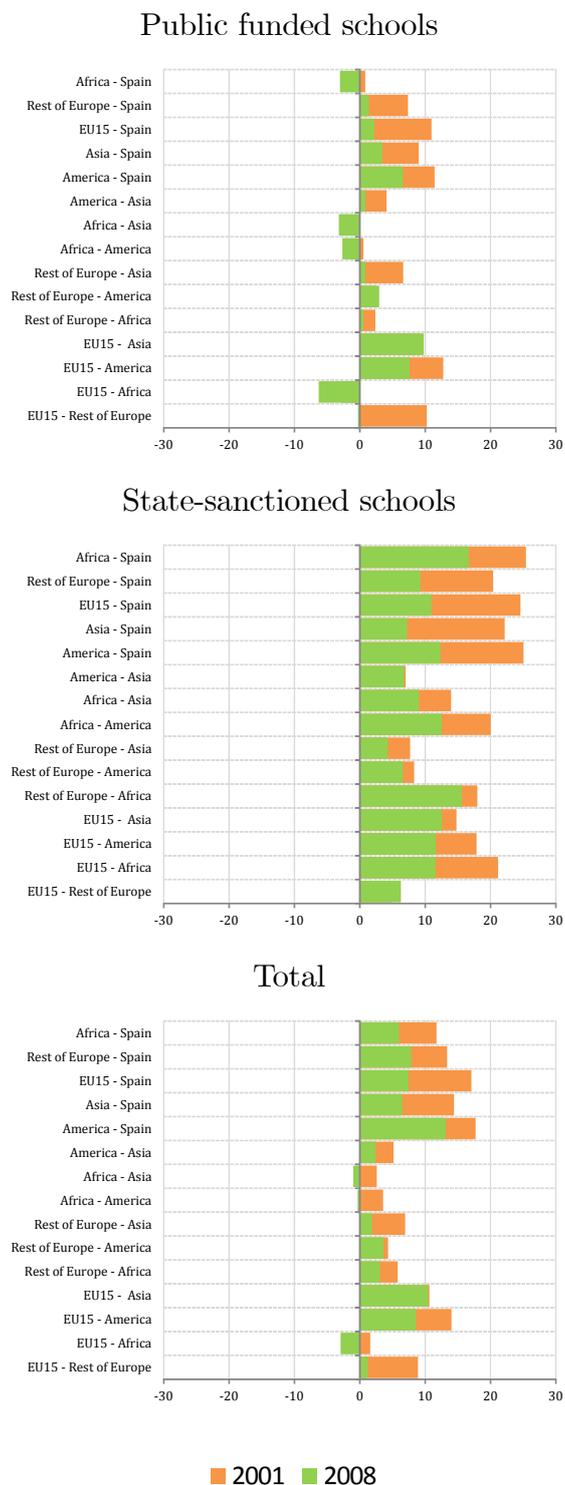
Population enrolled in publicly funded schools experience interactions that in some cases contradict the residential level, probably related by the concentration of specific origins in this sector. The resulting negative difference between the school and residential

interactions among Africans and the rest of the origins suggests their overrepresentation at residential level. That is, Africans could reside in more segregated areas but their distribution across the school strata is more even. Therefore, the result could be affected by a scale effect between residential and educational units of analysis.

In spite of the decreasing trend of the scores, the interactions among Spaniards - followed by EU15 nationals- and the rest of the origins suggest the self-segregation strategy that we have mentioned before. This behavior is reflected in the higher proportion of Spanish students enrolled in schools with a share of immigrants under 20 percent (# see section 5.1) that becomes steeper in state-sanctioned centers.

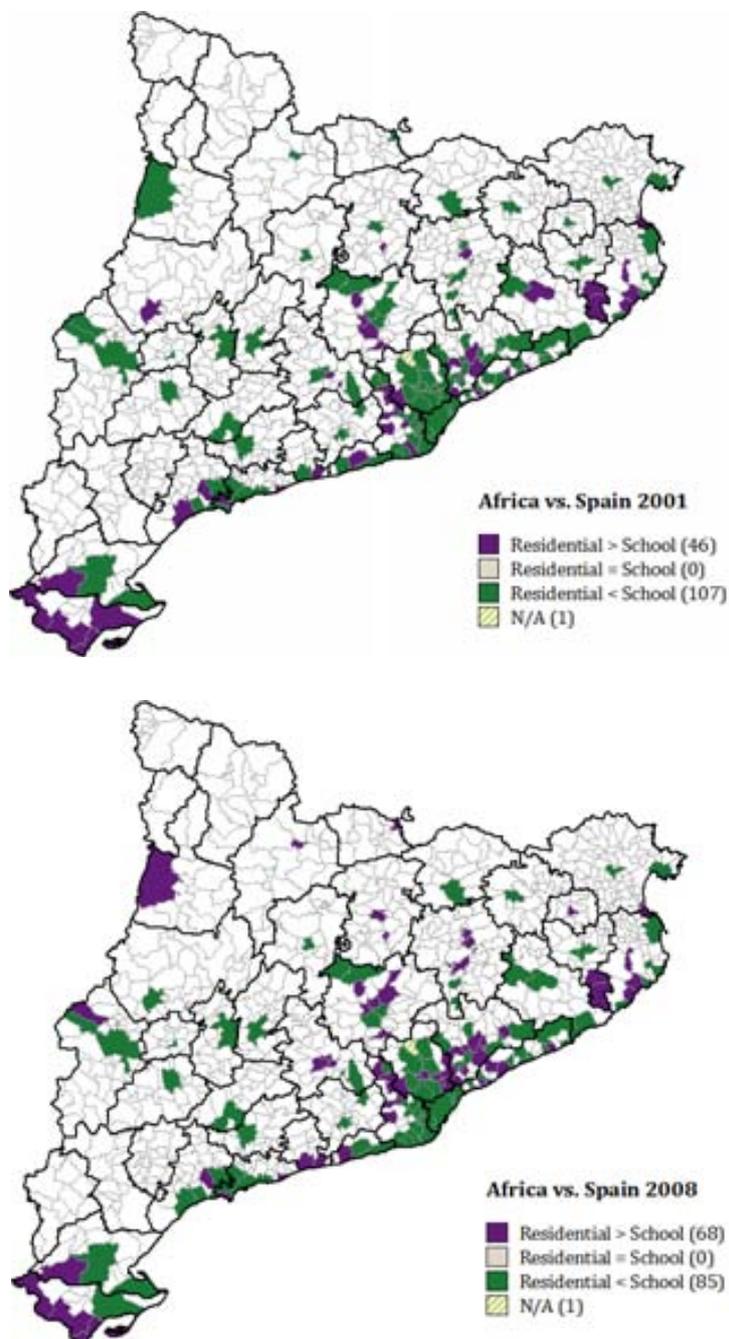
As we might expect, the evolution of the interactions among origins at residential and school level would be determined by the composition of the resident population at municipal -and lower- scale. The arrival of population from abroad and the consolidation of ethnic networks across the territory would also determine the future interactions of the population at schooling ages. Figures A to B show the evolution of the differences between residential and school interactions.

Figure 5.24: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



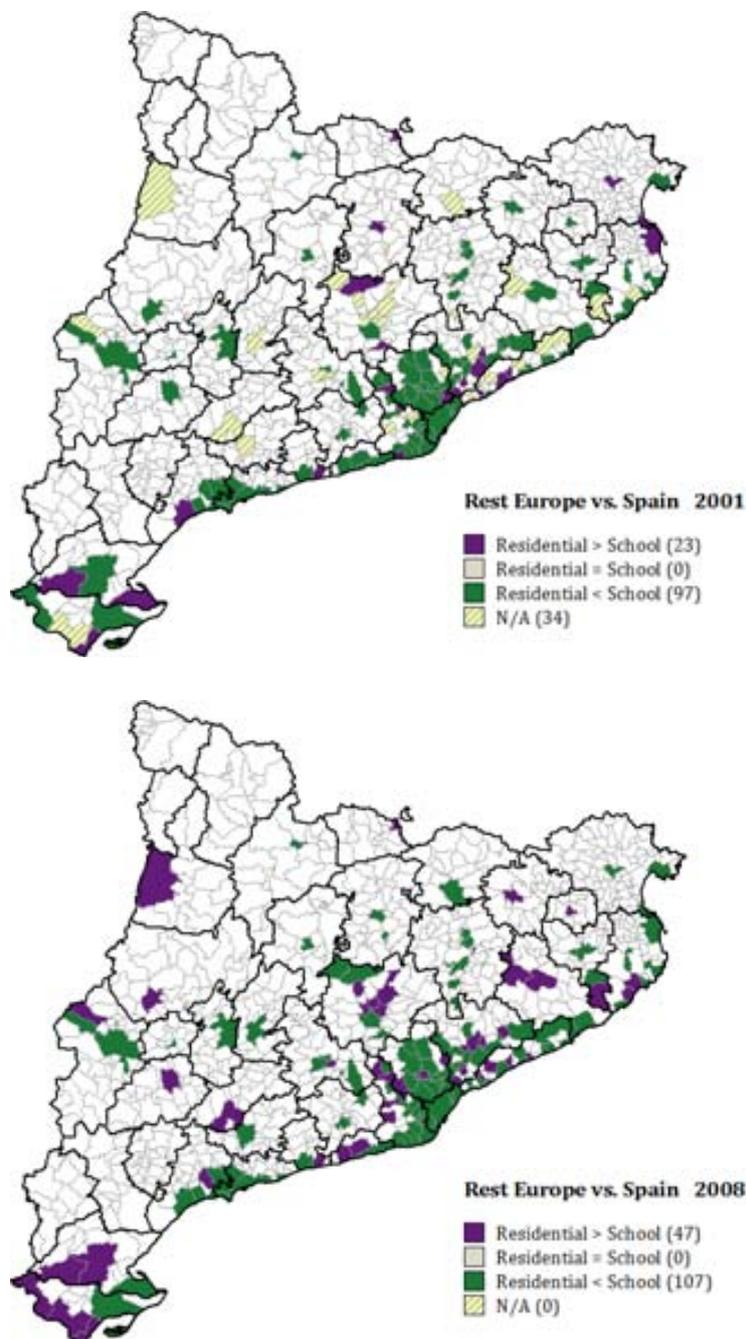
Source: Author's elaboration based on the Padrón Continuo (Idescat) and the Estadística de l'Educació no Universitària (Catalan Department of Education).

Figure 5.25: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



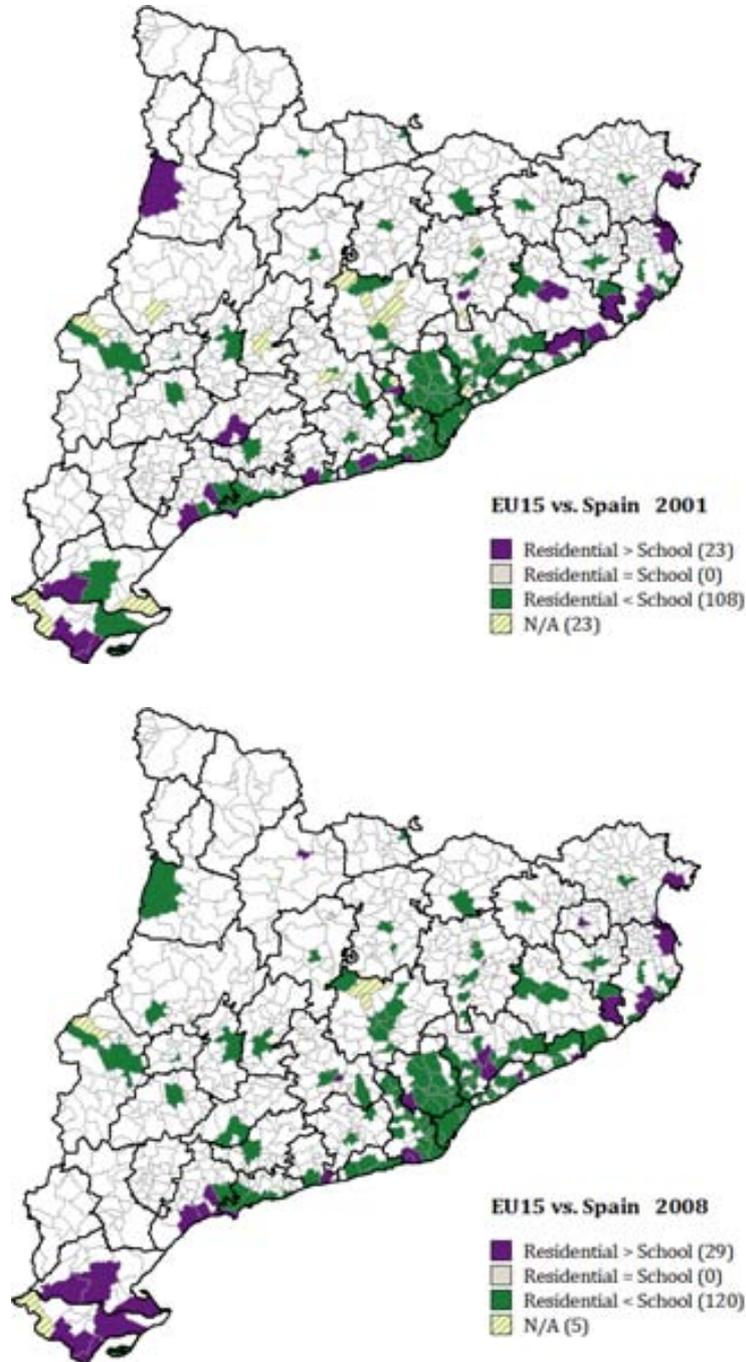
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.26: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



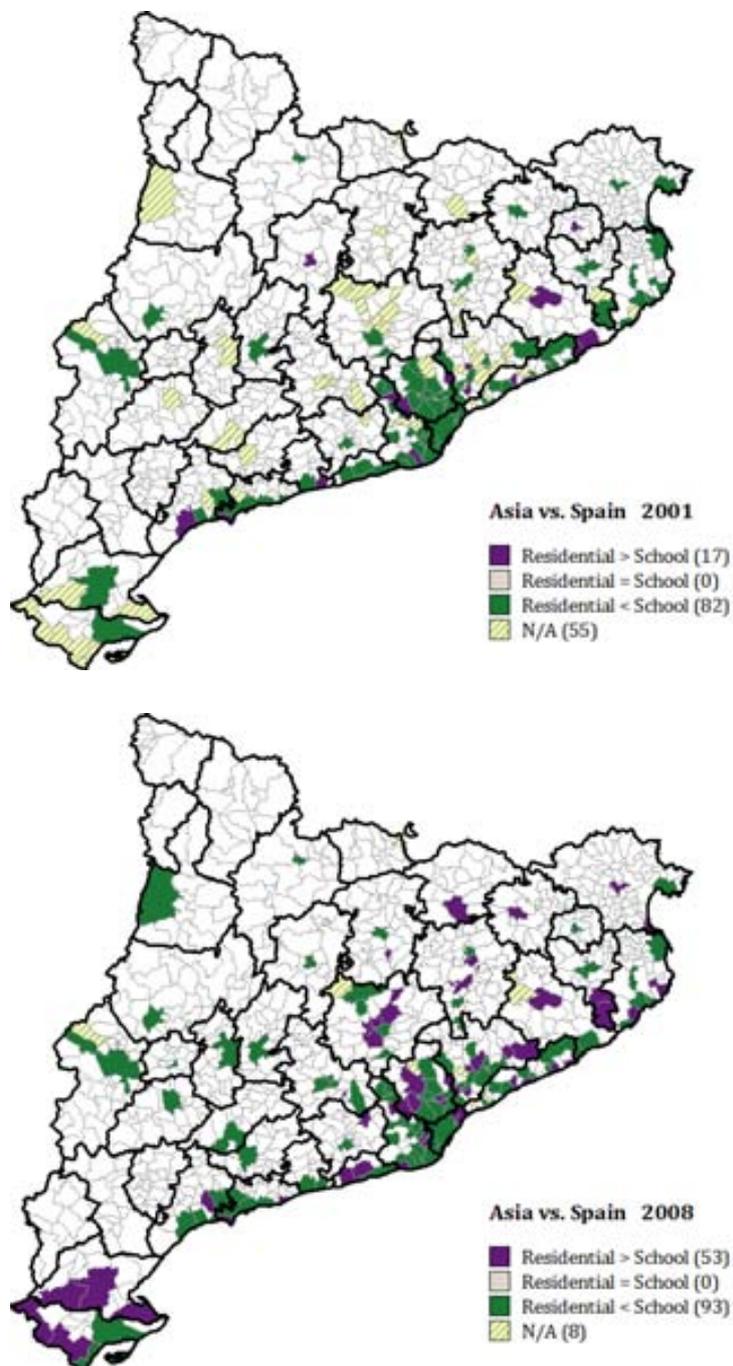
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.27: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



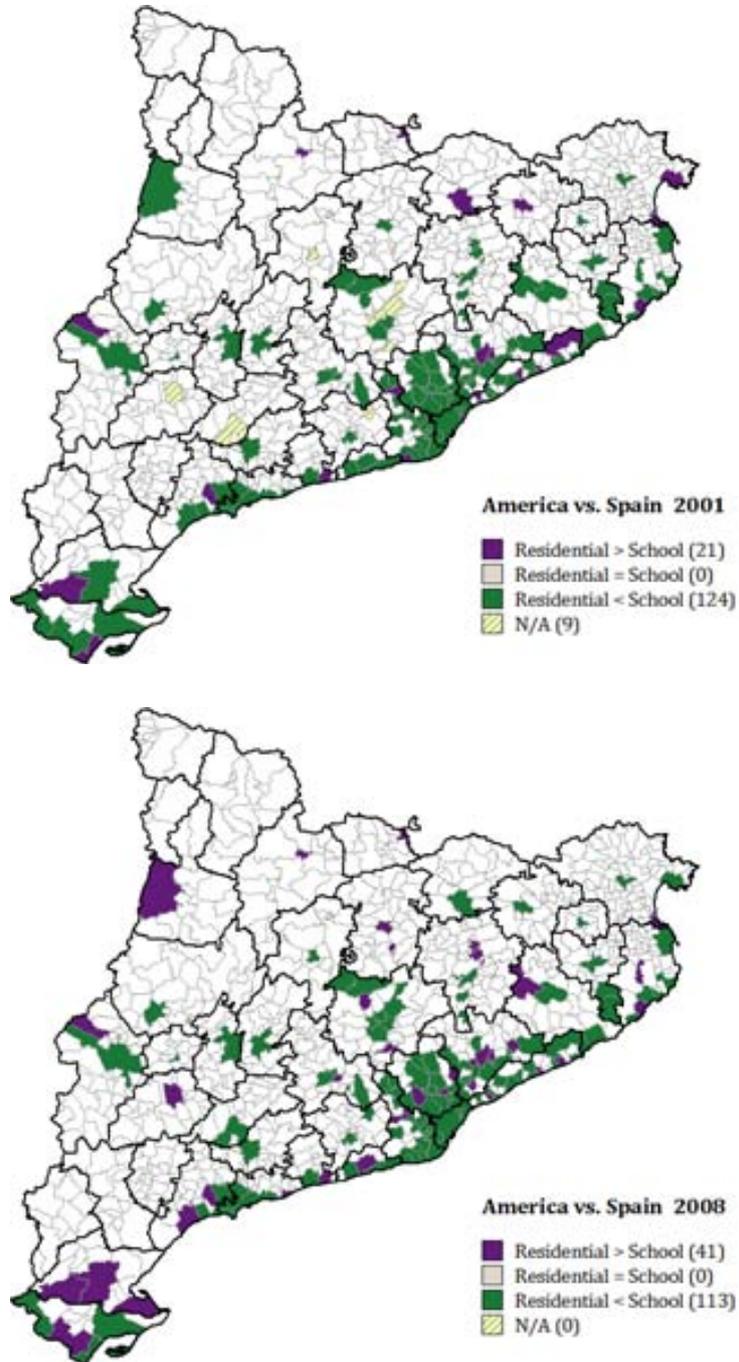
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.28: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



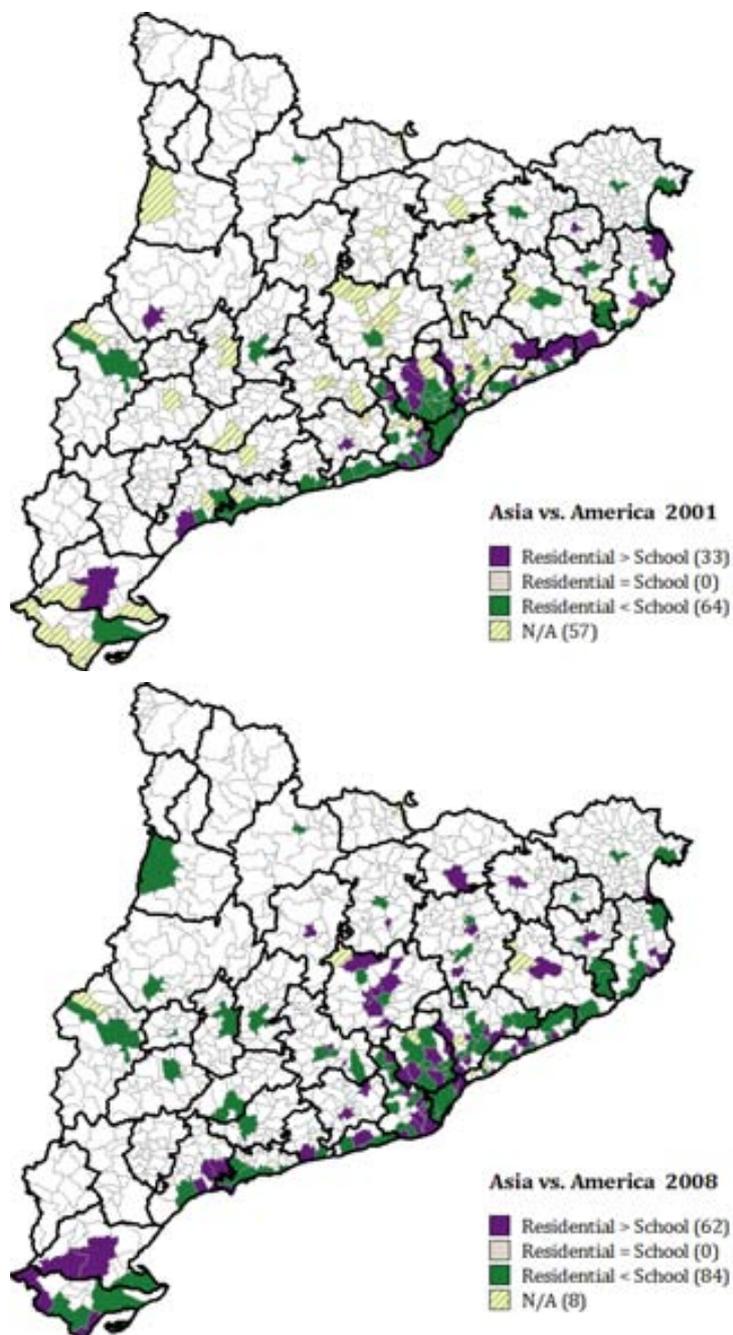
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.29: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



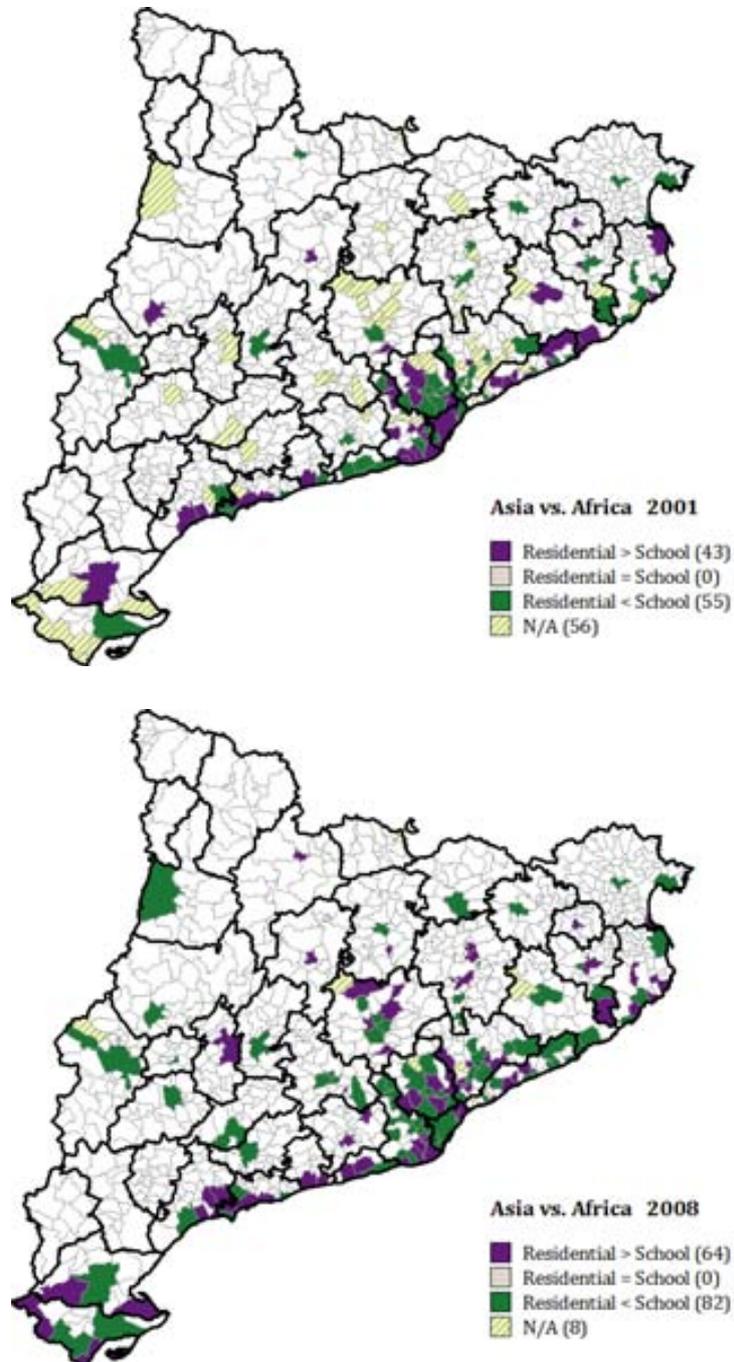
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.30: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



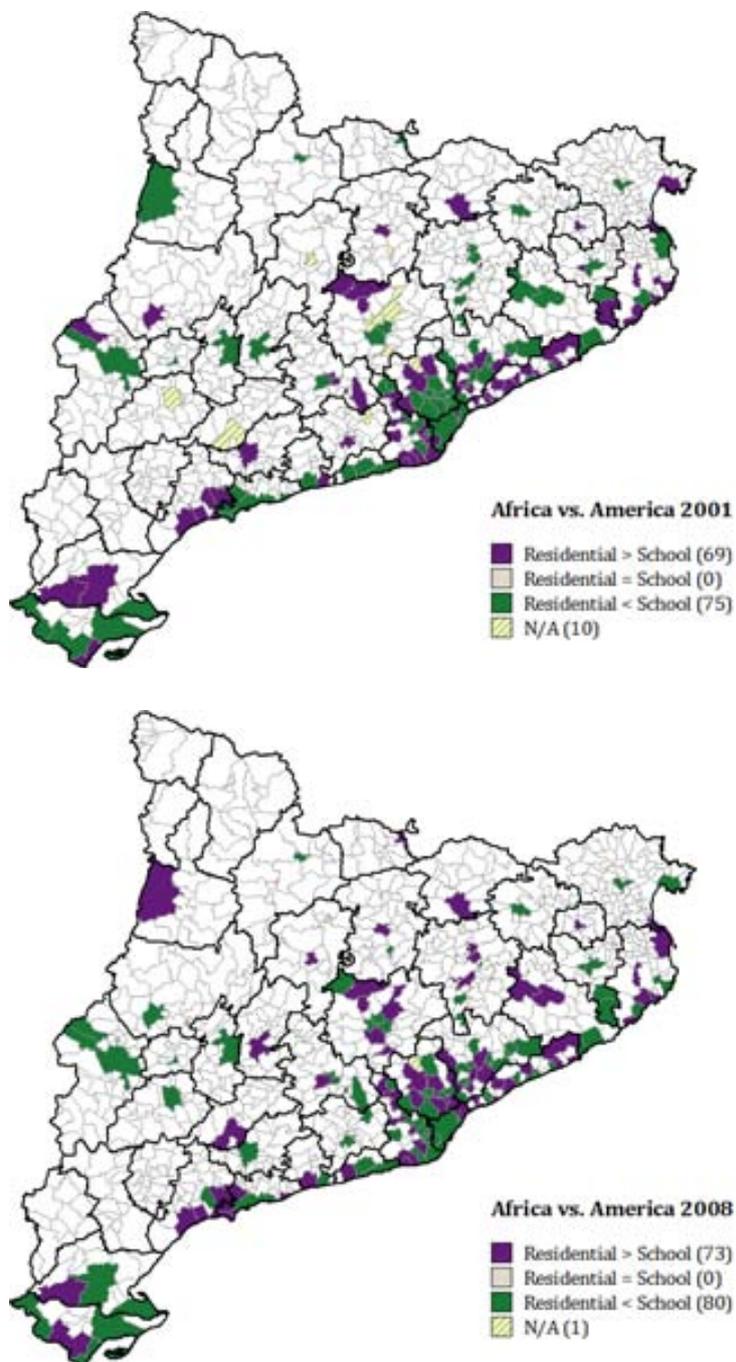
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.31: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



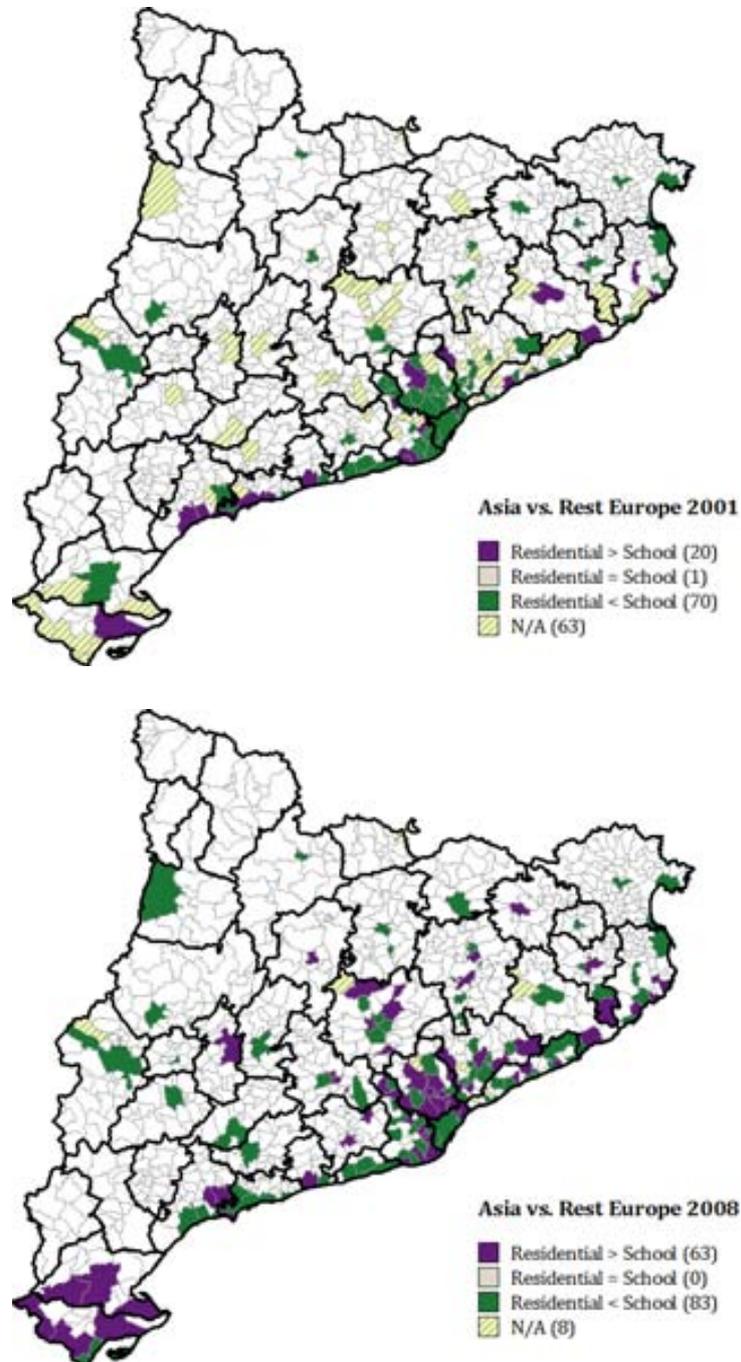
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.32: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



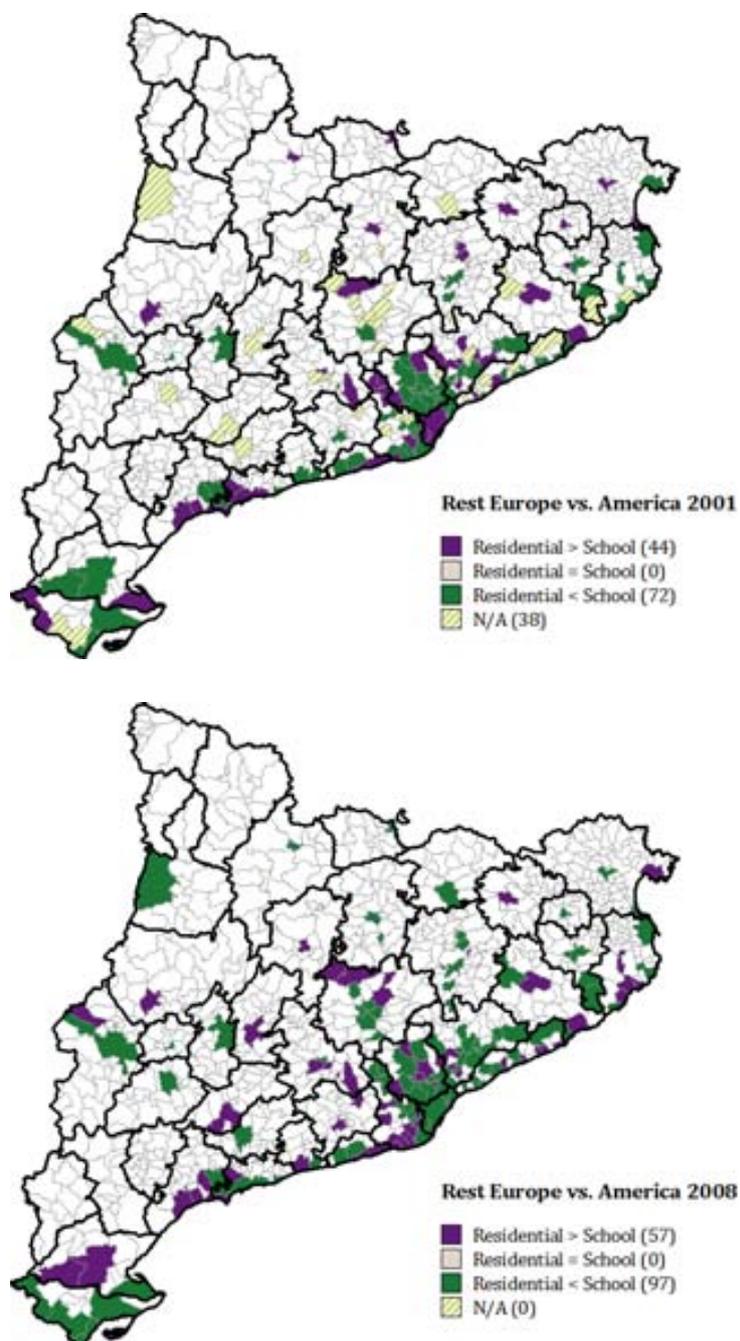
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.33: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



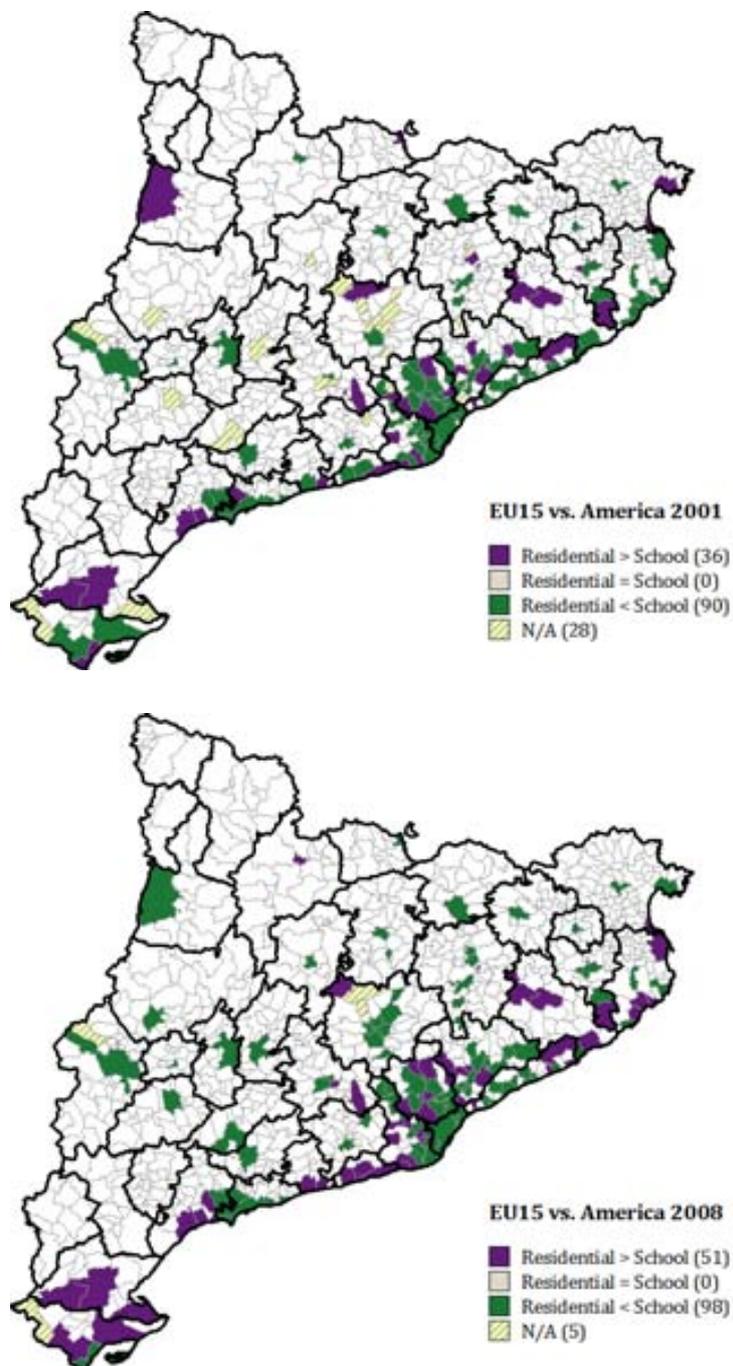
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.34: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



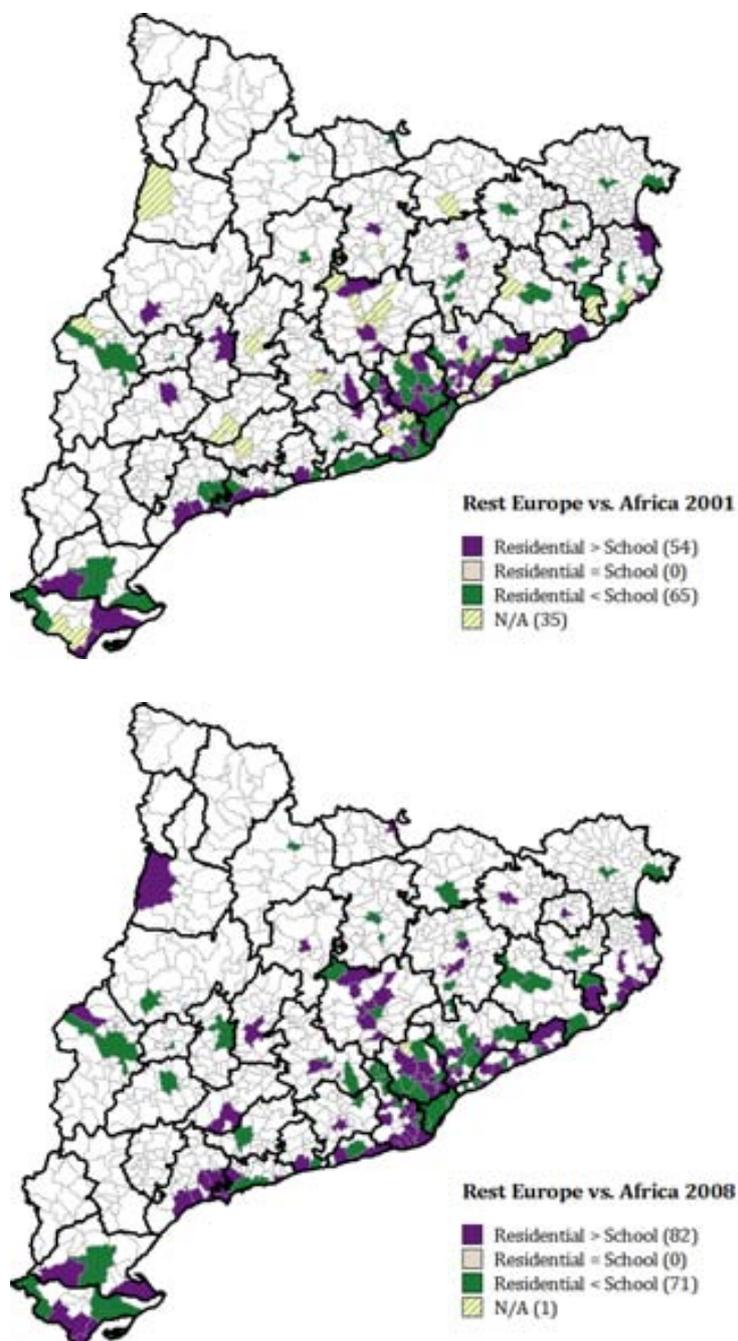
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.35: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



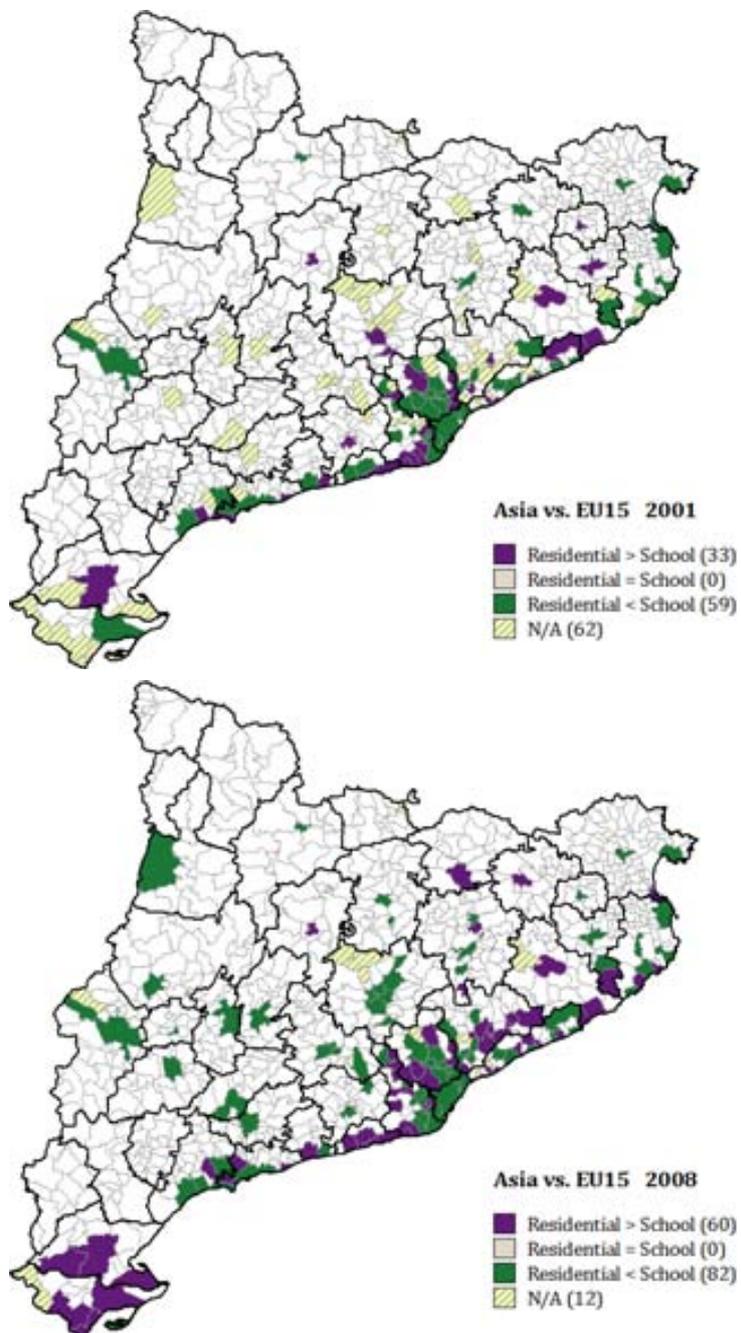
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.36: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



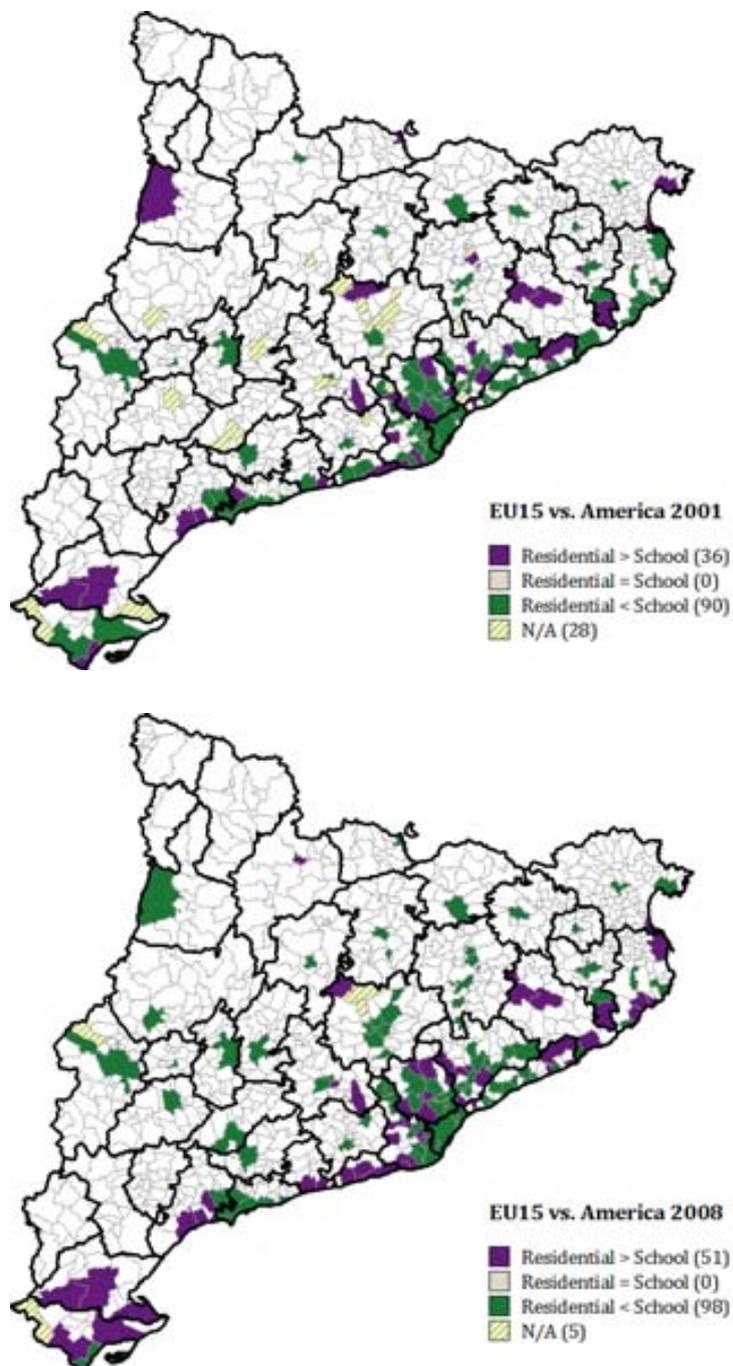
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.37: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



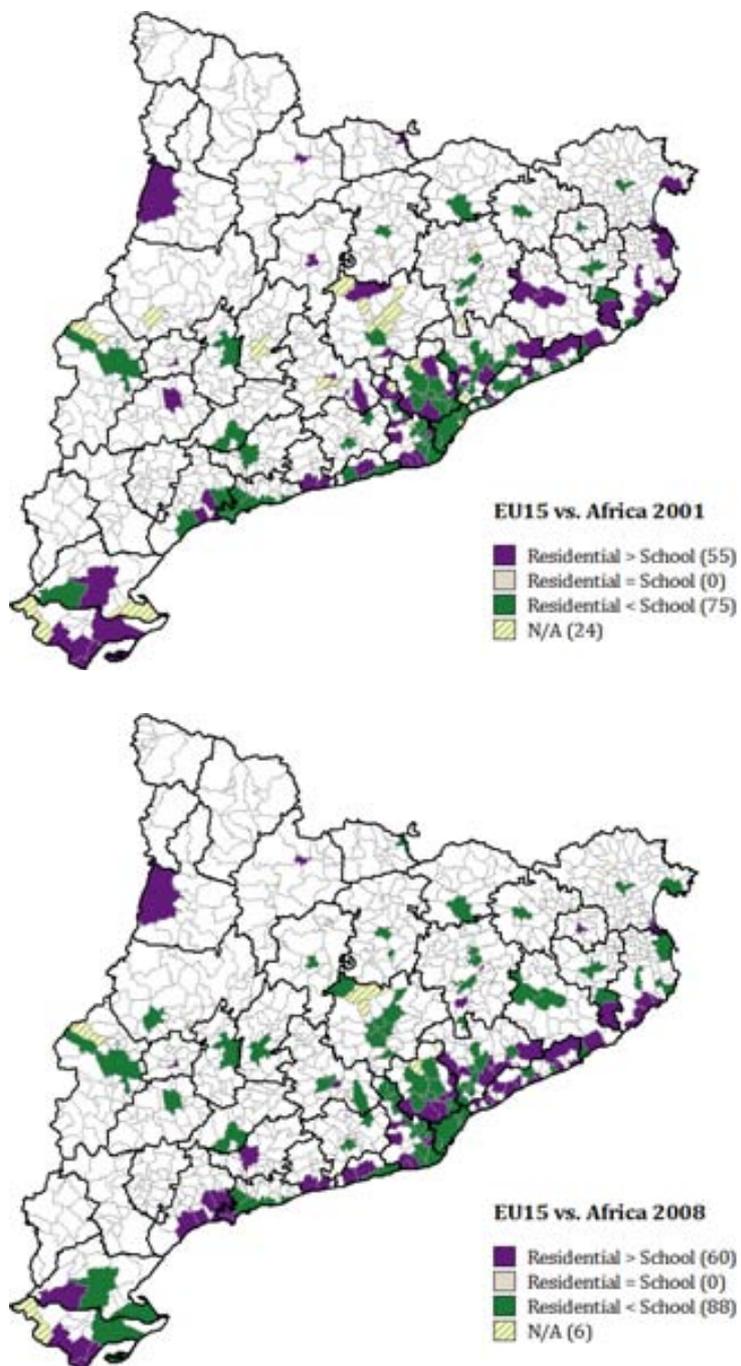
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.38: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



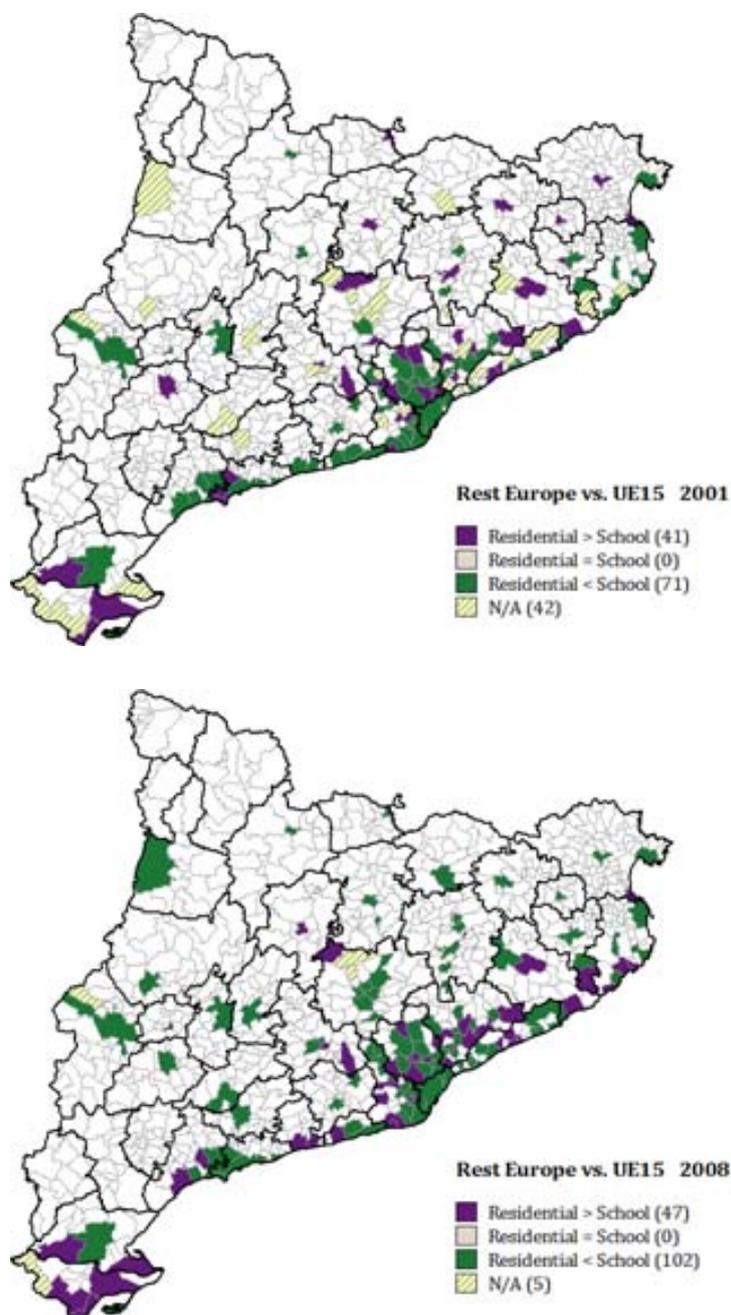
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.39: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.40: Differences in residential and school dissimilarity index scores among groups. Catalonia, 2001-2008



Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

5.3 School segregation at the Province of Girona

In terms of integration and immigration policies, the Province of Girona has been one of the pioneers in the contribution to the Catalan policy. Before the massive arrival of the inflows at the beginning of the 21st Century focused the attention into immigration related issues, authorities and social actors of this territory have already submitted their proposal for the immigrant integration policy. The *Informe de Girona* -Girona Report- of 1992 was aimed at contributing to the Catalan integration policies based on the experiences of the Commission integrated by NGOs, local authorities, immigrant associations and trade unions among others. Even though the Report and its influence on the political agenda could not determine immigration policies, the document included a section referred to the effects and barriers to social integration generated by legislation. In that sense, it was one of the first who interested for the effective integration of the immigrants. With respect to education and underage children, the Girona Report emphasizes the relevance of multicultural education and the fight against social inclusion by providing children the necessary tools to be completely integrated in the Catalan society. Among the recommendations listed, it promotes the compensatory programs (Recommendations 26 and 27); the orientation and guidance from the local authorities in order to avoid social conflicts between immigrants and natives and the creation of ghettos (Recommendation 32); and, the access to Vocational Education for foreign workers (Recommendation 36).

Even though the Provincial authorities and organizations were apparently engaged in fighting against social exclusion of the immigrants, in terms of the education of the children of immigrants the Province of Girona has experienced just the opposite situation. As Garreta (2011) argues, it is possible to observe the difficulty of translating the intercultural discourse into everyday practice at educational level.

We will explore the *Estadística de l'Educació* (Non-University Enrollment Statistics) provided by the Catalan Department of Education for the period between the school years 2000/01 and 2007/08. Even though we will analyze the evolution of the enrolled population for the entire period, a more detailed analysis will be performed for the last academic course. At territorial level, the database corresponds to the former *Delegació Territorial de Girona* -Territorial Delegation of Girona-. An administrative unit of the Catalan Department of Education in charge of supervising the application of the educational law and the regional Directorate of Education as described on Chapter 2. It encompasses the Province of Girona except for the municipalities of Espinelves, Vidrà and Viladrau.

Consistent with the previous analysis, the database is organized by educational center (345 in total) about sex, age, citizenship and place of birth of the enrolled population. It

compels all non-university educational stages thus introducing a bias given the absence of indicators that allow the differentiation among stages. As the school year 2007/08 is the only one with information on the different educational stages pupils are enrolled for, detailed analysis would only be available for this particular year. It will also include information on the commuting performed by students between residence and school.

Therefore, the aim of the first subsection is to introduce the evolution of the enrolled population in the province of Girona in order to understand the behavior of the enrolled population at this Province. The second subsection will provide a detailed analysis on the composition and segregation of the students.

5.3.1 Evolution of the enrolled population in Girona

In order to analyze the evolution of the enrolled population in the Territorial Delegation of Girona, we have selected only those centers in which pre-school, compulsory primary, compulsory lower-secondary, upper secondary and vocational schooling is taught. The use of this criteria was aimed to homogenize the centers included for the entire period of analysis given that we will not constrain the study to compulsory education for the last available year. As a result, 338 educational centers and more than 100 thousand pupils were considered in our sample.

Age and Sex structure of the enrolled population

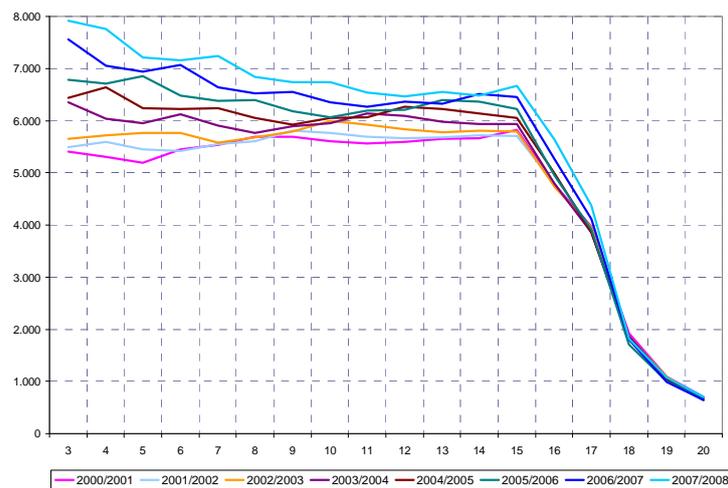
Considering the educational stages included in our sample, we have selected the enrolled population between three and twenty years of age. At those ages, students can be enrolled in Kindergarten (3-6 years), Compulsory Primary (6-12 years), Compulsory Lower Secondary (12-16 years) and Upper Secondary or Vocational Education courses (from 16 years onwards).

Given the mandatory character of education for children aged six to sixteen, is at those ages where most of the enrolled population is concentrated. Figure 5.41 shows the evolution of the enrolled population by age during the eight analyzed courses. Even though the structure by sex and age of the enrolled population during the eight analyzed years does not considerably change, we can see a significant increase of the younger children enrolled. The number of pupils aged three to seven during the school year 2007/08 overpassed in 36.8 percent the enrolled population at that same ages during 2000/01. In absolute numbers, the younger enrolled population augmented in 10,397 children: from 26,890 in 2000/01 to 37,287 pupils in 2007/08.

The enrolled population at the Province of Girona has grown -on average- close to three percent annually during the analyzed period. The lower rates -slightly negatives in some cases- were experienced by the older age groups. On the aggregate, the enrolled population between three and twenty years was 22.8 percent more numerous during the school year 2007/08 compared to the baseline year. That is, during the last analyzed course the enrolled population overpassed in 19,289 pupils those of 2000/01 reaching 103,917 students at non-university levels. We can consider that years 2002/03 and 2006/07 represent a turning point in the evolution of the enrolled population in the Province of Girona. They experienced an interannual growth of 2.4 percent and 4.2 percent (5 percent if only compulsory ages are considered) respectively. These could be a priori linked to the family reunion processes, also dependent from the extraordinary regularization programs of 2000, 2001 and 2005 (Domingo, López-Falcón and Bayona 2010). Nevertheless, in order to verify this assumption we should perform a more detailed analysis contrasting the family reunion, the regularizations at the Province and the live enrollment.

However, we must consider that, at younger ages, the enrolled population increase is not only related to the arrival of immigrants from abroad. On the other hand, the lower or even negative growth rates experienced by the enrolled population over sixteen is directly related to early drop-outs and -in some cases- entering the labor force.

Figure 5.41: **Enrolled population in the Province of Girona by age. 2000/01 - 2007/08**



Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Evolution of the enrolled population by origin

In order to perform the study of the enrolled population by nationality and given the limitations of the database provided, we will extend our sample definition to all the students enrolled in the 338 educational centers of the province as above described. Therefore, the sample size would not entirely match the one used for the evolution by age and sex of the enrolled population. We must also stress that we will not be able to differentiate the enrolled population by sex.

Coincident to the migratory boom of the last decade, the composition of the enrolled population by nationality has experienced a dramatic shift in a relatively short period. During the school year 2007/08 the growing enrolled population of foreign origin was almost five times the one at the baseline year 2000/01. The number of foreigners enrolled in non-university levels grew from 4.075 pupils in the school year 2000/01 to 19.736 pupils during 2007/08. Thus reaching 18 percent of the enrolled population in the Province (see table 5.13). During that same year, the proportion of immigrants enrolled in Catalonia represented N percent of the total. The difference between both distributions suggests, first, that the settlement dynamics of the foreign population in Girona has had experienced a different pace mainly because of the nationalities that conform it. Second, it would suggest a higher concentration of foreign children in the local educational system.

The heterogeneous distribution of the enrolled population by nationality sharply differs between groups (see Table 5.13). Americans -mainly Latin Americans- together as Europeans -majoritarily from Eastern Europe- are the two origins that experienced the most significant increase. At the end of the period the number of Americans was almost twelve times the one at the school year 2000/01. However, we must stress that the Spanish citizenship acquisition and the non-automatic recognition of the nationality by the country of origin once for children born abroad (Álvarez Rodríguez and Observatorio Permanente de la Inmigración 2006) suggest a biased registration of Latin American pupils. Unfortunately, the over or underestimation could not be clearly established. Pupil's nationality is mostly registered during the enrollment process and parents are assumed to notify the school any possible changes during their child's education, but the notifications are apparently limited. Also, it is not possible to establish the percentage of children entering school holding the Spanish nationality because of their parent's naturalization. Thus, if the criteria is based on country of birth instead of nationality, the relative weight of Americans on the enrolled population would be even higher. Their population should

represent fourteen times the one at the school year 2000/01 once country of birth is accounted for. Therefore, we might expect that the ‘real’ enrolled population of American origin at Girona would overweight the former.

Table 5.13: Enrolled population in the Province of Girona by origin. 2000/01 - 2007/08

Nacionalitat	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Estrangera	4.075	5.382	7.344	10.156	12.224	14.923	17.180	19.536
Espanyola	81.679	81.205	81.450	81.666	82.124	82.123	83.988	86.265
Total	85.754	86.587	88.794	91.822	94.348	97.046	101.168	105.801
Estrangera	4,8%	6,2%	8,3%	11,1%	13,0%	15,4%	17,0%	18,5%

Source: Author’s elaboration based on the *Estadística de l’Educació. Catalan Department of Education*.

Table 5.14: Enrolled population in the Province of Girona by origin. 2000/01 - 2007/08

	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Àfrica	2.557	2.994	3.851	5.170	6.018	7.038	7.801	8.513
Amèrica	451	954	1.704	2.502	3.158	4.039	4.760	5.594
Europa	947	1.268	1.597	2.156	2.585	3.219	3.827	4.490
Àsia i Oceania	120	166	192	328	463	627	792	939
Espanya	81.679	81.205	81.450	81.666	82.124	82.123	83.988	86.265
Total	85.754	86.587	88.794	91.822	94.348	97.046	101.168	105.801

Source: Author’s elaboration based on the *Estadística de l’Educació. Catalan Department of Education*.

The differences in the registered enrolled population by origin according to the definition criteria considered (country of birth or nationality) are directly related to the Spanish citizenship acquisition; but also to the individuals holding a dual citizenship and the effect of international adoptions (see table 5.15).

The composition of the enrolled population by nationality (Table 5.16) show the predominance of nationalities other than the Catalan aggregate. Moroccans, Gambians and Romanians represent the main origins during the school year 2007/08. The share of Moroccan pupils in the province reaches 5.6 percent of the enrolled population, showing the predominance of this group, while Gambians and Romanians -second and third nationality respectively- represent 1.7 percent and 1.2 percent respectively.

Table 5.15: Foreign enrolled population in the Province of Girona by nationality and country of birth. 2000/01 - 2007/08

	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006*	2006/2007	2007/2008
Nacionalitat	4.075	5.382	7.344	10.156	12.224	14.923	17.180	19.536
País naixement	2.042	3.313	5.315	8.708	10.189	12.010	13.830	15.736

**Note: 2005/06 enrolled population by place of birth was estimated given the significant register errors found on the original data provided, Source: Author's elaboration based on the Estadística de l'Educació. Catalan Department of Education.*

It is well known that the numerous inflows from abroad at school ages overpassed the enrolled population projections made during the 1990s. Just as the evolution of the aggregate, the heterogeneous intensity of the migration phenomenon among origins has been also reflected in the enrollment process. The differential settlement patterns as well as the antiquity of the pioneer inflows has had a direct effect on the arrival of children from abroad. In that sense, Bolivians, Romanians and Hondurans are the ones who showed the most significant growth during the period. Related to the effect of the announcement of the Schengen visa imposition for Bolivian nationals, the enrolled population of this origin is the one who showed the most significant growth. The number of Bolivian pupils shifted from 7 to 700 between the academic courses 2000/01 and 2007/08. Even though some scholars predicted that the accession of Romania to the European Union should decrease their presence in the Spanish territory, Romanian students were in addition one of the groups that experienced a high interannual growth during the last analyzed course (37.5 percent between 2006/07 and 2007/08). As a result, the Romanian enrolled population increased from 16 to 1,390 students. Just recently Honduras became one sending country to Spain. Even though the dimensions of the country and the total inflows sent to Spain are not comparable to other Latin American origins, Hondurans have apparently found a settlement space in the Province of Girona. This is also reflected in the population at schooling ages. Just during the last analyzed year the the number of Honduran students experienced a growth of 40.7 percent with respect to the previous school year.

On a first approximation to the distribution of the students by sector we can clearly see how the foreign enrolled population is mostly concentrated in publicly funded schools. The public educational sector concentrates 77.4 percent of the aggregated enrolled population. This share increases to 89.4 percent when only foreign pupils are considered (see Table 5.7). The intrasectorial distribution of the enrolled population by nationality dramatically differs between the public and the state-sanctioned sector. At state-sanctioned schools 91 percent of the enrolled pupils hold the Spanish nationality (21,885 students). This

Table 5.16: Foreign enrolled population in the Province of Girona: main origins. 2000/01 - 2007/08

	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Marroc	2.063	4.764	2.846	3.729	4.194	4.862	5.424	5.974
Gàmbia	421	974	786	1.153	1.470	1.687	1.806	1.827
Romania	16	88	132	251	415	687	952	1.309
Argentina	83	302	351	511	595	723	780	832
Hondures	32	152	117	177	232	384	511	719
Equador	26	226	301	516	590	651	655	710
Colòmbia	69	428	359	412	460	546	613	710
Bolívia	7	64	91	182	283	409	605	700
Uruguai	15	100	100	211	333	404	469	527
Índia	49	152	88	149	203	282	355	419

Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

proportion decreases to 79 percent (64,380 students) at publicly funded schools. We will deeply analyze the sectorial distribution of the enrolled population during the school year 2007/08 on the following sections.

Table 5.17: Enrolled population by origin and educational sector in the Province of Girona. 2000/01 - 2007/08

Titularitat	Nacionalitat	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Privat	Estrangera	380	705	961	1.320	1.560	1.694	1.858	2.066
	Espanyola	22.918	22.556	22.380	22.066	21.935	21.737	21.845	21.885
Públic	Estrangera	3.695	4.677	6.383	8.836	10.664	13.229	15.322	17.470
	Espanyola	58.761	58.649	59.070	59.600	60.189	60.386	62.143	64.380
Total general		85.754	86.587	88.794	91.822	94.348	97.046	101.168	105.801

Titularitat	Nacionalitat	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Privat	Estrangera	1,6%	3,0%	4,1%	5,6%	6,6%	7,2%	7,8%	8,6%
	Espanyola	98,4%	97,0%	95,9%	94,4%	93,4%	92,8%	92,2%	91,4%
Públic	Estrangera	5,9%	7,4%	9,8%	12,9%	15,1%	18,0%	19,8%	21,3%
	Espanyola	94,1%	92,6%	90,2%	87,1%	84,9%	82,0%	80,2%	78,7%

Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

5.3.2 Education and foreign population at the Province of Girona: School year 2007/08

As we have mentioned before, the aim of this section is to deeply analyze the distribution, composition and school segregation experienced by pupils in the Province of Girona. Even

though the analysis will be constrained to the school year 2007/08, it will provide insights on the school segregation at regional level.

During the school year 2007/08, the enrolled population of foreign origin under 20 years of age reached 18.7 percent of the pupils of Girona. In absolute terms, they represented 19,394 pupils of the 103,889 enrolled population. As we might expect, the share of foreign pupils would vary across levels. The maximum proportion of foreign pupils could be found at compulsory stage: 21.4 percent at Primary and 20.2 percent at Lower Secondary education. However, their enrollment at non-compulsory stages show a scarce or moderate participation. Children of immigrants represent 16.2 percent of the children attending pre-school (8,947 children), but only 13.1 percent (3,953 pupils) of the Upper Secondary students. The share of foreigners in Vocational Education is even lower, with only 8 percent (587 pupils) of the population enrolled at this stage. Even though we are only considering the enrolled population under 20 years of age, the participation of foreign youth in post-compulsory stages is still scarce.

A comparison between the enrolled and the resident foreign population under 20 years of age is shown on Figure 5.43. Even when both sources -the Non-University Enrollment Statistics and the Continuous Register- do not apply the same methodology for data collection, the charts illustrate the differential access to education by age. First of all, we can observe the significant differences that enrolled population represent at non-compulsory ages. On the left hand side, corresponding to kindergarten whereas the right hand side to Upper Secondary and Vocational Education. Second, at compulsory ages enrolled population clearly overpasses the resident -and therefore, potentially enrolled- population. The gap between both curves could be the result of the different reference dates between sources (January 1 2008 for the Continuous Register and September 2007 for the Enrollment Statistics), but also to the population living in another province. Children who are officially registered in municipalities outside the province but who are enrolled in Girona, will be accounted only as pupils. This effect could also be related to the increased mobility of the foreign population and therefore, of their children as result of residential changes or the completion of family reunion processes.

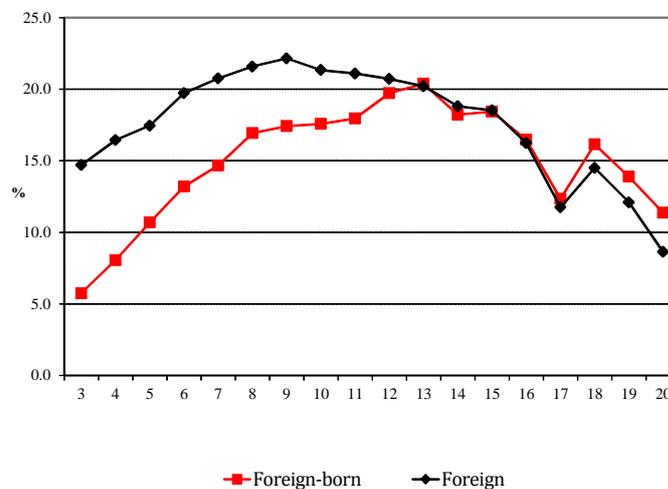
All in all, we must not forget that children of immigrants could have also acquired Spanish citizenship before reaching 18 years of age. In that case, parents should notify the school about their new citizenship in order to modify the data collected during their childrens' first enrollment. However, it only occurs in some cases.

In that sense, the comparison between the enrolled foreign-born and foreign pupils could shed some light on this effect. As foreign-born children are those born abroad

regardless their nationality, we might expect that at younger ages, they would be significantly outnumbered by children holding a nationality other than Spanish (i.e. foreigners). Figure 5.44 shows the percentage of foreign and foreign-born children enrolled in the province during the school year 2007/08. Therefore, the gap between both curves should be interpreted as the number of children who were born in Spain.

The most significant difference is found at age three, when two out of three children with immigrant background at kindergarten were born in the host country. The most likely is that they have never experienced international migration and consequently, that their knowledge of the local language and environment should be closer to the one of natives. From age thirteen to seventeen, both place of birth and citizenship mostly coincide, whereas for older ages the nationality acquisition effect is also shown.

Figure 5.44: Share of foreign and foreign-born enrolled population by age. Girona, school year 2007/08.



Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education).

As their settlement process has been consolidated in time, we might expect that pioneer groups should experience the most significant differences between enrolled population

by nationality and place of birth. This comparison results in, for example, 5,949 Moroccans and only 3,634 pupils born in Morocco. Or 1,825 Gambians and 428 children born in the Gambia. On the other hand, given the novelty of the Latin Americans inflows, their population by place of birth still outnumbers the number of children enrolled by nationality. Therefore, we might expect that in a future -especially considering the preferential treatment that Latin Americans receive on the Naturalization process- their population show a similar effect as that of Gambians.

The diverse composition of the inflows is reflected in the enrolled population by accounting 110 different nationalities; 58 of them with more than ten pupils enrolled. The main nationalities are led by Moroccans (5,949 pupils) who represent 30.7 percent of the enrolled population of foreign origin. Followed by Gambians (1,825 pupils) and Romanians (1,300 pupils), representing 9.4 percent and 6.7 percent of the foreign students respectively.

The composition of the foreign enrolled population by educational stage is shown in Figure 5.45. Regardless the educational stage considered, Moroccans represent the first nationality. Their participation at each stage is quite heterogeneous, reaching 39.6 percent of the foreign children in pre-school and only 13.3 percent on Upper Secondary given the diversity of the origins enrolled. The migratory record for each nationality, with clear differences in the time of arrival and thus, in their settlement processes, could partially explain the diverse origins accounted for each educational stage. In other words, the diverse composition of the foreign enrolled population responds in compulsory levels to the structure by age of the groups whereas post-compulsory education is also affected by drop-outs in some cases related to early access to labor market.

In that sense, the participation of Gambians -one of the pioneer migrant groups- decreases from 12.2 percent at pre-school to 5.9 percent in Lower Secondary. In the subsequent educational stages, they practically disappear from the distribution. On the other hand, Romanians have experienced a significant increase on the inflows during the last years. They are the third origin of the foreign enrolled population and represent the second most numerous at Upper Secondary courses. At that same stage the presence of European nationals become significant. The absence of some of the nationalities that led the migratory inflows to Spain during the immigration boom as Ecuadorians or Colombians at early stages could be linked to the *ex lege* acquisition of the Spanish nationality of the children born in Spain (see Chapter 3). As a result, they become statistically invisible once the parental information is not accounted for.

Table 5.18: Distribution of the enrolled population by origin: Selected municipalities

	Enrolled population			%Foreign		
	Foreign	Native	Total	School	Residential	Resid. 3-20
Girona	2,519	16,425	18,944	13.3	17.7	18.4
Figueres	1,782	6,142	7,924	22.5	23.4	27.0
Blanes	934	4,886	5,820	16.0	16.3	17.7
Olot	1,147	4,480	5,627	20.4	17.4	24.3
Lloret de Mar	1,242	3,175	4,417	28.1	36.6	33.6
Salt	1,937	2,255	4,192	46.2	34.4	41.7
Palafrugell	791	2,754	3,545	22.3	22.0	27.3
Banyoles	697	2,704	3,401	20.5	18.6	26.9
Roses	854	2,333	3,187	26.8	32.4	29.6
Sant Feliu de Guíxols	499	2,677	3,176	15.7	15.3	17.7
Prov. Girona	19,394	84,495	103,889	18.7	18.3	20.5

Source: Author's elaboration based on Estadística d'Educació no Universitària and Padrón Continuo.

As for the territorial distribution, the educational centers analyzed are located in 148 municipalities; 141 of them account for foreign pupils regardless the educational sector they are enrolled. The municipalities of Girona (Capital City of the Province), Salt and Figueres concentrate the largest enrolled populations of foreign origin (see Table 5.8 and Figure 5.12). However, the highest shares could be found in small municipalities which often account enrolled populations under 50 pupils. Such is the case of the municipalities of Ullá (80 percent of the 30 students enrolled), Sant Pere Pescador (55 percent), Ger (47.6 percent) or Villalonga de Ter (47 percent). Among the municipalities with larger enrolled populations, Salt (46 percent of foreign pupils), Castelló d'Empúries (40 percent) or Lloret de Mar (28 percent) account for the higher shares of foreign pupils.

Part of the enrolled population at the largest municipalities commonly resides in the neighboring municipalities. This fact, particularly common in state-sanctioned or private schools and especially since the Lower Secondary stage, incides in the attraction node role for students who dialy commute. Consequently, the percentage of foreign pupils would be lower than its residential counterpart (see Table 5.8). Nine of the ten municipalities that concentrate the largest enrolled populations have a lower share of foreign children at school than at residential level. On the other hand, the municipality of Salt accounts for a higher share of immigrant children at school (46.2 percent of the pupils) that could be related to the enrollment of mainly Spaniards in the Capital City due to its relative proximity.

The composition of the enrolled population at municipal level (considering the place in which the educational center is established) shows significant differences according to the municipality's location and size (see figure 5.13). The composition of the enrolled population by origin of two neighboring municipalities as Salt and Girona is an example of the divergence mentioned. Seventy-six percent of the enrolled children in Salt are Africans with Moroccans (862 pupils) and Gambians (382 pupils) as main nationalities. Even when Moroccans also represent the main nationality of origin in Girona (450 pupils), the share of Africans decreases to 29.6 percent, thus reflecting the same differences as the ones registered at residential level.

Among the largest municipalities, the higher proportion of Asian pupils can be found in Olot with 24 percent of share led by Indians and Chinese. On the second place, Santa Coloma de Farners accounts 11.5 percent of Asian pupils, mainly Chinese. The largest proportion of Europeans are located in the coastal municipality of Lloret de Mar (44.5 percent of the foreign pupils) with a majority of Romanian, Russian and Bulgarian nationals; followed by Cassà de la Selva with 30.5 percent of mostly Romanians. However, enrolled population of European origin has a significant presence in the smaller municipalities of the Alt Empordà County -the Mediterranean one bordering France.

As for the American pupils, we must stress that in this province some of the most relevant nationalities are not significant in the rest of the country. Therefore, we might consider the province as an attraction node for specific origins. The enrolled population of foreign origin in the municipality of Girona comprises 46 percent of Americans, majoritarily Hondurans and Colombians, followed by Blanes with 41 percent of mainly Uruguayans and Argentinians.

5.3.3 School segregation in the Province of Girona

The analysis of the school segregation phenomenon should also consider the sectorial dimension of the educational system. Existing segregation at public and private or state-sanctioned schools could show not only a differential behavior but a radically different distribution of the enrolled population by origin once sector is controlled for. In that sense, they are commonly claimed as origin of school segregation given the disparities in the enrolled population of foreign origin by sector (Valiente 2008). Nevertheless, segregation can be observed at all levels.

Depending on the school zoning policies, school segregation would be to a certain extent a reflection of the residential segregation and the urban inequalities. However,

the school segregation levels are often higher than its residential counterpart (Schindler 2006; Gramberg 1998). As we might expect, the divergent behavior between school and residential segregation could be affected by differential age structure, especially at younger ages. Nevertheless, one of the main sources of the school segregation of children of foreign origin is the desertion of native families especially within dual educational markets but also within sectors (Valiente 2008). Therefore, school segregation is a major concern as it acts as a barrier for the interaction between foreign and native children. Thus, it could affect the host country's language proficiency and, in the long-term, the access and maintenance of social networks.

Table 5.19: **Enrolled population by origin, educational stage and sector in the Province of Girona. 2000/01 - 2007/08**

Stage	Funding	Foreign	Spain	TOTAL	Foreign	Spain	TOTAL	Foreign	Spain	TOTAL
Pre-school	State-sanctioned	292	4,635	4,927	5.9	94.1	100.0	7.9	24.1	21.5
	Public	3,424	14,605	18,029	19.0	81.0	100.0	92.1	75.9	78.5
	TOTAL	3,716	19,240	22,956	16.2	83.8	100.0	100.0	100.0	100.0
Primary	State-sanctioned	903	9,423	10,326	8.7	91.3	100.0	10.1	28.7	24.7
	Public	8,044	23,398	31,442	25.6	74.4	100.0	89.9	71.3	75.3
	TOTAL	8,947	32,821	41,768	21.4	78.6	100.0	100.0	100.0	100.0
Lower Secondary	State-sanctioned	815	6,368	7,183	11.3	88.7	100.0	14.5	28.6	25.8
	Public	4,812	15,898	20,710	23.2	76.8	100.0	85.5	71.4	74.2
	TOTAL	5,627	22,266	27,893	20.2	79.8	100.0	100.0	100.0	100.0
Upper Secondary	State-sanctioned	41	1,257	1,298	3.2	96.8	100.0	7.0	18.7	17.7
	Public	546	5,475	6,021	9.1	90.9	100.0	93.0	81.3	82.3
	TOTAL	587	6,732	7,319	8.0	92.0	100.0	100.0	100.0	100.0
Vocational School	State-sanctioned	12	130	142	8.5	91.5	100.0	2.3	3.8	3.6
	Public	505	3,306	3,811	13.3	86.7	100.0	97.7	96.2	96.4
	TOTAL	517	3,436	3,953	13.1	86.9	100.0	100.0	100.0	100.0
TOTAL		19,394	84,495	103,889	18.7	81.3	100.0	---	---	---

Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Table 5.19 shows the distribution of the enrolled population at the Province by origin, sector and educational level. The sectorial distribution of the school strata compels 49 state-sanctioned and 289 publicly funded schools distributed in 148 municipalities. State-sanctioned concentrate 23 percent of the enrolled population across 22 municipalities. Almost 11 percent of the foreign and 25.8 of the Spanish pupils are enrolled in a state-sanctioned schools. As a result, the proportion of foreign pupils in the state-sanctioned sector is of 8.6 percent whereas it reaches 21.7 percent in publicly funded centers.

As for the distribution by educational level and sector, the distribution of foreigners is

influenced not only by the divergent age structure between foreign and native populations, but also to the educational supply available. That is, in those municipalities where only one school is available regardless its sector, familiar preferences would be irrelevant in the enrollment process. Nevertheless, we must stress that families with enough resources or income that allow them to commute would seek to accomplish their preferences, even when in some cases their decision implies breaking the school zoning law.

By sector, the highest proportion of foreigners in state-sanctioned schools could be found at primary with 11.8 percent of the children enrolled. At that same stage, the share of foreign pupils at public schools reached 25.6 percent. This proportion is overpassed by one out of each three public schools in the Province. On the other hand, if we only consider the 22 municipalities in which state-sanctioned schools could be found, the distribution is even more steep. For compulsory education the proportion of foreign pupils reach 9.8 percent for state-sanctioned and 28.2 percent for publicly funded schools. On the aggregate, the proportion reaches 8.6 percent and 24.7 percent for state-sanctioned and public centers respectively.

The first results are influenced by the sectorial differences in infrastructure, even though mobility would determine the final composition by origin of the enrolled population. For eight out of ten pupils in the Province the declares municipality of residence coincides with that of enrollment. They represent 77.2 percent of the Spaniard and 90.8 percent of the foreign pupils. All in all, 21,495 pupils are daily commuters. Of them, 1,804 are of foreign origin (8.4 percent) showing the lower commuting trend for studies among foreigners.

In order to measure the school segregation we will calculate the segregation index (Duncan and Duncan 1955a,b). The index -expressed in percentage- can be interpreted as the proportion of the analyzed group that would change its place of residence or educational center in order to obtain a homogeneous distribution among all analyzed units. The index has been calculated for the aggregate of schools included in our sample on the aggregate and by educational stage.

The first results show what could be traditionally considered as a moderate segregation level. By educational stage, the maximum could be found at kindergarten with a resulting index value of 48. It would be followed by the compulsory primary stage with 41.3, upper secondary (33.2), lower secondary education (25.8), and vocational schooling (20.9).

As we have mentioned before, the index shows the percentage of foreign pupils that should change their educational center in order to obtain a homogeneous among schools.

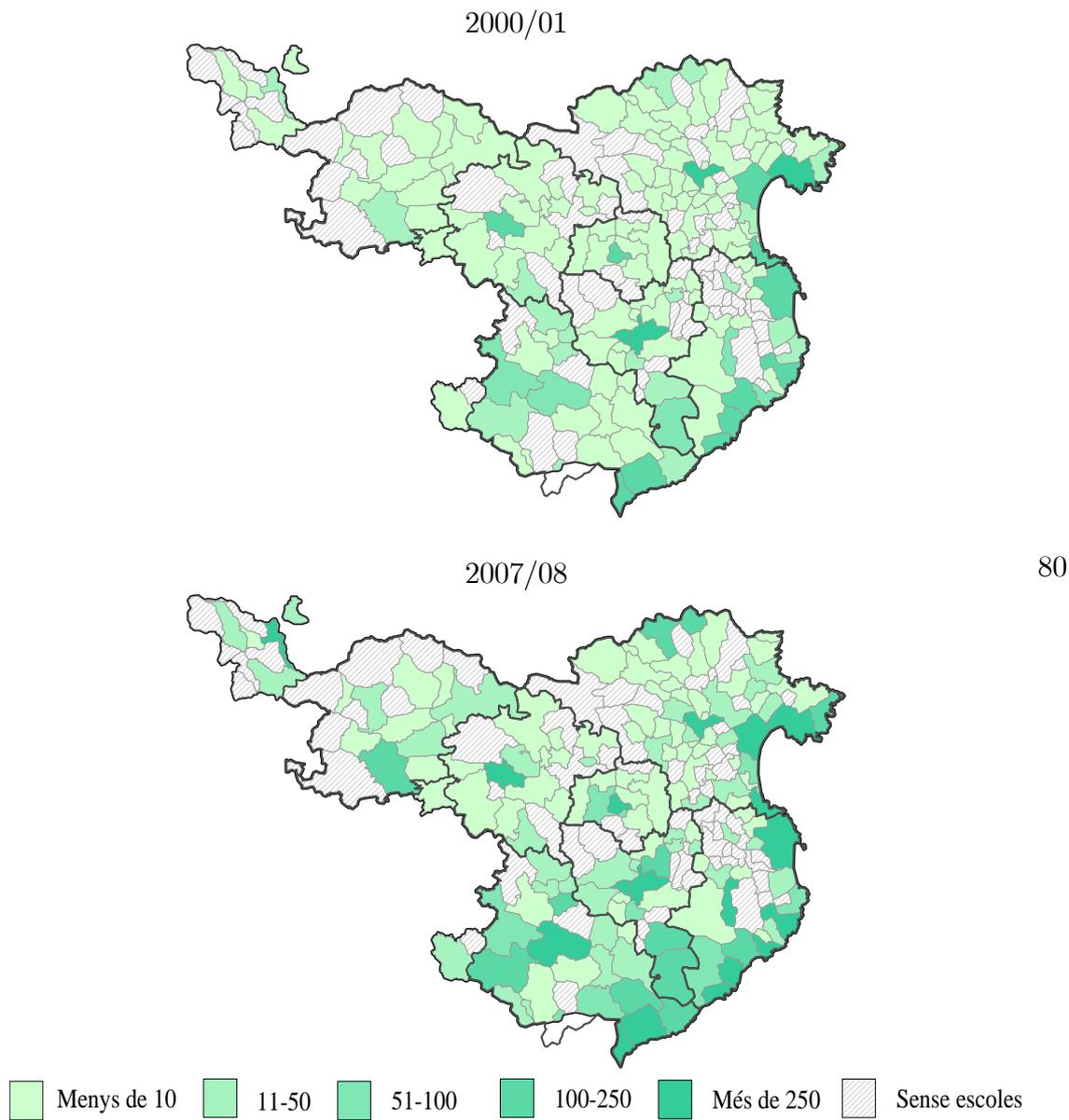
The estimation of the residential segregation by considering municipalities as the units explored, results in index values of 23.7 for the aggregate foreign population and those between 3 and 20 years of age. Even when we do not know the exact places of residence of the pupils enrolled, by calculating the index according to the standard ages for each educational stage we could approximate the corresponding residential segregation index. The resulting values are lower than their school segregation counterpart: 14.2 for pre-school (3-5 years), 24.7 for primary (6-11 years), and 11.7 for lower secondary (12-16 years), upper secondary and vocational education (16-18 years).

The more disperse and most numerous kindergarten and primary schools centers could determine the school segregation values reached. By considering only those municipalities where educational supply is composed by both sectors, the proportion of foreign-origin children would be higher in publicly funded schools. The only exception are the municipalities of Fornells de la Selva and La Llagostera in which foreign pupils (mostly EU-15 nationals) are most numerous in state-sanctioned centers.

The municipalities of Olot and Sant Feliu de Guíxols are the ones who show the smallest differences between sectors, regardless the relatively high presence of foreign pupils. Particularly, Olot has been quoted by the Síndic de Greuges -the Catalan Ombudsman- Report (2008) as an example of a municipality with low school segregation levels in spite of the numerous presence of immigrants. The municipalities of Figueres and La Bisbal de l'Empordà are also quoted by their homogeneous across schools. On the other hand, the municipalities of Salt and Banyoles are two of the most segregated during 2006. According to our results, Banyoles could have improved the segregation of its enrolled population.

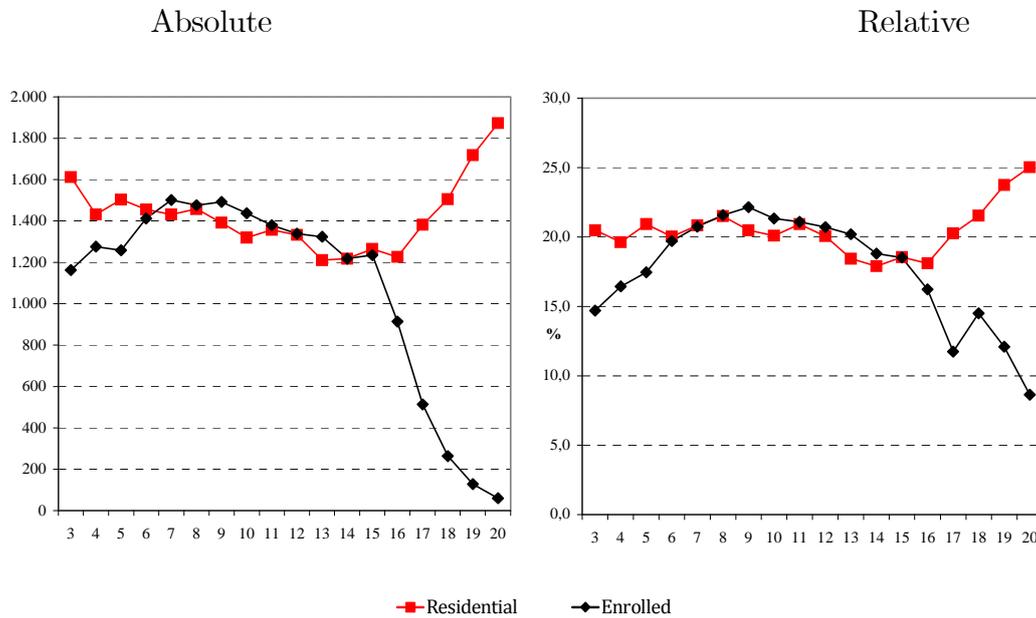
Heterogeneous school zoning policies across the Catalan territory are indeed school segregation determinants (Alegre, Benito and González 2008). According to the authors, municipalities whose zoning criterion defines a single catching area are those who experience lower segregation levels. On the same way, and as it could be observed in the previous example, changes in catchment areas or school zoning criteria would have a significant impact on segregation measures.

Figure 5.42: Enrolled population of foreign origin in Girona: Share of foreign pupils by municipality. Academic years 2000/01 and 2007/08



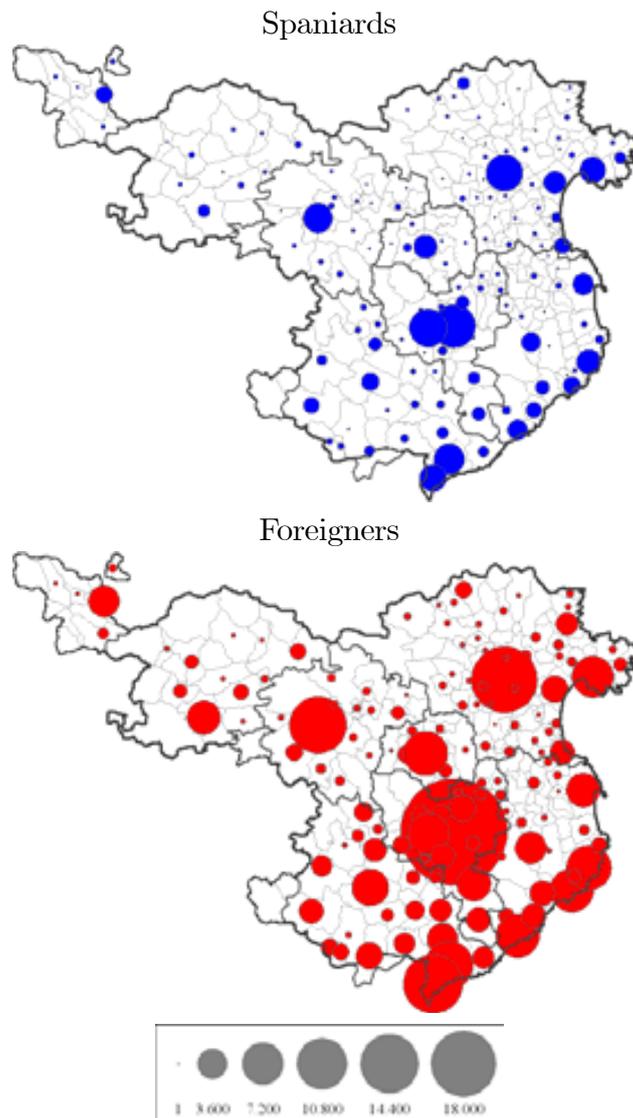
Source: Author's elaboration based on the *Estadística de l'Educació*. Catalan Department of Education.

Figure 5.43: Differences between resident and enrolled foreign population by age (absolute and relative numbers). Girona 2008.



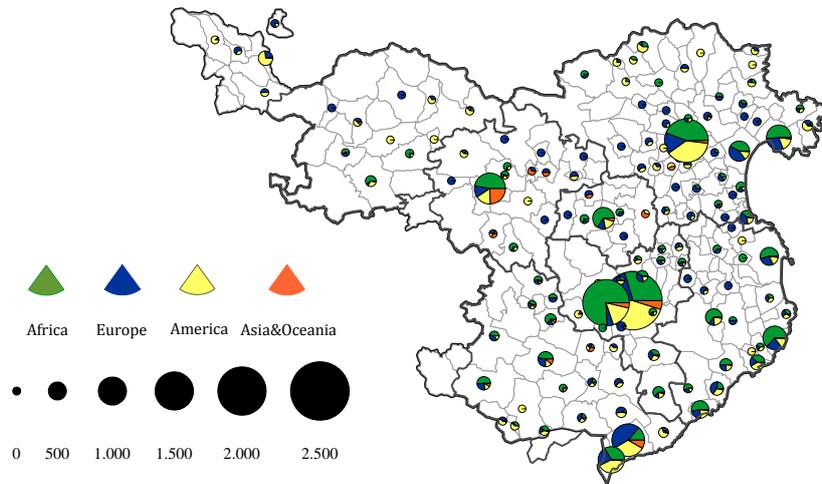
Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education) and *Padrón Continuo* (Idescat).

Figure 5.46: Territorial distribution of the enrolled population by origin. Girona, school year 2007/08.



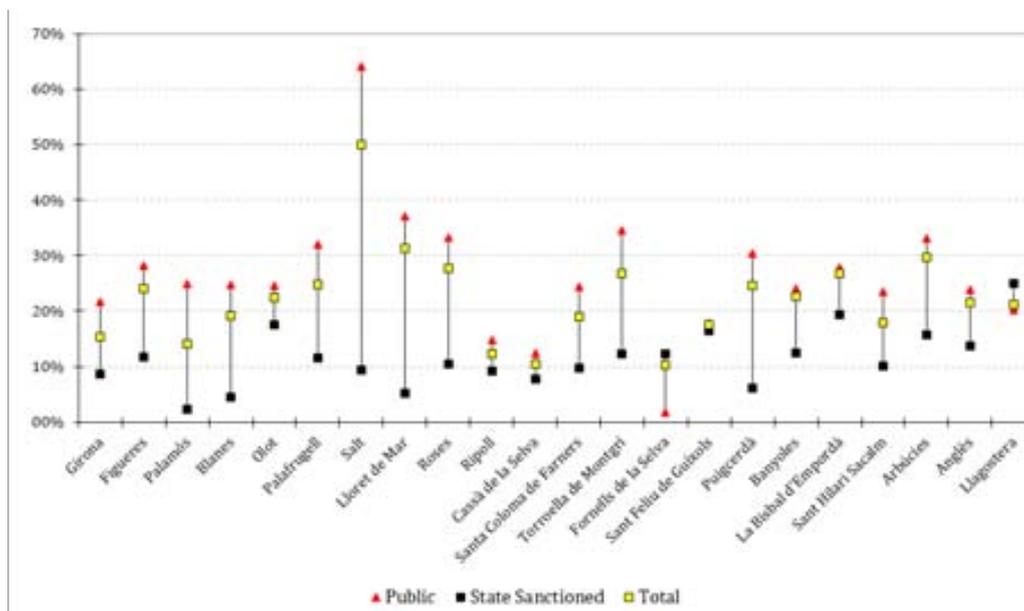
Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education).

Figure 5.47: Territorial distribution of the enrolled population by group. Girona, school year 2007/08.



Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education).

Figure 5.48: Share of foreign pupils enrolled by municipality and sector. Girona, school year 2007/08.



Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education).

5.3.4 Distribution of the enrolled population given the share of foreigners at the same school

A second useful approach to study the composition of the enrolled population by origin is to analyze their distribution according to the proportion of foreign-origin children at the center they are enrolled (see Figure 5.49). We can observe how on the aggregate, most of the pupils are enrolled in schools where the proportion of children of immigrants is between 10 and 20 percent. Those centers concentrate around 40 percent of the native and 30 percent of the foreign enrolled population.

‘White flight’ or ‘native flight’ in the educational environment is understood as the native families’ desertion of schools in which foreign pupils represent a significant percentage of the enrolled. In that sense, as it is a subjective criteria depending on parental preferences, how can we identify a possible threshold that suggests whether parents consider the presence of immigrant children as a threat? Even if we compare the distributions for a specific period of time, there should be an identification problem linked to the impossibility to identify the evolution of a same cohort in time. Therefore, dropouts, live enrollment and generational components could generate erroneous interpretations of the results.

As we can see on Figure 5.49, pre-school and compulsory primary are the stages that register the most dispersed distribution and thus, the higher number of schools with increased number of foreigners. For example, 20 percent of the 268 kindergartens available during the course 2007/08 have not reported any foreign pupil enrolled. At the same time, four kindergartens overpassed an 80 percent share of foreigners (318 pupils). At primary level, only 15 out of the 260 schools have not had foreign pupils enrolled, whereas four centers overpassed the 80 percent with 645 foreign pupils. It is at secondary level where all educational centers reported at least one foreign pupil enrolled. Of them, only one school located at the municipality of Salt registered a share of foreign pupils over 80 percent (188 pupils).

For some authors school segregation at post-compulsory stages would be more related to parental educational attainment rather than the local residential segregation (Gramberg 1998). At the same time, the reduced number of post-compulsory centers with respect to those for compulsory education suggest an increased student mobility at older ages. Therefore, one same center would satisfy the demand for education of a larger catchment area, resulting in similar distributions (see Figure 5.50).

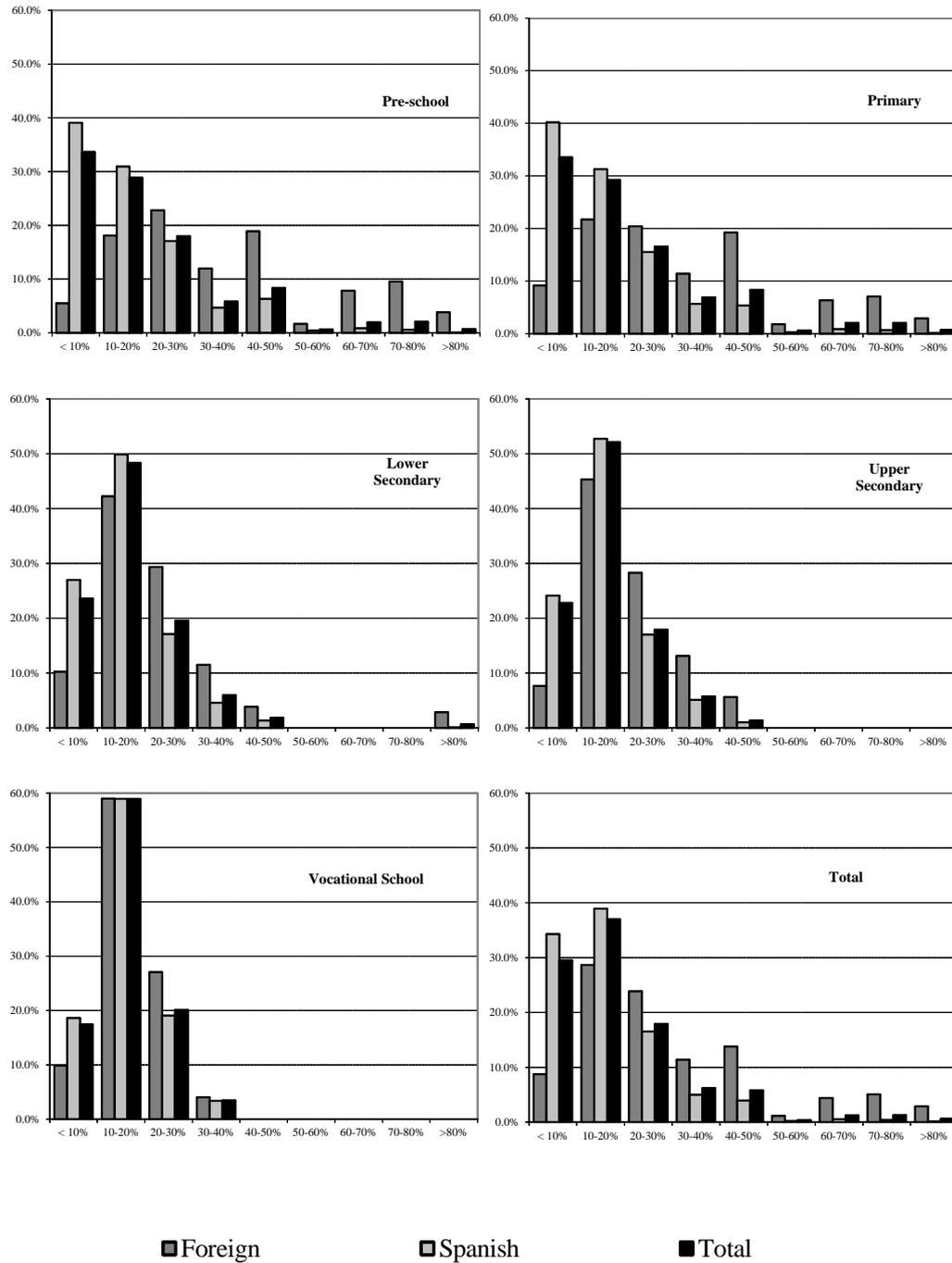
If nationalities were included, we would observe that 59.7 percent of the Malian pupils are enrolled in schools with more than 50 percent of foreigners. They are followed by

Senegalese and Hondurians with 24.7 percent. Only 16.6 percent of Moroccans -the most numerous group-are enrolled in centers with more than half of foreigners. As for Europeans, 6.2 percent of Romanians and 2.1 percent of Poles assist to highly segregated schools. All in all, the territorial distribution of the enrolled and the recent arrival of more diverse origins could directly affect the results obtained. All in all, the results suggest the uneven interaction of the groups once nationality is accounted for. In those cases in which more than one educational center is available in the same municipality or the surroundings, it could suggest the influence of parental preferences in school enrollment. However, in those municipalities with only one educational center, as parents and children do not have other choice, parental preferences and the study of segregation is irrelevant.

The inclusion of age in the distribution of the enrolled population by origin and the proportion of foreign children enrolled at the same center is shown in Figure F. As we can observe, there are clear differences in the composition of the school attended by origin. While close to 90 percent of the Spaniards attend to schools with less than 30 percent of foreigners, the composition of the centers in which children of immigrants are enrolled varies by age. At age three, 20 percent of the foreigners were enrolled in schools where they share represented less than 20 percent, whereas the proportion shifts to approximately 50 percent at age eighteen. Even when it is clear that preferences play a significant role in school choice, the distribution could also be affected by the scale effect at school level, location and to some extent, socioeconomic background. School size could trigger the scale effect by increasing the marginal weight that each additional pupil has in the composition by origin in relative terms.

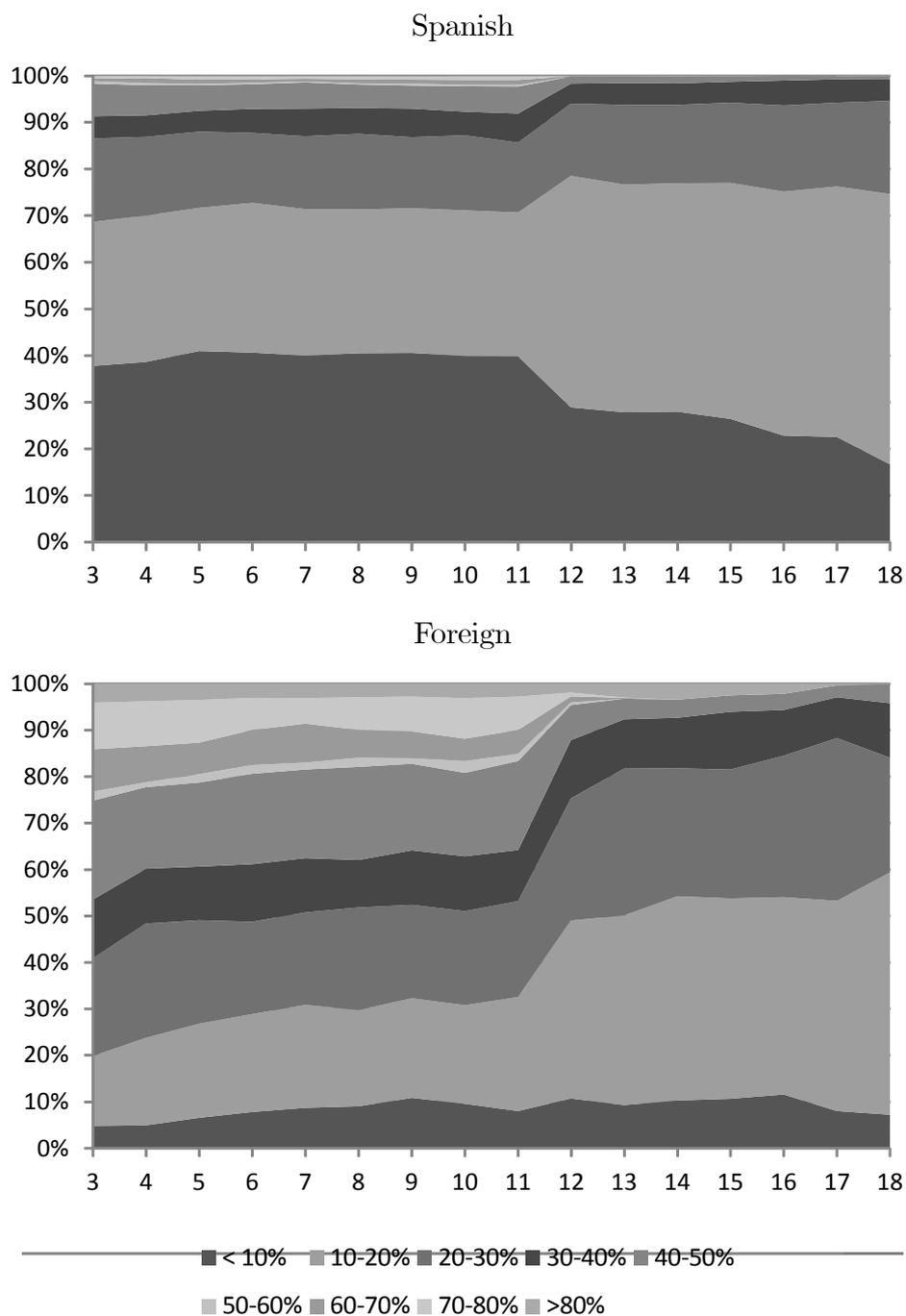
In that sense, socioeconomic background became one of the determinants of the distribution among schools. Families with higher income could allocate more resources to commuting or their children's residential change to areas in which the composition of the educational supply is better according to their preferences. This premise particularly applies at older ages and higher education. Therefore and given their knowledge and access to information and resources, the incidence of this kind of strategic mobility would be higher in natives than in newcomers. Consequently, the lower mobility and commuting for educational purposes of foreigners could generate their concentration in local schools at higher levels.

Figure 5.49: Distribution of the enrolled population by origin, educational stage and percentage of foreigners at the same center. Girona 2008.



Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education) and *Padrón Continuo* (Idescat).

Figure 5.50: Distribution of the enrolled population by origin, age, educational level and share of foreign children enrolled. Girona 2007/08.



Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education) and *Padrón Continuo* (Idescat).

5.4 Immigration boom, residential and school segregation: The case of Barcelona

On the previous sections we have estimated the relation between residential and school segregation on aggregated level. The results can give us a hint of the mechanisms behind the school segregation increase during the last years. However, it is at municipal level where parents have to choose their children's educational center. Given that educational attainment results are not public, parents have to choose based on subjective criteria and mostly related to the public opinion, frequently related to the ethnic and social composition. Consequently, educational centers at socially deprived areas experience a continuous decline with respect to those with a better public image (Reardon 2009).

The case of Barcelona will allow us to perform a more detailed analysis of the school segregation phenomenon at micro level. Despite the database limitations that do not allow the estimation of the educational outputs or the familiar background of the population enrolled, the research will allocate the phenomenon by districts. In that sense, we will be able to explore the within and between Districts' segregation according to the inflows' evolution.

The main Spanish cities have experienced during the first decade of the 21st Century what has been defined as international migration boom. That is the rapid increase of an unexpected international migration inflow (Pumares *et al.* 2006) with an overwhelming intensity (Domingo and Gil-Alonso, 2007; Ribas-Mateos, 2004). Before the economic crisis exploded, Spain experienced the most significant international migration inflows of Europe overpassing 5.5 million foreigners, which represented 12.2 per cent of the resident population. The increase was even more dramatic in those touristic and agriculturally intensive areas, as well as the main urban areas. The two major cities, Madrid and Barcelona, the foreign population reached 17.5 per cent of the total. The rapid foreign population increase has had effects in the host society at different levels. The demographic dynamics was directly affected by reverting the population decrease directly linked to aging (Gozálvez 2010), whereas, at territorial level, has contributed to the sub-urbanization of the major cities (Bayona and Gil-Alonso 2011). The population increase has also directly affected the real-estate and the public services demands.

The continuous increase of the foreign population in Barcelona (from 2.1 per cent in 1998 to 17.5 per cent in 2010) has consequently reflected the settlement process with the arrival of inflows at scholar ages. Underage foreign population has shifted from 17,990 persons in 2002 to 37,011 in 2008 as a result of the family reunion procedures (Domingo *et*

al. 2010) or as second generation migrants (Aparicio 2007). In relative terms, the proportion of children of foreign origin has practically duplicated their weight: from 7.8 per cent in 2002 to 15.3 per cent in 2008. We will analyze the evolution of the foreign population at scholar ages in Barcelona between the courses 2002/03 and 2007/08, especially focused on the segregation and concentration patterns. Both, school and residential segregation will be considered at district and aggregated level.

Later, we will deeply analyze the school segregation at micro-level for the academic course 2007/08. Unfortunately, the characteristics of the available databases have constrained our analysis at this territorial level and for this specific course. In that sense, we will be able to explore the school and residential segregation of the children enrolled in the city of Barcelona, also considering the effects of the mobility of students from the metropolitan area.

5.4.1 Background

The scarce studies that consider the spatial distribution of the foreign population in the Spanish cities show low residential segregation levels. However, the results could not be extended at individual level while studying residential segregation by nationality (Musterd and Fullaondo, 2008; Martori and Aparicio, 2011; or Bayona and López-Gay, 2011, for Barcelona; and Echazarra, 2010 for Madrid).

Unlike American and some Northern and Central-European cities (Musterd et al 1997), the low residential segregation levels estimated are consistent with other Southern-European cities (Arbaci and Malheiros, 2010; Arbaci, 2008; Malheiros, 2002). They are often considered to be a result of the fragmented real-estate market, the election of sub-urban areas of residence –even at early stages- and access to predominantly rental housing. Precarious living conditions and access to housing of immigrants contradicts the resulting low segregation estimates, suggesting a missing link between residential segregation and social inequality (Martínez and Leal 2008). Consequently, low segregation could coexist with social exclusion and precarious living and habitability conditions –generalized overcrowding- (Bayona 2007). Results are consistent to those obtained for different Spanish cities while analyzing data from the recent National Immigrant Survey of 2007 (Domínguez et al 2010).

On the same line, our research hypothesis is based on a divergent behavior: the coexistence of decreasing residential segregation and increased concentration and segregation of foreigners at school level. Regardless the extended distribution and residential dynamics

of the population of foreign origin within the territory, the higher concentration of immigrant children among schools could be related to school choice and the so called white flight phenomenon. The former relates to the enrollment of native children in schools where immigrant pupils are not representative if not scarce.

Thus, school choice decisions would be directly related to variables and determinants at micro level. Even though the educational system establishes that school choice would be partially determined by the proximity to residence or parental work criterion, familiar decisions would be conditioned by socioeconomic determinants. On that sense, for families with scarce economic, cultural and social resources, school choice opportunities will be limited (Bourdieu 1986). Previous research shows that children of immigrant grow in an economic disadvantaged position with respect to natives (see for example de Valk 2010 for Holland). It could therefore suggest a limited social mobility and the scarce school choice among foreign population.

Our study will shed some light in the analysis of the evolution of residential and school segregation within the last decade's immigration boom. It will be possible to identify the interdependence between differential migratory processes, the economic cycle and the spatial distribution of the foreign population within the urban sprawl and the school strata. The arrival of population at school age conditioned by the familiar migratory project has been accompanied by the system's inability to fight against differential access to education.

The foreign population at the city of Barcelona has experienced a continuous growth during the first decade of the 21st century. The proportion of immigrant residents has shifted from 2.1 per cent in 1998 to 17.5 per cent in 2010. Consequently, the demographic dynamics of the immigrant population and the settlement process have increased the population at school ages with the arrival of reunited children (Domingo, López-Falcón and Bayona 2010) and the emergence of second generations (Aparicio 2007). As a result, children of immigrant background have practically duplicated their weight on the host society from 7.8 per cent in 2002 (17,990 children) to 15.3 per cent in 2008 (37,011 children).

The aim of this section is to study the dynamics of the enrolled population of foreign origin in the city of Barcelona during the period between the academic courses 2001/02 and 2007/08. Our analysis will be focused on the school segregation and concentration of immigrant children at aggregated and sectorial level according to school's funding (public funded or state-sanctioned schools). In order to compare the school and residential dynamics, we will also analyze the spatial distribution of the resident population during

the same period. The main advantage of our period of analysis is that it encompasses both, the maximum arrival of international migration inflows and the beginning of the economic downturn in 2008. According to the law, Barcelona does not have an established policy against segregation. The city and its metropolitan area are subject to the decisions of the Schooling Commissions, which are entitled to ensure the “equilibrium” within schools. However, there is no public recognized segregation policy developed by them.

5.4.2 Theoretical framework: School and residential segregation

School segregation, understood as the degree to which two or more groups are enrolled separately from each other in a spatial unit, can be considered as a reflection of inequality and urban segregation (Massey and Denton 1988). However, as Schindler (2007) or Gramberg (1998) argue, school segregation levels are traditionally higher as their residential counterpart. School segregation is influenced by the population composition by age and the native pupils’ desertion, also known as ‘white flight’ – especially in differentiated school systems (Valiente 2008).

The analysis of school segregation effect on educational outcomes is not new. The Coleman Report (1966) represented the turning point in sociology of education by focusing the attention on the ethnic and the socioeconomic background of the enrolled population. It considered the interaction between the individual educational center’s characteristics and the pupils’ socioeconomic conditions on educational attainment. The Coleman Report (1966) showed that the most disadvantaged pupils are more sensible to changes on the socioeconomic profile of the center they are enrolled in. Even though this premise could be extended without differentiating among nationalities or ethnic origins, it is perhaps the effect of the concentration of immigrant population in deprived areas the motivation behind the study of the concentration of non-native children in educational outcomes.

According to Cebolla and Garrido (2010:5), the causes of the negative correlation between the concentration of immigrant pupils and educational outcomes could be classified in three main groups according to previous results. First, the associated micro-interactions within schools where non-native children are overrepresented. In international literature –mostly American- these effects are related to social capital (see for example Portes and Zhou (1993) or Portes and Rumbaut (2001)). However, once socioeconomic and demographic variables are controlled for, the unexplained variation associated with contextual variables will significantly decrease (Dietz, 2002; Evans, Oates and Schwab, 1992). Second, Cebolla and Garrido argue that specific characteristics of schools where migrants are more highly represented could differ significantly from the rest. In that sense, the

authors argue that in the most deprived environments schools might rely on fewer resources leading to a less effective learning environment. Nevertheless, this premise could only be applied to those countries where school funding relies on the local characteristics whereas others might provide higher subventions in order to provide more resources and/or adapted educational programs to the most disadvantaged areas. Finally, composition effects referred to the socioeconomic composition of student bodies across schools are considered. According to the authors, housing costs, segmented labor markets and the influence of ethnic social networks could contribute to the concentration of migrants in the most deprived areas of the urban sprawl.

Residential segregation is negatively considered as a result of the limited interaction between natives and non-natives, as well as the unequal access to services, opportunities and resources thus affecting social and economic welfare (Massey and Denton 1989). On the other hand, school segregation directly affects access to knowledge; it generates barriers to language acquisition and restricts future social network scope. Nevertheless, previous findings do not allow conclusive results on the interaction of socioeconomic variables and school segregation itself. Recently, Nordin and Rooth (2009) show that differential qualification between natives and second generation migrants in Sweden is not a result of parental socioeconomic characteristics. The authors consider that the gap between natives and non-natives could be related to the barriers to education generated by school and residential segregation. Rickles and Ong (2001) argue that there are other factors involved in the relation between residential and school segregation that could generate divergent behaviors. According to the authors, urban dimension, per capita income, educational attainment levels and the proportion of foreign students enrolled in the largest district should also be considered.

The study of school segregation in Catalonia is relatively new. It has been included in previous research for the Spanish territory and –given the lack of a public database– has been generally based on partial samples and ad hoc surveys. The Colectivo Ioé (2002) performed a descriptive analysis of the distribution and composition of the enrolled population while studying the Spanish Statistics of Education (*Estadísticas de Educación de España*) produced by the Spanish Ministry of Education and its relation to the births of children of foreign origin. From an anthropology and ethnocentric perspective, Carrasco (2003) studies the multicultural composition of the enrolled population and their relation to the pupils of Roma origin. As Aparicio (2001) argues, the increased demand of education directly linked to international migration inflows centered the attention of a research line previously focused on Roma origin children. Both, children of immigrants and Roma children (regardless their citizenship) have faced the same limitations and barriers

to education.

School segregation and its relation to educational outcomes has been included in the research of Benito and González (2007) and Sánchez Hugalde (2007a). Benito and González (2007) analyze the school segregation and the effect of public policies in some Catalan municipalities. The authors designed a specific survey and later contrasted their results to enrollment data. On the other hand, Sánchez Hugalde (2007a) analyzes the relation between school and residential segregation during the academic course 2002/2003. The research considered those Catalan municipalities with at least 20,000 inhabitants and at least 10 pupils of foreign origin. In both cases, results suggest an adverse effect on educational outcomes of the increased enrolled population mainly related to the arrival of foreign children. Even though educational outcomes would be affected on the aggregate, academic results of immigrant children would experience a magnified effect.

Under a geographic perspective, Valiente and Rambla (2009) considered the evolution of segregation measures in 158 Catalan municipalities –except Barcelona and the smallest municipalities. Their results showed a segregation decrease at the same time as isolation measures increased. The generalized increase of the enrolled population of foreign origin contributes to decreased segregation measures. However, their presence in those educational centers with higher proportion of immigrant students is considerably higher.

In terms of school choice, Sánchez Hugalde (2007b) explores the so called ‘white flight’ phenomenon in Catalonia. By contrasting the characteristics of the enrolled population during the academic courses 2001/02 and 2002/03, the author concludes that there is enough evidence on Catalan families’ desertion from schools with higher proportion of immigrant children. Private schools would be the most preferred by natives whereas non-natives do not actively participate in the school selection process.

The city of Barcelona is specifically studied in the Síndic de Greuges –the Catalan Ombudsman- (2008) report. The report deeply studies the school segregation from a geographic perspective considering the specific policies implemented and the related complaints presented to the institution. According to the results, school segregation in the city of Barcelona during the period 2001-2006 is higher within the administrative districts than between them. It is also higher within educational sectors (public or private) than between them (Síndic de Greuges 2008: 133). The heterogeneous distribution of the enrolled population among districts –concentrated mostly at Sants-Montjuïc, Ciutat Vella and Nou Barris- is contrasted with higher school segregation levels in those districts with lower proportion of immigrant students. Thus suggesting a clear bias linked to informal barriers in access to education.

Sánchez Hugalde (2009) uses the city of Barcelona as a sample for studying school segregation in Catalonia during the academic course 2006/07. Even though the study at district level has not been considered as in the Síndic de Greuges (2008) report, the author considered the school segregation by educational level. Results suggest that at primary level, it would be necessary to redistribute more than 60 per cent of the foreign enrolled population in order to guarantee a homogeneous distribution by origin among schools (Sánchez Hugalde 2009:63). At the same time, enrolled population at compulsory levels shows higher segregation and isolation levels in Barcelona than its metropolitan area. Finally, the results are compared to residential segregation for the population between 5 and 16 years of age. However, estimations of residential segregation only consider South-American, non-EU European and African nationals as foreigners, thus limiting the comparability between both residential and school segregation measures.

5.4.3 Data and methods

In order to analyze the enrolled population in Catalonia, we will explore the Non-University Enrollment Statistics of the Catalan Department of Education for the period between the academic courses 2001/02 and 2007/08. Besides compulsory educational levels, the database encompasses for the entire range of non-university education. Thus covering Kindergarten, Vocational School, High-School and Social Guarantee Programs, the database covers enrolled population of all ages. As we might expect, the enrolled population is concentrated at compulsory ages (from 6 to 16 years-of-age), but it is possible that part of the registers over 25 years old are the result of erroneous registers. Even though the Social Guarantee Programs do not have a specific age limit –they are mostly targeted to adult education–, considering that age ranges from 0 to 90, registers over 25 years old could be reporting year of birth instead of age.

With respect to educational sector or funding, the Non-University Enrollment Statistics contains information on public funded and state-sanctioned schools. It is possible to find some registers of the private educational centers (also international schools) in Catalonia but given their different nature and legislation, we have excluded them from our analysis.

Data is aggregated by educational center being the available variables the following: sex, age, nationality and place of birth. As the database was constructed in two stages, we must stress that its structure is not homogeneous throughout the years. For the period between the academic courses 2001/02 and 2006/07, the database provided was not reported as cross tabulations. Consequently, it will not be possible to perform a

detailed analysis of the enrolled population for those years. Also, given the absence of an indicator of academic level for most of the years, a bias is generated by the inclusion of non-compulsory stages. In order to minimize its effect, we have only considered those educational centers with at least one compulsory level. Selection was made based on the database on educational centers in Catalonia available on the Department of Education website . Furthermore, only centers with information available for the whole period of analysis were included. As a result, 453 schools –of which 51.2 per cent are public funded and 48.8 per cent are state sanctioned- will be studied.

The heterogeneous spatial distribution of the educational centers in Barcelona among districts at aggregated and sectorial level is shown on Table 5.20. Some locations respond to historical rather than population based criteria. In that sense, 39.8 per cent of the state-sanctioned schools are concentrated in the Barcelonan districts of Eixample and Sarrià-Sant Gervasi – two of the higher income areas. Some private and state-sanctioned educational centers at Eixample were built in order to satisfy the demand for education of the local bourgeoisie during the first quarter of the 20th century. Consequently, their relocation would represent the main incentive behind the provision of new private facilities. On the other hand, the limited construction of public facilities in this area was also constrained by the urban development policies from the mid-20th century. While considering the evolution of the population at compulsory schooling ages by district, the dissociation between resident population and territory becomes evident. That is specially the case of the Sarrià-Sant Gervasi district where population at compulsory schooling ages and school strata are not clearly related. The educational supply of this district mainly responds to the former relocation of upper middle-class families as explained above and not to demographic criteria itself. Thus generating a private schools' node, the Sarrià-Sant Gervasi has faced an educational demand higher than what could be considered as the natural demand –the resident population at schooling ages. During the last years the growing demand for education at the district meant an increase in the supplied places, not consistent with the resident population's evolution during the same period.

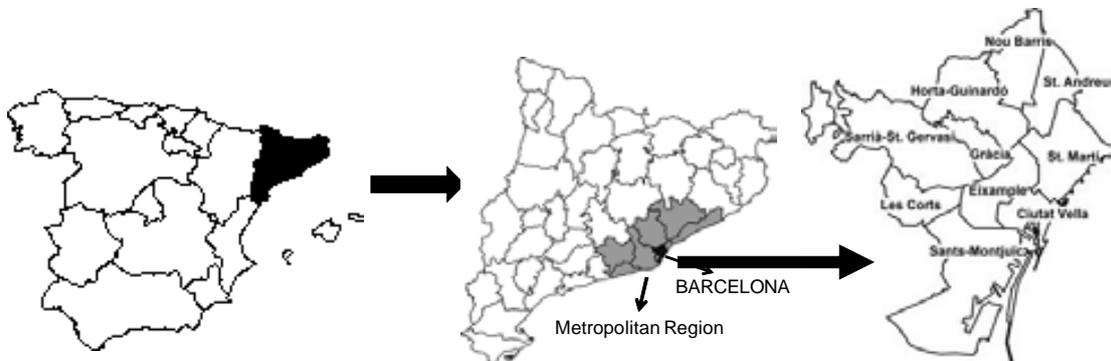
As education is compulsory for all children aged between 6 and 16, most of the enrolled population is concentrated at this interval. The most significant increase of the enrolled population in Barcelona is at compulsory ages contrarily to the Catalan aggregate which experienced a significant growth of children between 3 and 6 years. Even though education at those ages could be publicly funded regardless its non-compulsory status, the former could be a consequence of the convergence of two effects: the arrival of international inflows and the fertility and birth-rates' increase of the last years (Domingo, López-Falcón and Bayona 2011).

The analysis of the residential segregation in Barcelona will be based on the Continuous Register data provided by the Catalan Statistical Institute (Idescat). The period of analysis encompasses from January 1 2002 to January 1 2008. The Continuous Register encompasses data from the official resident population in a municipality. The database contains information on age, sex and nationality at census tract level. According to the database provided, at January 1 2008, the municipality of Barcelona (figure 5.21) was divided into 1,482 census tracts with an average population of 1,090 persons. The total population reached 1,615,908 persons.

The study of residential segregation has considered the composition of the aggregate and the underage resident population. The formed was aimed to provide a more accurate approximation to the enrolled population at non-university level. In that interval, children should attend compulsory primary (6-12 years) and lower secondary (12-16 years) regardless their legal status. Compulsory education should be completed at age 16, but the upper limit could be extended until 18 years of age depending on student's academic results. Regardless the non-mandatory character of pre-school education (between 3 and 6 years of age), this educational level could also be subsidized.

Consequently, at age 16, individuals who have completed compulsory Lower Secondary education might enter the labor market or continue with their training (academic or vocational). At that time, individuals face the first and most important transition of the Spanish enrolled population. From that moment onwards, discretionality at educational centers offering post-compulsory studies is granted: they are entitled to decide whether undocumented migrants could have access to education.

Figure 5.51: **Sample characteristics: Educational centers by sector and district. Barcelona, academic courses 2001/02-2007/08.**



Source: Author's elaboration.

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Table 5.20: **Sample characteristics: Educational centers by sector and district. Barcelona, academic courses 2001/02-2007/08.**

District	Public		State sanctioned		Total	
	Schools	Rel. Freq.	Schools	Rel. Freq.	Schools	Rel. Freq.
Ciutat Vella	20	8.62%	14	6.33%	34	7.51%
Eixample	16	6.90%	43	19.46%	59	13.02%
Gràcia	17	7.33%	16	7.24%	33	7.28%
Horta-Guinardó	27	11.64%	19	8.60%	46	10.15%
Les Corts	10	4.31%	16	7.24%	26	5.74%
Nou Barris	36	15.52%	18	8.14%	54	11.92%
Sant Andreu	22	9.48%	18	8.14%	40	8.83%
Sant Martí	38	16.38%	16	7.24%	54	11.92%
Sants-Montjuïc	33	14.22%	16	7.24%	49	10.82%
Sarrià-Sant Gervasi	13	5.60%	45	20.36%	58	12.80%
Total	232	100%	221	100%	453	100%

Source: Author's elaboration based on the Estadística de l'Educació (Catalan Department of Education).

We will estimate the residential and the school segregation by applying first the traditional dissimilarity index (Duncan and Duncan 1955b). Despite the limitations of this index, we have chosen to implement it given the quality of the available data and, especially, the comparability of our results to previous studies. It is by far one of the most popular measures of segregation given its easiness to compute and interpret. Segregation indices summarize the differences between the distributions of two or more groups across spatial units. Subsequently, we will estimate the segregation index (Duncan and Duncan 1955a,b) by continental origin defined as: EU15, Rest of Europe, Asia & Oceania, America and Africa. The segregation index, that could also be considered a particular case of the dissimilarity index, measures the situation of a particular group in a specific territory.

Table 5.21: Sample characteristics: Educational centers by sector and district. Barcelona, academic courses 2001/02-2007/08.

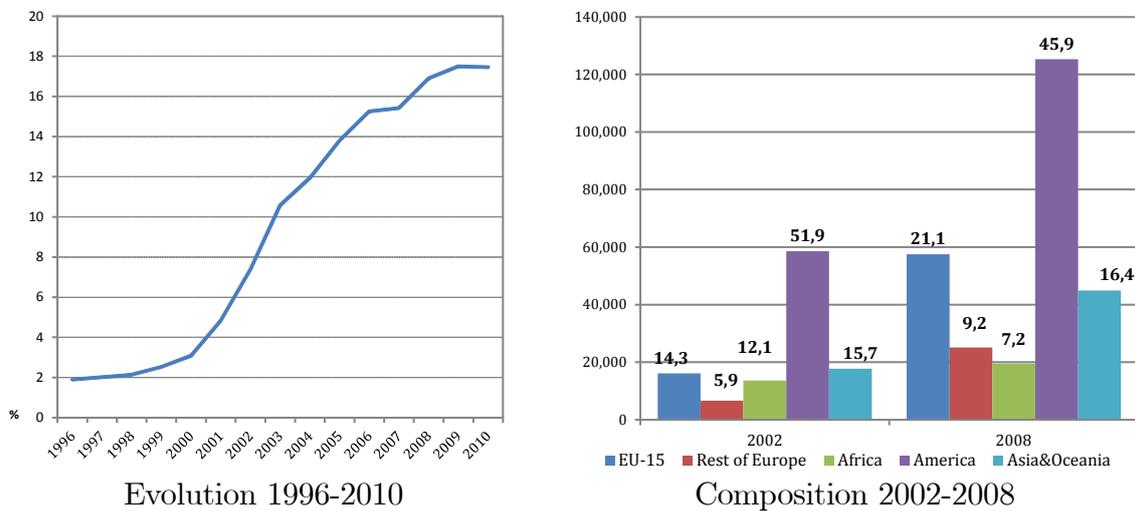
District	Public		State sanctioned		Total	
	Schools	Rel. Freq.	Schools	Rel. Freq.	Schools	Rel. Freq.
Ciutat Vella	20	8.62%	14	6.33%	34	7.51%
Eixample	16	6.90%	43	19.46%	59	13.02%
Gràcia	17	7.33%	16	7.24%	33	7.28%
Horta-Guinardó	27	11.64%	19	8.60%	46	10.15%
Les Corts	10	4.31%	16	7.24%	26	5.74%
Nou Barris	36	15.52%	18	8.14%	54	11.92%
Sant Andreu	22	9.48%	18	8.14%	40	8.83%
Sant Martí	38	16.38%	16	7.24%	54	11.92%
Sants-Montjuïc	33	14.22%	16	7.24%	49	10.82%
Sarrià-Sant Gervasi	13	5.60%	45	20.36%	58	12.80%
Total	232	100%	221	100%	453	100%

Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education).

5.4.4 Foreign migration in Barcelona

The recent migratory inflows to Barcelona have brought more than 250 thousand foreign residents in slightly more than ten years. The proportion of foreign-born residents in the city has grown from 2 percent in 1996 to 17.5 percent in 2009. The intensity of the phenomenon –also experienced by the Spanish cities of Madrid and Valencia– and the diverse demographic profiles of the inflows are perhaps the key factors while analyzing the migratory boom from the beginning of the 21st century. The economic downturn experienced since the end of 2007 has been also reflected on the immigration slowdown and the stagnation of the foreign population in Barcelona (figure 5.52).

Figure 5.52: **Evolution and composition of the foreign population in Barcelona.**



Source: Author's elaboration based on *Padrón Continuo (INE)*.

As we have mentioned before, we will focus our research on the period between 2002 and 2008 (figure 2.b). During that time, the proportion of foreigners in Barcelona grew from 7.5 percent in 2002 (112,773 foreigners) to 16.9 percent (273,175 foreigners) in 2008. The composition and the demographic structure of the foreign population were also affected consequence of the diversification of the inflows. In 2002 51.9 percent of non-nationals were Americans –mostly Latin-Americans– followed by Asians, EU-15 Europeans² and Africans. Six years later, the register shows a generalized increase among origins. Europeans experienced the most significant growth: From 14.3 to 21.1 percent

²Given the differential socio-demographic characteristics of the population from the EU-15 and the recent accession countries, we have used this continental aggregation regardless the current European Union definition.

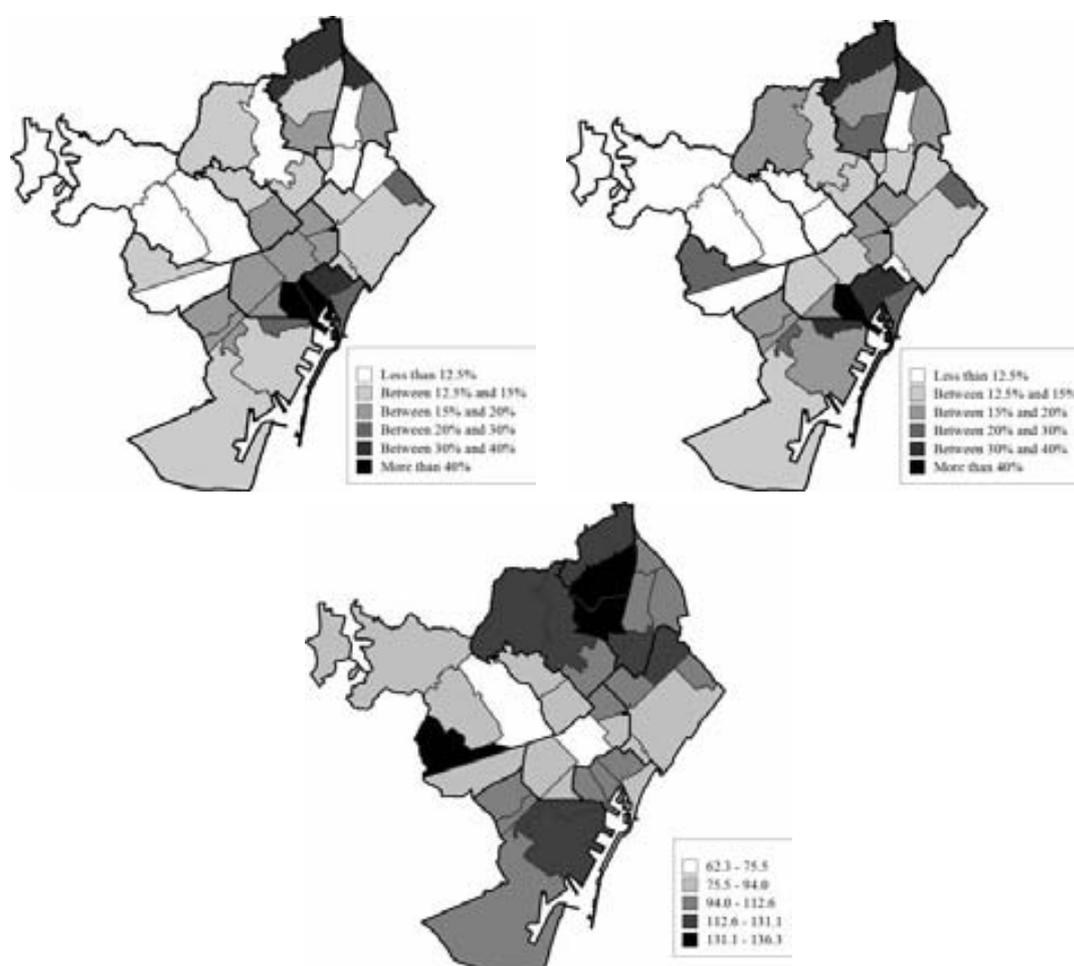
for EU-15 nationals and from 5.9 to 9.2 percent for the rest of European countries. That is, three out of every ten immigrants held a European citizenship in 2008. On the other hand, Asian nationals experienced a slight increase (from 15.7 to 16.4 percent) on the distribution whereas the proportion of Africans and Americans decreased.

Given the diverse composition of the inflows, the main nationalities among the foreign population have significantly changed their weight during the last ten years. In 2002 only six of them overpassed five thousand nationals in Barcelona. Ecuadorians (17,170), Colombians (9,596), Moroccans (9,585), Peruvians (8,588), Pakistanis (6,024) and Dominicans (5,018) represented the most numerous nationalities. Later on, the structure of the main nationalities shows significant changes in the number of effectives and the most represented origins. Even though Ecuador with 22,652 residents in 2008 was still on the top of the list, it has previously registered more than 30 thousand nationals in 2004. The decrease could be probably related to the Spanish citizenship acquisition of the Ecuadorian nationals rather than migration. On the second and the third place, two origins whose presence was not significant in 2002: Italy (20,305 residents) and Bolivia (18,370 residents). Followed by Pakistanis (15,057 residents) and Peruvians (14,945), Moroccans, Colombians, French and Chinese represent the nationalities with more than ten thousand residents in the city. In total, more than seventeen countries overpassed five thousand residents in Barcelona in 2008.

The structure by age of the foreign population clearly reflects the significance of young adult (economic) migrants on the inflows. The weight of the age-group 0-18 among foreigners is still reduced. In 2002, the 17,990 foreigners under nineteen years old represented 16 percent of the foreign population and 7.8 percent of the population at that same age. In 2008 the same age-group reached 37,011 residents in Barcelona representing 13.5 percent of the foreign population and 15.3 percent of their age-group. The decrease of the proportion of youth on the aggregate foreign population could be the result of different factors associated to their characteristics. First, we should consider that the foreign population is mainly composed by young economic migrants. Therefore, their settlement process and family formation projects are not already complete. Second, similar to Spaniards, families with children set their residence in the suburbs due to low house prices. Finally, children of foreign parents from specific nationalities who were born in the country could have acquired the Spanish citizenship (Alvarez 2006). Such is the case of children of Argentinian or Ecuadorian parents. They are allowed to acquire the citizenship *ex lege* given the non-automatic recognition of the *ius sanguini* criterion according to their home country legislation. Consequently, part of the children (especially of Latin-American parents) could not be identified in the databases: they were born in the country, hold the Spanish

citizenship and there is no record on their parents' nationality or country of birth.

Figure 5.53: **Proportion of foreigners in Barcelona by age, 2008.**



Source: Author's elaboration based on *Padrón Continuo (INE)*.

The historic city center (Ciutat Vella) has been traditionally a quartier of migrants' arrival and settlement. Probably related to the lower house prices, the presence of immigrants in working-class areas or neighborhoods that were built as a result of previous internal migratory process have led the residential movements to the outskirts (see figure 5.53). Only high-income quartiers located at the districts of Les Corts and Sarrià Sant-Gervasi register a decreasing proportion of immigrants (mainly EU-nationals).

In northwestern neighborhoods foreign population under twenty years-old is overrepresented. These areas have recently grown by net-migration, mainly from third-country

nationals with a higher proportion of families. In some cases, non-nationals arrive as a result of residential movements across the city (figure 5.53).

5.4.5 Foreign enrolled population in Barcelona

Considering that the enrolled population is mostly underage, the arrival of children of immigrants mostly relies on the familiar migratory project. Given their tied mover's condition, we might expect that their spatial distribution and their composition by nationality would reflect those of the aggregate. However, the impact of the foreign population in the educational system would not necessarily respond to the aggregate, especially while analyzing the composition by stage. This fact is directly related to the diverse origins, as well as the settlement and antiquity of the inflows.

The enrolled population in Barcelona has increased from 205,799 pupils during the course 2001/02 to 215,220 in the academic course 2007/08. During that period, the Spanish enrolled population decreased from 199,606 to 190,549 pupils, opposite to their non-native counterparts. Foreign pupils increased their presence in the educational system reaching 11.5 percent of the enrolled population at the end of the analyzed period (table 5.22).

Table 5.22: Evolution of the enrolled population by origin. Barcelona, academic courses 2001/02-2007/08..

Nationality	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Foreign	9,173	13,182	17,182	19,092	20,866	22,391	24,671
Spanish	196,626	195,323	192,928	190,822	189,380	188,262	190,549
TOTAL	205,799	208,505	210,110	209,914	210,246	210,653	215,220
% Foreign	4.5%	6.3%	8.2%	9.1%	9.9%	10.6%	11.5%

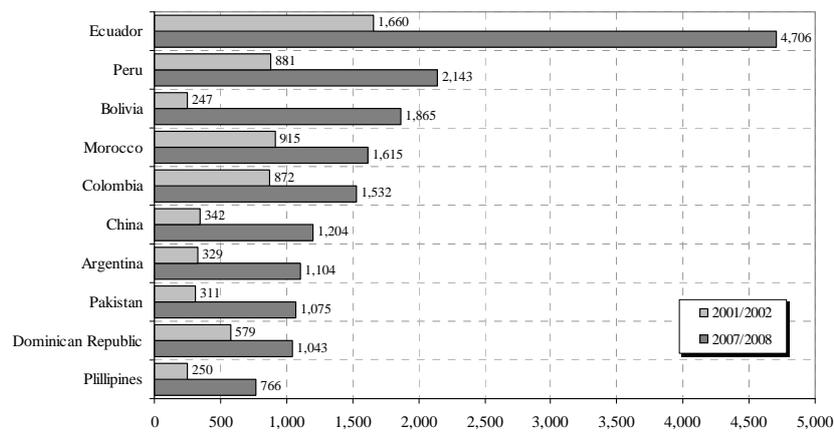
Source: Author's elaboration based on the Estadística de l'Educació (Catalan Department of Education).

The diversification of the inflows has also been reflected on the composition by nationality of the enrolled population. Latin-Americans experienced a significant growth especially in those nationalities that were not representative during the first analyzed year. Figure 5.54 shows the enrolled population of the top ten nationalities during 2001/02 and 2007/08.

As we have mentioned before, the foreign enrolled population has experienced a generalized growth during the last years. However, we must stress the abrupt change in the

presence of Bolivian nationals, particularly linked to targeted immigration policy. During the school year 2001/02, there were only 129 Bolivian pupils in Barcelona. The numerous inflows from this country motivated the Schengen visa request for Bolivian nationals in April 2007. The measure was announced months before its application, accelerating the individual and familiar migratory projects in a relative short period of time. As a result, Bolivians reached 1,865 pupils –the third most numerous by nationality- during the academic course 2007/08.

Figure 5.54: **Enrolled population of foreign origin: Main nationalities. Barcelona, academic courses 2001/02 and 2007/08.**



Source: Author's elaboration based on the Estadística de l'Educació (Catalan Department of Education).

The evolution of the main nationalities showed on table 5.23 could be affected by pupils who finalize or drop-out their studies as well as individual characteristics by origin. The former could be directly linked to the tied migration for family reunification reasons after the massive arrival of economic migrants. Consequently, we might expect that pioneer and more settled immigrant origins –as Dominicans- have been pushed to the background by the recent migratory wave.

As for the impact by sector, public funded schools satisfy most of the increased demand linked to the arrival of immigrant children. During the last analyzed year, one out of four pupils at public funded schools holds a nationality other than Spanish. The proportion decreases to 6.6 percent for state-sanctioned schools.

In aggregate terms, 75 percent of the foreign pupils are enrolled in public funded school. In contrast, only 35.3 percent of their Spaniard peers are enrolled at the same educational sector. These trends have not experienced changes over time. At the beginning of the

Table 5.23: **Enrolled population of foreign origin: Main nationalities. Barcelona, 2001/02-2007/08.**

Citizenship	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Ecuador	1,660	3,252	4,981	4,836	4,690	4,529	4,706
Peru	881	1,090	1,384	1,702	1,889	1,975	2,143
Bolivia	129	247	452	666	1,036	1,539	1,865
Morocco	915	978	1,207	1,357	1,436	1,533	1,615
Colombia	872	1,254	1,253	1,311	1,396	1,413	1,532
China	342	412	625	922	1,002	1,042	1,204
Argentina	329	752	960	1,026	1,077	1,090	1,104
Pakistan	311	336	432	556	810	1,006	1,075
Dominican Republic	579	669	771	842	881	930	1,043
Phillipines	250	305	350	430	543	594	766

Source: Author's elaboration based on the Estadística de l'Educació (Catalan Department of Education).

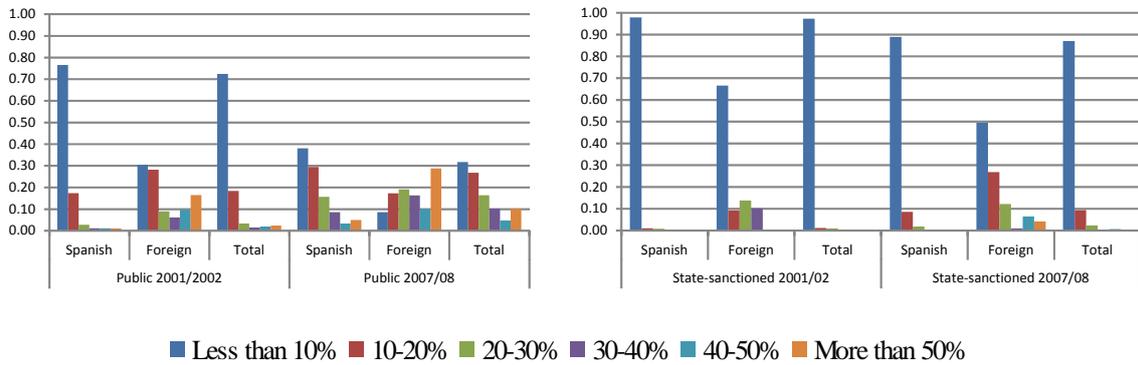
study period, the proportion of children enrolled at public funded centers was 73 percent for foreigners and 37.5 percent for natives.

The centers with the higher proportion of immigrant pupils registered a maximum of 84.3 percent for publicly funded schools whereas state-sanctioned centers registered 50.3 percent. In both sectors the minimum value was less than one percent. Contrary to the public opinion, not only lower income determines the concentration of foreign students in the public sector. Public funded schools represent 51 percent of Barcelona's school strata. Thus we might expect that a significant part of the demand for education should be satisfied by this sector. Nevertheless, the scarce presence of foreigners in state-sanctioned schools could suggest the existence of informal barriers of entry.

As a priori expected, the concentration of foreign pupils significantly rose during the period of analysis (figure 5 and table 4). At the beginning of the 21st century only 0.9 percent of the pupils were enrolled in centers in which more than half of the students were foreign. The proportion reached 2.4 percent at publicly funded schools, where one percent of the Spanish students and 16.5 percent of non-natives were enrolled. The share of students in highly concentrated schools reached 4.3 percent during the academic course 2007/08. It affected 22.6 percent of the foreign pupils in Barcelona – 28.7 percent if considering only the public sector.

The analysis by districts gives insights into the spatial concentration of foreign pupils in Barcelona. At aggregated level, the historical city district (Ciutat Vella) and the neighboring Sants-Montjuïc are the most concentrated areas, followed by the new receiving district of Nou Barris. Concentration of foreign pupils at publicly funded schools greatly

Figure 5.55: Distribution of the enrolled population by sector and share of foreigners at educational centers. Catalonia 2001/02-2007/08



Source: Author's elaboration based on Padrón Continuo (INE).

differs by district, whereas state-sanctioned schools do not experience a significant share of immigrant students among districts.

Table 5.24: Share of pupils enrolled in schools with more than 50 percent of foreigners by origin and district. Barcelona, school year 2007/08.

	State Sanctioned			Public			All		
	Spaniards	Foreigners	All	Spaniards	Foreigners	All	Spaniards	Foreigners	All
Ciutat Vella	0,0	0,0	0,0	29,6	76,4	49,5	12,4	58,3	25,7
Eixample	0,0	10,8	1,4	0,0	0,0	0,0	0,6	5,0	1,0
Sants-Montjuic	1,4	17,9	2,6	6,7	39,0	13,7	4,6	35,7	9,8
Les Corts	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Sarrià-Sant Gervasi	0,0	0,0	0,0	1,5	13,9	2,8	0,2	7,7	0,5
Gràcia	0,0	0,0	0,0	1,4	8,6	2,6	0,5	6,4	1,0
Horta-Guinardó	0,0	0,0	0,0	2,7	18,1	5,9	0,9	13,5	2,3
Nou Barris	0,0	0,0	0,0	10,9	35,3	17,7	5,6	28,8	10,2
Sant Andreu	0,0	0,0	0,0	4,5	25,5	8,7	1,5	19,4	3,4
Sant Martí	0,0	0,0	0,0	0,8	4,0	1,5	0,4	3,6	0,9
Barcelona	0,2	4,2	0,4	5,0	28,7	10,1	1,9	22,6	4,3

Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education).

5.4.6 Residential segregation in Barcelona

The arrival of immigrants from abroad between 2002 and 2006 has increased their presence at the entire territory. As a result, the city's residential segregation –estimated as the Dissimilarity Index (D) - has decreased from 29.9 to 26.4. The low segregation levels could be the result of the complementarity among the different immigrant groups at territorial level. As we might expect, they also experience the decreasing dynamics of the aggregate (see table 5.25). Consistent to the intensity of the inflows, third-country nationals show the most significant decrease among groups, followed by Asians and Africans. Residential segregation for Americans shifted from 27.4 in 2002 to 22.8 in 2008, also experiencing a lowest segregation point in 2006. The rapid change of the estimated values of the Americans' residential segregation is directly linked to the sub-urbanization carried out by this group (Bayona and Gil 2011).

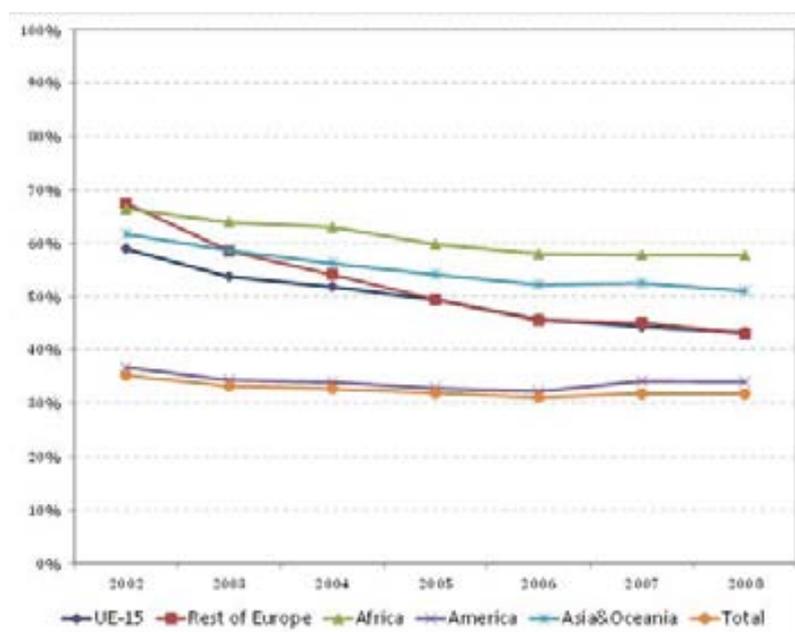
Table 5.25: **Evolution of segregation indexes in Barcelona by origin, 2002-2008.**

	2002	2003	2004	2005	2006	2007	2008	2002-2008
EU-15	36,3	34,4	32,8	32,7	32,6	32,6	32,2	-4,1
Other European	46,5	42,4	41,3	36,0	32,6	29,7	28,8	-17,7
African	54,8	52,5	51,8	50,1	48,7	47,3	46,3	-8,5
American	27,4	24,6	23,9	22,8	21,7	23,1	22,8	-4,6
Asian	57,4	56,0	53,5	50,9	48,6	48,0	48,0	-9,4
All Foreigners	29,9	28,6	27,7	27,2	26,3	26,2	26,4	-3,5

Source: Author's elaboration based on the Padrón Continuo (INE).

The estimation of the residential segregation for the age-group 0-18 shows significantly higher values (figure 5.56). The incidence of differential family migration projects is reflected in the arrival of population at these ages and, therefore, the decrease of the associated segregation index. Such is the case of Americans whose estimated segregation values are the lowest among continental groups given the most numerous population. They also show an increasing trend since 2006 consistent to the aggregate segregation for this group shown on Table 5.25. The rest of the groups show higher segregation values but with a decreasing trend that just remains steady for Africans at the end of the period.

Figure 5.56: Evolution of segregation indexes in Barcelona by origin (age 0-18), 2002-2008.



Source: Author's elaboration based on Padrón Continuo (Idescat).

Table 5.26: Dissimilarity index among continental groups in Barcelona, (age 0-18), 2002-2008.

		2008					
		EU-15	Oth.European	African	American	Asian	Spaniards
2002	EU-15	-	59,9	67,9	56,9	61,8	43,2
	Oth. European	72,8	-	57,9	41,8	59,8	44,7
	African	76,5	71,5	-	51,3	55,0	60,2
	American	64,8	66,1	60,4	-	50,0	35,6
	Asian	67,2	74,3	62,6	61,3	-	52,7
	Spaniards	59,4	68,1	67,5	37,5	62,6	-

Source: Author's elaboration based on the Padrón Continuo (INE).

Finally, the segregation index between groups has been estimated in order to measure the spatial interaction of the above mentioned continental origins. Table 5.26 shows the index for all immigrant groups for the first and the last analyzed years. As we might expect, the lower values shown at 2008 for all groups are related to the generalized increase of the foreign population across the territory. Africans and EU-15 nationals are the ones who interact less at residential level. The lower values shown between Spaniards

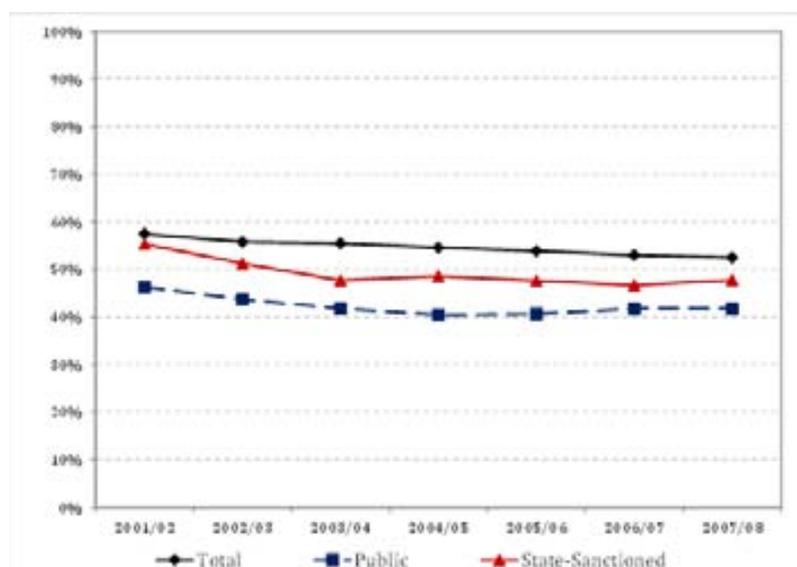
and Americans could be related to the more even territorial distribution of the former compared to the rest of the groups.

5.4.7 School segregation in Barcelona

The public or state-sanctioned school choice process is theoretically constrained by the selection criteria established by law. One of the determinants considered is the proximity criterion. It prioritizes the access of children living nearby or whose parents work in the surrounding area. It does not affect access to private or international schools as they have their own selection criteria. Therefore, if children attend neighboring schools, it seems reasonable to expect that school and residential segregation would be closely related.

Figure 5.7 illustrates the school segregation index between Spaniards and foreigners for the period of analysis. Compared to the values shown by residential segregation index (Figure 6), school segregation is significantly higher. In spite of the generalized increase of the foreign population in the territory, there are mechanisms to promote differential access and permanence in the educational system by origin. In that same line, it is not possible to assume a general pattern of school segregation given the considerable differences by educational sector.

Figure 5.57: **School segregation between natives and foreigners by sector. Barcelona, 2001/02-2007/08.**



Source: Author's elaboration based on the Estadística de l'Educació (Catalan Department of Education).

As we can see on figure 5.57, school segregation deepens while controlling by sector. State-sanctioned schools show the steeper incidence of the differential access to school

Table 5.27: **School dissimilarity index among continental groups in Barcelona. Academic courses 2001/02 and 2007/08**

		2007/2008					
		EU-15	Other European	African	American	Asian	Spaniards
2001/2002	EU-15	-	46,4	62,7	50,3	59,9	50,1
	Other European	52,4	-	48,9	26,5	48,0	50,9
	African	67,9	61,3	-	41,3	42,0	68,8
	American	54,0	42,4	51,9	-	42,1	53,5
	Asian	63,4	57,5	42,1	49,8	-	64,7
	Spaniards	62,3	61,5	75,1	58,3	72,8	-

Source: Author's elaboration based on the Estadística de l'Educació (Catalan Department of Education).

between foreigners and natives. However, results suggest that the higher proportion of non-native pupils enrolled at public educational centers contributes to the lower segregation experienced at this sector. On the other hand, the existence of a divergent segregation pattern between sectors sheds some light on the unequal distribution and concentration mechanisms of the educational system in Catalonia.

Considering the heterogeneous spatial distribution of state-sanctioned centers –concentrated mostly on the Sarrià-Sant Gervasi and Eixample districts–, the results are consistent to those of the Síndic de Greuges (2008) report. The districts with the lowest levels of foreign residents are the ones that experience the higher school segregation levels. The scarce presence of pupils of foreign origin at state sanctioned centers from this districts show the existence of informal barriers to enrollment. Even though state sanctioned centers should apply the same access criteria as publicly funded schools, admission policies are not always applied in practice. Mechanisms like charging for uniforms, extracurricular activities, catering and parent associations are aimed to prevent certain students from enrolling (Bernal 2005). They generate an artificial distribution of the enrolled population, isolating schools from contextual variations. Therefore, we could assume differential school segregation in Barcelona according to the center's provision.

The estimation of the school dissimilarity index by continental origin shows similar results. The analysis of the index estimation results by educational sector (see tables 5.28 and 5.29) could also reflect the preferences of the parents while choosing the school they want for their children. Results suggest that Spaniards is the most isolated population in terms of sharing less territory with the rest of analyzed nationalities. It is particularly with pupils of African or Asian origin that the dissimilarity index for Spaniards exceeds the average. Even if the indicators show a decreasing trend during the analyzed period,

the effect could be mostly related to the foreign population increase instead of a change in enrollment preferences or an increased diversity in real terms.

Despite the antiquity and the settlement process of migrants across the territory, African enrolled population is the one that shows the steepest trend to spatial isolation with respect to the rest of the origins. The analysis by districts (see Annex 1) shows that the distribution of the enrolled population by continental origin follows a pattern close to the aggregate. In those where the majority of centers are state sanctioned, the distribution and estimated segregation measures suggest the existence of barriers for specific immigrant groups. Both estimations of school segregation show the highest segregation at districts where foreign population is scarce, consistent to the Síndic de Greuges (2008) and clearly influenced by the majority of state-sanctioned centers.

Table 5.28: **Public school dissimilarity index among continental groups in Barcelona. Academic courses 2001/02 and 2007/08.**

		2007/2008					
		EU-15	Other European	African	American	Asian	Spaniards
2001/2002	EU-15	-	46,7	57,4	48,1	57,7	39,6
	Other European		-	43,9	22,2	43,7	39,5
	African	62,0	57,2	-	37,2	35,8	55,8
	American	47,1	35,8	48,2	-	38,1	41,8
	Asian	57,6	52,2	35,9	46,5	-	56,5
	Spaniards	49,1	50,6	64,9	45,5	65,0	-

Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education).

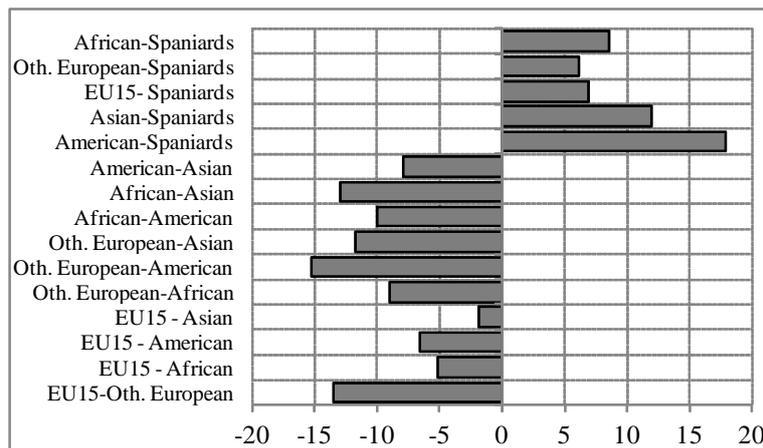
Table 5.29: **State-sanctioned school dissimilarity index among continental groups in Barcelona. Academic courses 2001/02 and 2007/08.**

		2007/2008					
		EU-15	Other European	African	American	Asian	Spaniards
2001/2002	EU-15	-	41,3	67,0	51,8	63,4	52,7
	Other European	49,8	-	65,0	38,2	59,0	48,8
	African	79,2	71,0	-	56,0	54,8	70,7
	American	63,5	56,5	68,7	-	52,1	49,3
	Asian	72,0	69,5	57,7	58,6	-	64,1
	Spaniards	68,4	65,4	79,9	55,3	76,3	-

Source: Author's elaboration based on the *Estadística de l'Educació* (Catalan Department of Education).

On the other hand, Latin Americans –main origin of the recent inflows– shows an increased participation at the educational system regardless sector or district. This fact could be probably related to the most numerous inflows or the better social perception of this group, especially considering that they are proficient in one of the two official languages. Therefore, it is possible to observe a more homogeneous distribution within districts and between analyzed groups. We must also consider that their acceptance among Spaniards could be related to the increased dual citizenship among Latin Americans. Thus, some pupils registered as Spaniards could be of Latin American origin.

Figure 5.58: Differences between residential and school segregation indexes. Barcelona, 2008 and school year 2007/08.



Author's elaboration based on the Estadística de l'Educació 2007/08 and Padrón Continuo 2008. Catalan Department of Education and Idescat.

There are significative differences between the residential and school dissimilarity indexes (tables 5.26 and 5.27) while controlling by age-group. Figure 8 shows the difference between both indexes' estimations. Results show a clear divergence of segregation patterns at residential and educational level. First, children of immigrants are more segregated with respect to natives at school than at residential level. Second, among immigrants, school segregation is lower than its residential counterpart. The school dissimilarity index calculation between Americans and non-EU15 Europeans is 15 points lower than at residence level, whereas between Africans and Asian-Oceanic youth is 13. The smallest difference (close to two points ?) is find between EU15 nationals and Asian-

Oceanics. In sum, steepest differences with respect to natives and moderates' among immigrants characterize the distributions of the enrolled and the residential populations' in Barcelona.

5.4.8 Discussion

Immigrants who arrived at the beginning of the most recent migratory wave were concentrated at young working ages. In time, the settlement process and their demographic behavior has increased the diverse composition of the foreigners. Family reunion and demographic dynamics are the mechanisms behind the growing share of children and youngsters also reflected in the educational system.

Even though the growing share of foreigners has also been reflected in the enrolled population, results show that their access and permanence have been constrained. Formal –as available places once the academic year has started- and informal barriers allowed by current legislation have directly affected the integration of children of immigrants resulting in the lack of educational opportunities compared to natives.

One of the most relevant results is the contradiction between the territorial dispersion of foreigners at residential level and their segregation at schools. Residential segregation indexes by age are higher than the aggregate –possibly related to the sample size- but results are still better than those exhibited by school segregation estimations. The most significant difference is shown in Latin Americans. Their more even distribution at residential level is not reflected at the enrolled population, where their segregation levels are close to the ones experienced by the rest of the immigrant groups. However, we must stress that results –especially school segregation indexes- could be underestimated. Nationalization of Latin Americans at younger ages suggest an underestimation of the real segregation of this groups, and therefore, of the aggregate.

The differences between groups across the city, partially based on their diverse socio-economic characteristics, disappear at school level. Though Latin Americans are apparently benefited by language proficiency and a higher proportion of nationals with higher educational and occupational levels; there is a clear preference of natives against schools with higher proportion of immigrants. Consequently, some educational centers experience their ghettoization especially in those more economically depressed areas.

Based on the results and in order to avoid the social exclusion of the younger generation of migrants linked to the lack of educational opportunities, it is necessary to develop an effective regulation on access to education. False registrations to grant access to more preferred educational centers and the violation of school selection regulation directly affects the concentration of children of immigrants in schools not preferred by natives. The resulting school segregation between nationals and foreigners is not noticed among immigrant groups product of their concentration.

Mandatory school represents not only an educational policy instrument but another step for the social integration of immigrants in the host society. Therefore, perpetuating –and especially, validating- a segregated educational system would reinforce the existence of ghettoized schools and the scarce interaction between immigrants and natives.

With respect to instruments, other municipalities –as Vic- have implemented measures against school segregation as establishing quotas and artificially distributing pupils of foreign origin among schools. Apparently direct intervention is the only effective measure among those tested to improve the distribution –and therefore, the integration- of foreign pupils among schools.

Policies have been traditionally referred to the distribution of foreign pupils, however, there is practically no information or mechanisms addressed to the host society. In that sense, redistribution of the enrolled population should also consider natives. Segregated and concentrated schools should also include centers where native population has developed barriers to block the entrance of foreigners. Successful integration and access to opportunities instruments should also integrate natives. Integration is a two-way process where both populations have to adapt themselves to each other. In that same line, it is important to develop policies focused in the social perception of immigrant pupils. Children born or educated at early ages in the host country should not be targeted for integration programs. They have received the same education as natives. In general, policy-makers should consider developing programs against the negative social perception of immigrants and should also broaden the targets for social policies. Specifically referred to education, given that educational outcomes are not public, changing the social perception of children of immigrants as harm to the educational attainment of natives should decrease the incentives to the white flight phenomenon experienced during the last years.

5.5 Conclusions

Chapter 5 was devoted to the first approximation to the empirical investigation on the school segregation phenomenon in Catalonia. By considering how information and preferences influence school-choice decisions, we were able to interpret the results not only as a consequence of the territorial settlement of the foreign population across the territory but of the interaction between the variables. In that line, we have assumed that student allocations in the school strata by sector is a reflection of familiar preferences and policy instruments. On the one hand, households' preferences might be a clear determinant in the enrollment process of -mostly- natives who are allowed to actively participate in the allocation of public -and semi-public- educational resources while being part of pre-enrollment processes. That is, natives are able to actively participate not only in the pre-enrollment process but in school activities mostly because they have access to information that in some cases foreigners don't. Of course that information is public, but having limited access to networks and resources is reflected by the lower participation of non-nationals in the school life.

On the other, policy instruments would influence what could be considered as the *natural* distribution of foreign pupils particularly when children arrive once the school year has started or in those municipalities in which central planners have established a minimum share of foreign pupils that must be fulfilled. These considerations have allowed us to consider and interpret school segregation and the distribution of children as a reflection of the spatial assimilation of the younger foreign population. In that sense, the relevance of the school segregation phenomenon in integration policies addressed to the immigrant population should be considered for their design and evaluation of social integration policies.

Results suggest that school segregation estimations would be directly linked to the spatial dimension used. Unlike previous studies, we have conducted our analysis at three different territorial levels namely: Autonomous Community, Province and Municipality. Depending on the territorial unit considered, results may hidden or underestimate the existence of schools that might be considered as problematic or dysfunctional in terms of the limited resources available and the high concentration of students well of foreign origin or, for example, in risk of exclusion. Nevertheless, we must stress that the existence of this centers is not necessarily linked to familiar or collective strategies in order to constrain or avoid the access of pupils of foreign origin or social background. We must consider that households also incorporate subjective measures on the educational quality, installations, confesional preferences and values of the educational centers available in the decision-making process. We have listed educational quality as a subjective measure given the

absence of a public database on academic outcomes or academic indicators in Catalonia. Therefore, we must also consider that household preferences could have remained steady in time and that the concentration of natives in specific schools could have existed before the arrival of international migration inflows. As a result, the only available places to be fulfilled by children arriving once the school year has started were those of the centers already considered as *unwanted* by natives.

Part III

Chapter 6

Exploratory analysis

Families and individuals, as in every decision-making process, would seek to maximize their utility according to their preferences while minimizing the associated costs. As we might expect, preferences in education-related decisions would be affected by age and the corresponding educational stage. For the younger at compulsory ages, familiar decision-making processes would be focused in seeking the educational center that fulfills their preferences in terms of quality, values, academic outcomes and, to some of them, the composition by origin of the children enrolled. For older ages and particularly adults, investments in education would represent the instrument for accessing job opportunities that require higher qualifications. Their additional opportunity costs could be reflected by the potential income loss at individual and familiar level. For migrants, in addition, accessing especialization courses or adult education would contribute to solve the skill transferability problem at destination. Therefore, investments in education at the host country would allow migrants to offer their real human capital allocation in the labor market.

In previous chapters we have explored the structure and composition of the enrolled population in Catalonia, as well as the territorial distribution and interactions of the pupils according to their origin. However, we have left aside which are the determinants of the educational attainment reached, as well as those variables that could affect school segregation and are available in alternative datasources.

The aim of this section is to analyze, first, which contextual variables could explain school segregation at municipal level. Second, by analyzing data from the 1991 and 2001 Spanish Census, we will study the determinants of educational investments to illustrate the conditions previous to the intense arrival of infloes from abroad after 2001. Finally, we will approach the incidence of international migration in educational investments of the foreign-born population based on the Enquesta Demogràfica 2007 (2007 Demographic

Survey) database.

6.1 Determinants of school segregation

How the enrolled population is distributed in the territory and across public and state-sanctioned institutions is mostly based on familiar choices and the incidence of school zoning policies. For those territories in which only one educational center is available, and depending on the existence of alternative schools in the surrounding municipalities, familiar preferences would not affect school-choice. In that sense, the determinants of the distribution would not only rely on familiar preferences but on available infrastructures at the place of residence.

The increased demand of education experienced after the arrival of children from abroad and the recovery of fertility in Spain could have reinforced the differential access to educational opportunities between Spaniards and foreigners. In particular, because of the lack or absence of complete information of the newcomers, thus generating disadvantages since the enrollment process. Nevertheless, the phenomenon of school segregation in Spain and Catalonia should not be exclusively considered as a result of strategic behavior of natives but, to some extent, a consequence of the delayed reaction of policy. School segregation is -as a matter of fact- not new. Insofar the existence of school segregation by origin could be considered as a recent phenomenon but socioeconomic segregation of the enrolled has been part of the educational system as well. Following the arrival and settlement of foreigners in areas or neighborhoods often considered as economically depressed, could have increased -or simply fulfilled- the demand of education in those centers who were negatively perceived before. In some cases, those were the only centers with available places once the academic year has started and therefore, the increased enrollment of foreign pupils in a limited number of schools could lead to concentration levels that are not related to the desertion of natives for *ethnic* reasons or ‘white flight’.

One of the question that arises while studying school segregation is to what extent could we talk about socioeconomic determinants as part of the mechanisms behind the phenomenon. The spatial distribution of the population -not only of foreign origin- could be determined by the main characteristics of the local societies and the social stratification experienced across the territory. In that sense, the settlement of the immigrant population has been traditionally linked to areas with lower housing prices given their lower available income. Nevertheless, this assumption is not only applicable to migrants but to natives with similar socioeconomic background.

The aim of this section is to analyze the possible effects of contextual variables in school segregation at municipal level. Even when the inclusion of municipal variables could be considered as non-representative for the entire residing population in a specific municipality, the non-university enrollment database used does not allow for more detailed analysis. The absence of data that encompasses information about pupils and their parents, or at least the definition of the related catchment areas represent one of the most significant constraints not only to our analysis but for the evaluation of policy effectiveness.

6.1.1 Data

As the study will be based in the previous school segregation results, this section could be considered as a natural extension of the previous chapter. In order to maximize the sample size, we will only estimate the model for total school segregation in the 154-municipality sample without differentiating by educational sector. Consistent with the school segregation methodology used, we will estimate the residential segregation in Catalonia using data from the Padrón Continuo (Idescat) for the period between 2001 and 2008 (see section 6.1.S for the results). Table X shows the basic characteristics of the data by municipality used.

The analysis of the contextual and socioeconomic determinants of the school segregation in Catalonia at municipal level has temporary and spatial limitations as main constrains. On one hand, some of the more detailed indicators are based on the 2001 Census database and therefore, are not annually updated. On the other, when data is available, we cannot differentiate by origin.

One of the variables that reflects or captures the available monetary resources at individual and familiar level is perceived income. Depending on the access to financial markets, it would settle the budgetary restriction and, therefore, it would directly incide in the school choice process. Depending on available resources, families could also consider private or state-funded educational centers for their children instead of constraining their choice to publicly-funded schools. For some of them living in smaller municipalities, higher income would also open the door to considering educational centers in the surrounding municipalities.

Even though the enrollment in public and state-sanctioned schools is theoretically regulated and determined under specific criteria which includes school proximity, it is well known that it is not always respected by families seeking to enroll their children in their most preferred school regardless their location. In that sense, some of the mechanisms

Table 6.1: Sample characteristics: Enrolled and residential population in Catalonia. Selected municipalities 2008

Municipality	Municipal register at January 1, 2008			Enrollment during Course 2007/08		
	Resident population	% Foreign	Census tracts	Enrolled population	% Foreign	Schools
Abrera	11,278	9.47%	6	965	7.88%	2
Alcanar	10510	26.56%	7	1,186	24.37%	3
Alella	9,260	9.01%	4	1,946	3.19%	4
Almacelles	6,295	12.63%	4	732	17.35%	2
Amposta	20652	18.43%	12	3,754	15.85%	8
Arenys de Mar	14,449	10.97%	7	2,199	8.28%	3
Arenys de Munt	8,023	5.70%	4	840	3.93%	2
Argentona	11,544	4.51%	5	1,304	3.68%	4
Badalona	215,329	13.18%	160	31,926	13.91%	71
Badia del Vallès	13,829	5.93%	12	1,988	8.95%	6
Balaguer	16,341	20.77%	9	2,875	18.26%	8
Banyoles	17,917	19.86%	12	3,509	19.98%	8
Barberà del Vallès	30,271	6.22%	22	3,419	7.25%	7
Barcelona	1,615,908	16.91%	1,482	215,220	11.46%	453
Berga	17,072	15.55%	13	2,399	16.47%	8
Blanes	39,107	17.34%	21	5,270	15.77%	10
Calafell	22939	18.33%	7	2,019	24.42%	3
Caldes de Montbui	16,518	10.16%	8	2,688	6.99%	4
Calella	18,615	24.13%	8	3,567	16.93%	5
Calonge	10,428	25.38%	5	1,009	22.10%	3
Cambrils	30,956	21.25%	14	3,415	16.78%	6
Canet de Mar	13381	9.26%	8	1,579	12.10%	4
Canovelles	15,816	22.60%	8	1,652	29.60%	4
Capellades	5,458	6.06%	3	1,326	6.86%	3
Cardedeu	16102	8.04%	8	2,315	9.24%	5
Cardona	5,176	5.06%	5	614	2.93%	4
Cassà de la Selva	9,256	13.71%	5	1,675	9.13%	3
Castellar del Vallès	22,626	5.45%	13	2,524	4.24%	7
Castellbisbal	11,795	7.08%	6	986	7.61%	2
Castelldefels	60,572	21.97%	26	6,647	16.96%	15
Castell-Platja d'Aro	10,150	30.23%	5	1,060	26.51%	3
Centelles	7,133	5.64%	4	1,405	6.05%	3
Cerdanyola del Vallès	58,493	9.93%	29	8,373	7.21%	18
Cervera	9,247	21.80%	5	1,645	22.19%	4
Constantí	6,401	23.03%	3	1,514	16.18%	5
Corbera de Llobregat	13,435	10.46%	11	1,538	12.48%	3
Cornellà de Llobregat	85180	15.71%	70	9,920	16.81%	24
Deltebre	11,445	10.79%	6	1,515	12.15%	4
El Masnou	22,066	8.40%	14	3,342	7.36%	10
El Prat de Llobregat	62,899	8.96%	39	8,049	9.31%	21

Source: Author's elaboration based on the *Padrón Continuo (Idescat)* and the *Estadística de l'Educació no Universitària 2007/08 (Catalan Department of Education)*.

used by families include registering their children as residents in a dwelling that fulfills the established requirements. Nevertheless, for international or private centers criteria are settled by the center itself (see Chapter 3). As we have mentioned before, preferences

Table 6.2: Sample characteristics: Enrolled and residential population in Catalonia. Selected municipalities 2008

Municipality	Municipal register at January 1, 2008			Enrollment during Course 2007/08		
	Resident population	% Foreign	Census tracts	Enrolled population	% Foreign	Schools
El Vendrell	34,931	15.90%	16	4,752	14.52%	7
Esparreguera	21,451	8.51%	11	3,059	6.73%	8
Esplugues de Llobregat	46,586	13.05%	29	7,092	11.84%	16
Figueres	42,809	26.80%	25	7,364	19.51%	15
Gavà	45,190	10.79%	28	7,630	7.05%	14
Girona	94,484	19.70%	59	18,950	13.21%	34
Gironella	5,016	9.45%	4	696	13.94%	5
Granollers	60,122	18.51%	39	10,905	13.76%	21
Igualada	38,164	12.49%	26	7,901	9.10%	17
La Bisbal d'Empordà	10,173	21.74%	6	1,812	25.11%	4
La Garriga	14,585	8.14%	7	3,585	5.63%	8
La Llagosta	13,645	13.63%	9	1,961	15.04%	6
La Roca del Vallès	10,032	5.08%	5	1,063	5.27%	3
La Sénia	6,225	22.02%	3	901	14.98%	2
La Seu d'Urgell	12,986	16.38%	7	2,498	22.50%	5
Les Borges Blanques	5,942	12.17%	4	1,278	10.80%	4
Les Franqueses del Vallès	16,978	11.13%	6	1,194	12.06%	2
L'Escala	9,829	29.50%	5	1,030	27.09%	2
L'Hospitalet de Llobregat	253,782	21.42%	226	31,939	23.26%	74
Llagostera	7,614	16.06%	4	972	20.06%	3
Lleida	131,731	18.23%	82	22,878	13.26%	51
Lliçà d'Amunt	13,809	3.42%	8	1,602	2.18%	4
Llinars del Vallès	8,839	8.82%	5	1,966	6.71%	4
Lloret de Mar	37,734	39.58%	14	3,707	25.52%	6
Malgrat de Mar	18,261	12.19%	7	2,837	8.28%	6
Manlleu	20,505	23.00%	12	3,382	24.28%	6
Manresa	75,053	16.06%	53	11,069	14.77%	21
Martorell	26,169	17.15%	15	4,291	14.24%	8
Matadepera	8,460	2.62%	4	1,794	0.45%	3
Mataró	119,780	15.56%	77	19,140	14.99%	35
Molins de Rei	23,828	5.51%	12	3,711	4.99%	10
Mollerussa	13,675	26.54%	6	3,264	19.00%	7
Mollet del Vallès	51,912	14.04%	31	9,113	10.84%	16
Montblanc	7,069	11.83%	5	1,240	7.50%	3
Montcada i Reixac	32,750	10.86%	16	4,842	9.48%	12
Montgat	10,059	5.46%	4	1,620	3.58%	3
Montmeló	8,870	8.02%	5	1,335	6.97%	3
Montornès del Vallès	15,058	14.88%	8	1,588	21.85%	4
Mont-roig del Camp	11,131	30.17%	5	1,237	24.33%	3
Navàs	6,133	9.36%	5	982	3.05%	3

Source: Author's elaboration based on the *Padrón Continuo (Idescat)* and the *Estadística de l'Educació no Universitària 2007/08 (Catalan Department of Education)*.

in the school decision processes would not only be focused in the concentration or the presence of pupils of foreign origin. They also include academic performance, school installations and the quality of education, even though most of these indicators are based

Table 6.3: Sample characteristics: Enrolled and residential population in Catalonia. Selected municipalities 2008

Municipality	Municipal register at January 1, 2008			Enrollment during Course 2007/08		
	Resident population	% Foreign	Census tracts	Enrolled population	% Foreign	Schools
Olesa de Montserrat	22,914	9.57%	9	3,557	10.04%	7
Olot	32,903	18.81%	21	5,991	19.30%	12
Palafugell	22,109	24.25%	11	3,252	22.69%	7
Palamós	17,766	16.04%	11	2,998	12.04%	5
Palau-solità i Plegamans	13,916	6.78%	8	2,267	6.00%	5
Pallejà	11,011	7.13%	5	1,566	4.92%	5
Parets del Vallès	17,224	8.04%	11	2,757	6.57%	6
Piera	14,025	6.12%	7	1,812	7.34%	4
Pineda de Mar	25,931	17.26%	13	2,758	17.59%	8
Premià de Dalt	9,867	7.75%	6	1,495	9.03%	4
Premià de Mar	27,545	12.36%	16	3,696	12.85%	9
Puigcerdà	9,365	22.97%	5	1,640	20.37%	3
Reus	107,770	19.14%	73	17,941	16.69%	33
Ripoll	11,012	8.97%	9	1,736	9.74%	6
Ripollet	36,255	10.89%	20	4,762	9.95%	12
Riudoms	6,385	13.75%	4	1,224	14.79%	2
Roda de Ter	5,863	10.64%	4	728	17.17%	2
Roquetes	7,987	14.69%	4	1,311	16.48%	3
Roses	19,463	35.89%	9	3,005	24.83%	6
Rubí	71,927	13.64%	34	9,400	15.94%	19
Sabadell	203,969	11.95%	145	32,511	10.41%	73
Sallent	7,061	4.83%	8	933	7.07%	4
Salou	25,754	40.26%	10	2,376	21.09%	4
Salt	28,763	39.20%	16	3,479	40.07%	9
Sant Adrià de Besòs	33,223	7.62%	24	4,898	6.51%	9
Sant Andreu de la Barca	26,279	11.64%	8	3,534	12.20%	7
Sant Andreu de Llavaneres	10,009	10.10%	6	1,417	10.52%	3
Sant Boi de Llobregat	81,335	8.82%	51	12,557	8.07%	26
Sant Carles de la Ràpita	15,307	21.74%	10	2,038	17.81%	4
Sant Celoni	16,586	12.09%	9	2,427	10.09%	6
Sant Cugat del Vallès	76,274	12.84%	39	14,707	6.71%	21
Sant Feliu de Guíxols	21,726	17.66%	12	3,137	15.88%	7
Sant Feliu de Llobregat	42,628	8.50%	31	6,142	7.29%	12
Sant Fost de Campsentelles	7,939	3.19%	4	1,020	4.02%	2
Sant Fruitós de Bages	7,782	6.17%	4	1,364	6.82%	4
Sant Hilari Sacalm	5,744	14.90%	3	635	16.85%	3
Sant Joan de Vilatorrada	10,661	8.66%	5	1,495	7.56%	3
Sant Joan Despí	31,647	7.30%	21	3,941	8.86%	10
Sant Just Desvern	15,365	11.23%	9	2,514	4.93%	6
Sant Pere de Ribes	28,066	14.93%	17	2,395	14.03%	5

Source: Author's elaboration based on the *Padrón Continuo* (Idescat) and the *Estadística de l'Educació no Universitària 2007/08* (Catalan Department of Education).

on subjective criteria given the absence of a public database of academic indicators of schools.

Given that we do not have access to the individual records of the enrolled children

Table 6.4: **Sample characteristics: Enrolled and residential population in Catalonia. Selected municipalities 2008**

Municipality	Municipal register at January 1, 2008			Enrollment during Course 2007/08		
	Resident population	% Foreign	Census tracts	Enrolled population	% Foreign	Schools
Sant Quirze del Vallès	18,225	4.42%	12	1,998	3.40%	5
Sant Sadurní d'Anoia	11,909	8.46%	8	2,614	4.97%	4
Sant Vicenç de Castellet	8,275	6.91%	5	1,494	9.64%	4
Sant Vicenç dels Horts	27,461	7.87%	20	4,422	6.24%	12
Santa Coloma de Farners	11,412	15.48%	6	2,030	16.70%	3
Santa Coloma de Gramenet	117,336	19.50%	99	14,099	21.87%	36
Santa Margarida de Montbui	9,778	9.81%	7	1,117	14.95%	4
Santa Maria de Palautordera	8,614	11.56%	3	983	10.38%	3
Santa Perpètua de Mogoda	24,325	9.86%	14	3,352	8.68%	7
Santpedor	6,787	5.97%	4	916	6.44%	3
Sitges	27,070	24.37%	14	2,876	14.39%	5
Solsona	9,166	18.02%	5	1,841	14.39%	4
Súria	6,454	8.48%	5	858	5.59%	4
Tarragona	137,536	16.55%	89	23,542	12.72%	41
Tàrraga	16,149	21.41%	11	2,914	18.60%	9
Terrassa	206,245	13.54%	136	29,360	13.34%	60
Tona	7,805	8.92%	3	1,522	8.67%	4
Tordera	14,800	8.47%	7	1,544	7.45%	5
Torelló	13,680	11.84%	8	1,941	13.24%	5
Torredembarra	15,056	19.37%	7	2,366	16.65%	4
Torroella de Montgrí	11,441	29.77%	6	2,043	25.26%	4
Tortosa	35,734	21.13%	24	5,800	17.78%	14
Tremp	6,190	16.77%	5	1,208	15.31%	4
Ulldecona	6,987	29.07%	5	899	29.25%	2
Vallirana	13,752	6.70%	7	1,598	6.20%	4
Valls	24,710	14.50%	15	4,696	12.39%	11
Vic	38,964	23.00%	26	7,471	17.51%	12
Viladecans	62,573	8.03%	44	8,341	9.10%	18
Vilafranca del Penedès	37,364	16.59%	21	6,711	13.99%	14
Vilanova del Camí	12,428	9.15%	5	1,322	15.36%	3
Vilanova i la Geltrú	64,905	13.34%	39	9,374	10.86%	19
Vila-seca	20,039	19.28%	10	2,687	17.57%	7
Vilassar de Dalt	8,621	4.76%	6	1,442	4.58%	4
Vilassar de Mar	19,090	8.58%	15	2,470	6.80%	6

Source: Author's elaboration based on the Padrón Continuo (Idescat) and the Estadística de l'Educació no Universitària 2007/08 (Catalan Department of Education).

or their families, we will use the reported income from the annual tax declaration at municipal level (Idescat). More specifically, it would be used as a proxy of the individual permanent income for each of the 154 municipalities included in our sample. Even though this measure is clearly reflecting an average and therefore, minimizing the existent gap in the local society, we have considered that its inclusion would allow more feasible results than per capita GDP. In that sense, the reported income per municipality would be closer to the perceived income instead of incorporating the bias generated by the

estimation of per capita GDP. As data does not differentiate by origin or by any other individual characteristics beyond place of residence, we will not examine whether ethnic and racial income disparities contribute to the differences in attendance. Table 6.5 shows the descriptive statistics for this variable.

Table 6.5: **Descriptive statistics for Reported Income. Catalonia, 2001-2008**

	2001	2002	2003	2004	2005	2006	2007	2008
Mean	11,517.40	12,159.79	15,174.14	15,755.06	16,634.41	12,159.79	17,800.49	19,577.03
Standard Error	319.56	324.99	332.98	336.71	350.11	324.99	370.87	350.60
Minimum	6213.00	6813.00	9270.00	10270.00	10812.00	6813.00	11851.00	13733.00
Maximum	32916.00	33771.00	36680.00	36352.00	38491.00	33771.00	41998.00	40185.00
Confidence level (95%)	631.33	642.06	657.84	665.19	691.68	642.06	732.70	692.65

Source: Author's elaboration based on Idescat.

The inclusion of unemployment rates would serve as a proxy of the temporary income at municipal level. Changes in transitory income are subsequently reflected in expected income deviations. In that sense, unemployment would allow us to approximate the effect of the variations of the expected income in school choice. In terms of opportunity costs, increased unemployment rates would motivate the re-evaluation of future income. If individuals -and families- experience changes in their future expected income, this could lead them to deviations of their original school choice decisions. However, the effect would also depend on age. For example, for the younger members of the family, increased unemployment rates would motivate them to remain in the educational system given the scarce opportunities.

We will consider the ‘unemployment as percentage of the potentially active population’ (*paro registrado en porcentaje de la población económicamente activa*) provided by the 2011 Spanish Economic Yearbook (La Caixa). The estimation uses the number of registered unemployed at the *Sistema Público de Empleo Estatal* -Spanish National Public Employment Service-, SEPE, related to the potentially active population between 15 and 64 years of age. The former is based on the data reported by the Continuous Register at January 1.

The impossibility to estimate an unemployment rate based on the active population provided by the Labor Force Survey (INE) is related to the Survey's design. Based on a sample of municipalities, it does not cover the entire Spanish territory and would provide inconsistencies for the analyzed years. As the inclusion of this variable was aimed at characterizing the socioeconomic conditions at local level rather than analyzing the relative weight of unemployment across the territory, we have chosen the inclusion of the variable estimated by La Caixa. In that sense, we must stress that the unemployment as

percentage of the potentially active population is the result of an estimation and not an unemployment estimation published by the Sistema Público de Empleo Estatal.

Even when the number of variables included may seem irrelevant, we have performed additional estimations that included other regressors or indicators that could be used as efficient regressors or instrumental variables in our analysis.

6.1.2 Interaction between school and residencial segregation at municipal level

Based on the characteristics of the local educational system, as well as the requirements established for enrollment, we might expect that the composition and distribution of the enrolled would be to some extent similar or at least related to that of the resident population. Residential segregation, understood as the degree to which social or ethnic groups live physically separated could influence the degree of school segregation, particularly in those areas in which the concept of neighborhood schools still apply.

In order to analyze to what extent the characteristics of the resident population are reflected in schools, we have calculated the residencial segregation index at municipal level. Given the absence of detailed information of the children enrolled (as exact place of residence or age) and the exact definition of the school catchment areas, we will assume that pupils reside in the same municipality in which they are enrolled. Even when this assumption could be considered as arbitrary, we have considered that the municipal analysis would provide better estimations instead of focusing the research using a smaller scale thus incurring in a more significant bias. That is the case when, having determined the exact location of each educational center in the territory, enrolled population is contrasted with those residents living in the surrounding census tracts. Particularly for those schools whose location was defined by urbanistic plans or by the previous socioeconomic configuration of a specific area in which the characteristics of the current residents do not match those of the enrolled.

The calculation of the residencial segregation has been performed for the 154 municipalities with more than 5,000 inhabitants according to the 2001 Spanish Population Census that have been explored in previous sections. In order to perform the estimation, we used the Padrón Continuo (Idescat) database for the period between the years 2001 and 2008. The database contains the total resident population by origin and census tract.

Census tracts represent the smallest territorial unit for which population data are available, and their territorial definition is annually updated. Therefore, the number

of census tracts would not be constant in time. Specifically for our 154-municipality sample, the number of census tracts included decreased from 4,386 in 2001 to 4,322 in 2008. In terms of population, they accounted 5,473,216 residents in 2001 and 6,243,479 in 2008. The resident population reflected in the Padrón Continuo database is referenced to January 1 of each year. Even when this does not represent the exact date of enrollment, we will assume that it reflects the average or mid year resident population by considering the school year as annual reference instead of natural years.

For consistency between residential and school indicators, we have followed the definition of the segregation index (Duncan and Duncan 1955a,b). The residential segregation the index could be defined as:

$$S = \frac{1}{2} \sum_{i=1}^N \left| \frac{x_i}{X} - \frac{t_i - x_i}{T - X} \right| \quad (6.1)$$

where:

x_i = population of the group X in the census tract i .

X = population of the group X in the municipality.

t_i = total population in the census tract i .

T = total population in the municipality.

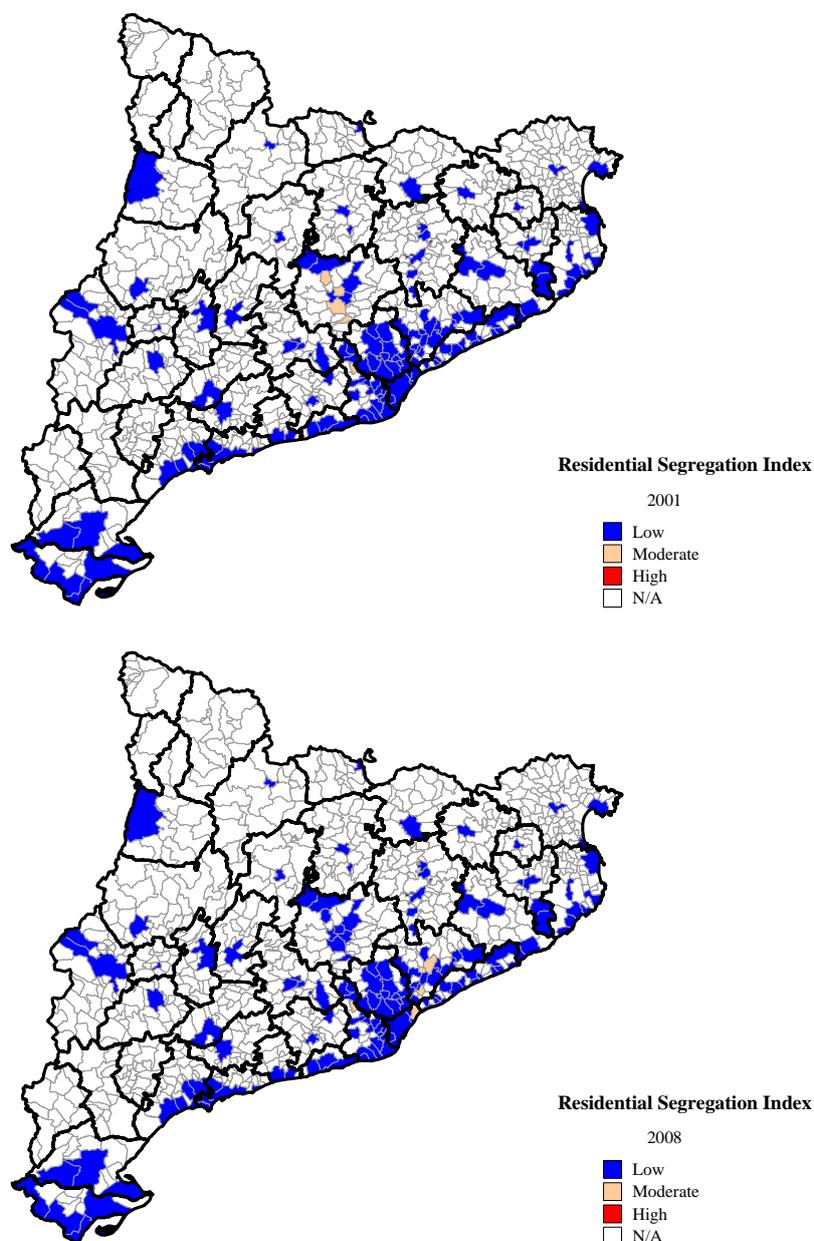
N = census tracts in the municipality.

As explained in Section 5.2.2, the segregation index will take values between zero and one, indicating an evenly distributed or maximally segregated population respectively. Following the definition used in the previous chapter, we will consider three intervals for the segregation scores in order to classify them as low (0-40), moderate (40-60) and high (60-100). Figure 6.1 and Table 6.1 show the scores for municipalities over 50,000 inhabitants for the period between 2001 and 2008.

As we can observe on Figure 6.1, at first sight, there are apparently no significant differences of the residential segregation at territorial level at 2001 and 2008. Nevertheless, the use of the same intervals defined in the previous chapter could also hide a high-variance distribution.

The lower scores obtained for the residential segregation could be directly linked to the more dispersed distribution of the foreign population in the territory and the subsequent

Figure 6.1: Residential Segregation Index between natives and foreigners 2001-2008



Note: Low indicates values lower than 0.3; Moderate for values between 0.3 and 0.6; and High for values greater or equal to 0.6 *Source: Author's elaboration based on the Padrón Continuo (Idescat).*

higher interaction among groups. In order to give a brief overview of the differences between residential and school segregation, table 6.2 shows the basic characteristics of both indicators. The results obtained show an improvement of the average segregation

Table 6.6: Residential segregation index (RSI): Selected municipalities. Catalonia, 2001-2008.

Municipality	RSI-01	RSI-02	RSI-03	RSI-04	RSI-05	RSI-06	RSI-07	RSI-08
Badalona	37.06	35.10	35.51	38.36	40.92	35.10	42.57	41.27
Barcelona	30.71	29.91	28.61	27.74	27.17	29.91	26.35	26.24
Castelldefels	27.03	23.11	20.51	19.08	19.18	23.11	17.67	16.92
Cerdanyola del Vallès	20.56	20.26	23.15	22.66	24.23	20.26	26.24	26.82
Cornellà de Llobregat	33.95	29.41	30.46	30.19	29.59	29.41	30.22	30.51
El Prat de Llobregat	21.67	21.07	21.16	21.02	20.88	21.07	20.59	20.03
Girona	32.18	30.47	30.57	30.69	28.90	30.47	28.09	27.03
Granollers	21.87	22.60	21.14	20.86	21.91	22.60	23.03	23.46
L'Hospitalet de Llobregat	29.99	28.53	29.31	29.89	30.41	28.53	30.93	30.87
Lleida	31.36	31.25	30.72	31.00	31.45	31.25	28.93	27.38
Manresa	42.71	39.49	36.12	33.46	30.05	39.49	28.88	26.42
Mataró	34.30	34.01	32.98	33.50	33.73	34.01	33.97	34.55
Mollet del Vallès	19.88	22.33	23.75	24.72	25.80	22.33	27.41	27.22
Reus	28.94	28.08	28.31	29.05	29.41	28.08	29.29	28.54
Rubí	19.72	19.47	20.33	22.20	23.50	19.47	24.92	26.40
Sabadell	23.54	24.01	21.01	21.83	22.73	24.01	24.04	25.98
Sant Boi de Llobregat	24.33	24.93	23.25	23.44	23.10	24.93	21.84	20.85
Sant Cugat del Vallès	14.14	14.16	15.35	16.59	17.29	14.16	16.92	18.59
Santa Coloma de Gramenet	29.56	27.23	25.96	26.73	28.74	27.23	30.12	31.31
Tarragona	26.96	24.60	23.02	24.73	25.33	24.60	27.23	27.37
Terrassa	28.54	27.62	28.43	29.75	30.18	27.62	31.24	31.79
Viladecans	28.39	28.24	27.20	25.28	26.03	28.24	24.75	24.30
Vilanova i la Geltrú	22.41	22.27	22.12	21.16	21.39	22.27	23.18	22.84
Catalonia	34.20	32.53	31.41	30.76	30.56	30.58	30.65	30.73

Source: Author's elaboration based on the *Padrón Continuo* (Idescat).

scores, resulting in a decrease of almost ten points at school level.

Figure 6.2 shows the scatter plot for the calculated residential and school segregation scores in 2001 and 2008. The disperse depicted indexes suggests a low correlation between the variables. The correlation coefficients between the variables also experience a decrease in time (from 0.28 in 2001 to 0.18 in 2008), thus suggesting that the relation is not only weak but that there could be additional variables affecting the school segregation rather than its residential counterpart.

However, we must remember that correlation is not the same as causality. Following Granger (1969), the causality between two temporal variables X_t and Y_t is defined in terms of predictability. That is variable Y_t is said to cause another variable X_t if X_{t+1} could be better predicted by using the information provided by Y than not doing so. In that sense, given the characteristics of the data and the limited horizon provided by the database, we cannot test the existence of a causal relation between residential and school segregation with consistent results. Nevertheless, we must not forget that the absence of

Table 6.7: **Descriptive statistics for the Residential and School Segregation index. Catalonia, 2001-2008**

Residential Segregation								
	2001	2002	2003	2004	2005	2006	2007	2008
Mean	23.42	22.74	22.31	21.91	21.33	20.99	20.93	20.89
Standard Error	0.68	0.64	0.63	0.63	0.65	0.66	0.67	0.66
Variance	71.52	63.75	61.29	60.60	65.05	67.59	68.67	67.23
Minimum	4.05	6.69	4.91	5.51	5.14	5.44	5.36	6.63
Maximum	48.32	42.77	43.97	43.49	45.55	46.43	47.30	48.66
Confidence Interval (95%)	(23.42 +/- 1.35)	(22.74±1.27)	(22.31±1.25)	(21.91±1.24)	(21.33±1.28)	(20.99±1.31)	(20.93±1.32)	(20.89±1.31)

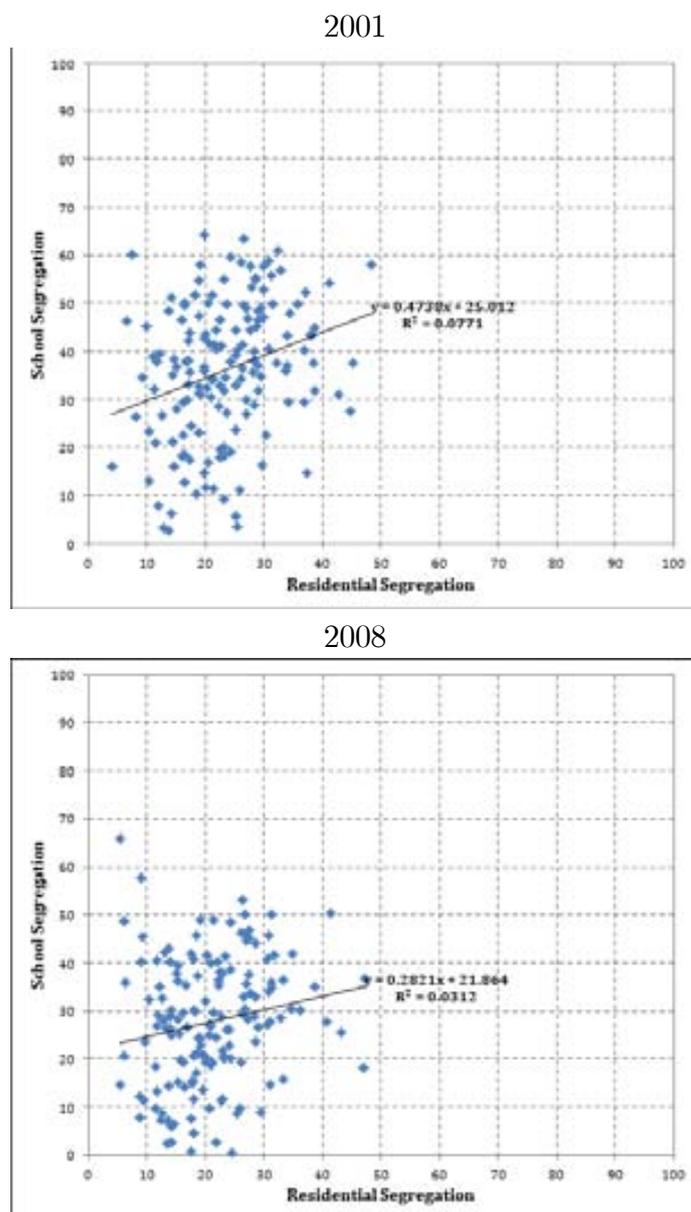
School Segregation								
	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Mean	36.11	33.13	30.71	29.70	29.92	28.46	27.77	26.86
Standard Error	1.16	1.17	1.09	1.03	0.99	1.03	1.07	1.05
Variance	208.27	212.32	181.53	162.00	149.83	163.16	174.97	168.70
Minimum	2.72	1.12	1.86	1.03	2.40	1.39	0.56	0.50
Maximum	64.34	66.36	66.63	55.50	54.59	56.80	65.75	76.43
Confidence Interval (95.0%)	(36.11±2.30)	(33.13±2.32)	(30.71±2.14)	(29.70±2.03)	(29.92±1.95)	(28.46±2.03)	(27.77±2.11)	(26.86±2.07)

Source: Author's elaboration based on the Padrón Continuo (Idescat) and the Estadística de l'Educació (Catalan Department of Education).

correlation does not necessarily indicate the absence of a causal relation between variables.

Depending on how school catchment areas and admission criteria are defined, educational centers would reflect to some extent the composition of the resident population. Based on previous studies and the results shown by the school segregation scores, we could expect that the possible effect of residential segregation on enrolled population will depend, first, on the territorial scale we are considering. As we have seen in the previous chapter, depending on the territorial or administrative dimension we are considering (e.g. Autonomic, provincial or municipal level) results can vary significantly. Therefore, to some extent we could assume that the relation between the residential segregation for population at schooling ages and school segregation would be inversely related to the size or the administrative units considered and the number of schools available. We must stress that this relation would also rely on the definition of the catchment areas and the proximity to other educational centers. In that sense, we could expect that school segregation in more isolated municipalities would be a better reflection of the residential segregation of the children at schooling ages. However, as the database explored does not allow to identify the exact ages for seven of the eight analyzed years, our results would not allow the same accuracy.

Figure 6.2: Residential and school segregation in Catalonia: Selected municipalities. 2001-2008



Source: Author's elaboration based on the *Padrón Continuo* (Idescat) and the *Estadística de l'Educació* (Catalan Department of Education).

6.1.3 Modeling school segregation in Catalonia

Given that our database consists in repeated cross-section data for 154 municipalities for eight years we have considered to perform a panel data analysis that combines features of both, traditional cross-section and times series modeling (Gujarati 2004, Greene 2002). One of the advantages of the panel data approach is that it allows more flexibility in modeling the differences among individual behaviors.

The basic panel data estimation equation would be defined as:

$$y_{it} = \alpha_i + \beta' X_{it} + \varepsilon_{it} \quad (6.2)$$

where:

Y_{it} = school segregation scores of the municipality i at time t .

X_{it} = K independent variables, without including the constant term for the municipality i at time t .

α_i = specific effect (constant term) for the municipality i .

ε_{it} = error term.

$i = 1, \dots, N$ municipalities.

$t = 1, \dots, T$ years.

This model specification is a particular case of the classical regression model. Assuming α_i constant for all the municipalities included in the sample, the Ordinary Least Squares (OLS) estimators would be consistent and efficient for the estimators α and β . Two concrete specifications have been used to generalize the model, depending on whether the unobserved individual effect embodies elements correlated with the regressors in the model, not whether these are stochastic or not (Greene 2002). On the one hand, the *fixed effects* model (FE) considers α_i as constant and specific for each individual (municipality) in the sample. That is, there are individual heterogeneity sources that would be shown as individual specific intercepts, hence α would show the differences among them. On the other, the *random effects* model (RE) considers that α_i is a individual specific random element, similar to ε_{it} except that for each individual there is but a single draw that enters the regression identically in each period (Greene 2002).

Therefore, the fixed effect models could be defined as:

$$y_{it} = i\alpha_i + \beta' X_{it} + \varepsilon_{it} \quad (6.3)$$

where:

i = identity matrix of dimension $NT \times NT$.

As it could be considered a particular case of the OLS model, it could be easily interpreted. However, this specification is only encouraged when differences in units could be expressed as parametric changes of the equation.

The random effects model could be expressed as:

$$Y_{it} = \alpha_i + \beta' X_{it} + u_{it} + \varepsilon_{it} \quad (6.4)$$

where:

u_{it} = is the characteristic random error of the municipality and constant in t .

This model could also be estimated by the Generalized Least Squares (GLS) method¹. The estimator u_{it} could be interpreted as the collection of factors not in the regression that are specific for the individual i .

The regressions and the tests were performed in STATA IC 11.2. Once we have briefly described the basic panel data models, it is necessary to define first which of the two specifications would allow the most efficient estimation. Based on the Breusch and Pagan Lagrangian multiplier test (LM) we reject the null hypothesis that variances across entities is zero. Therefore, there is evidence of significant differences across municipalities. This is, the random effects specification is appropriate for our model. Results are consistent with those of the Hausman test. Therefore, the basic specification for our model would be as the one in equation 6.4².

Considering that the dependent variable is the school segregation at municipal scale, we could suspect of cross-section dependency. That is, there could be a temporal dependency among observations, therefore, heteroskedasticity and to some extent, we should also test for autocorrelation of the variables. The presence for heteroskedasticity has been verified by the Modified Wald Test, whereas the Wooldridge test verified the existence of autocorrelation in our database.

Based on the tests performed we have considered that there were enough evidence to perform a generalized least squares estimation controlling for heteroskedasticity and cross-sectional correlation data. Sensitivity analysis of the variables lead to the exclusion of unemployment from the final estimation and the incorporation of income as normalized variable. The final specification results could be observed below.

¹For the definition of the generalized least squares estimator of the slope parameters, see Greene (2002: 295).

²Results of the tests are available on requests.

Table 6.8: **Estimated coefficients of the GLS regression for school segregation. Catalonia, 2001-2008**

	(1) ids
idr	0.414 ^{***} (4.43)
sincome	0.0430 (1.65)
_cons	21.21 ^{***} (8.23)
<i>N</i>	1232

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: Author's elaboration.

Results suggest that at the time of the study, changes in transitory income did not have significant effects in school segregation scores. Even when results should be carefully interpreted given the limited sample size, this preliminary result could be consistent with the period analyzed. That is, in the period between 2001 and 2008, the Spanish economy came through an economic expansion that was also a trigger for the attraction of international migration inflows. It was not until the end of this period that the Spanish economy started to experience a slowdown thus affecting the labor market.

The results suggest that residential segregation could have explained part of the school segregation in Catalonia but even when results could suggest that income is also significant at 10 percent levels, the results could not be accepted as conclusive. The sample size and the scarce number of independent variables publicly available at municipal level for the years selected should be carefully interpreted.

6.1.4 Discussion

As we have seen on the previous sections, the evidence suggests that there is no strong relation between school and residential segregation in Catalonia. However, the low correlation levels between the variables could be related to the inclusion of a larger residential population that is experiencing what could be considered as differential settlement patterns with respect to those of the enrolled in terms that pupils are constrained to the available

places and specific locations whereas residential distribution could allow for higher mobility. All in all, the aim of this section was to obtain a first approximation on how residential and school segregation could be statistically related. We must also consider that as we have mentioned before, low correlation levels does not necessarily mean that the relation between the variables is not causal.

Despite the inclusion of the best model specification given the heteroskedasticity and cross-sectional correlated disturbances, results should not be considered as conclusive given the small dataset. In that sense, in order to obtain a more accurate or at least robust result, it would be necessary to include not only a longer period of analysis but indicators that reflect the living and schooling conditions without introducing a significant bias.

At this point and given the lack of public accessible data, in order to estimate a more accurate result on the mechanisms behind school segregation it is necessary , probably the best solution would be an in-depth study of the parental preferences on school-choice decisions.

6.2 Migration and educational attainment in Catalonia: a multinomial analysis

As we have seen so far, the Spanish region of Catalonia has consolidated its net receiver position in both internal and international migration since the second half of the 20th century. It concentrates 16% of the country's total population (7.364.078 persons) composed by 16% of foreign-born residents, 1.204.627 persons, and 20% born in the rest of Spain, 1.538.120 persons. Due to the social and cultural barriers –like Catalan language– that migrants have to face, concerns about short and long-term effects have been related to the integration process, thus applying to international and internal migrants. Therefore, internal migration could be studied using the theoretical and analytic instruments traditionally found in international migration literature. The advantage of this approach is the identification, measurement and comparison of the effects in more than one generation.

The massive transfers of employment from mainly agrarian to industrial and urban regions such as Catalonia between 1950 and 1970 derived in the concentration of population from less developed regions in the suburban area of Barcelona. This city, together with Madrid, received more than half of the internal inflows from regions like Andalusia or Murcia. Previous descriptive studies have shown that internal migrants in Spain are –on average– less educated than natives and have lower social mobility (Pinilla de las Heras 1973; Solé 1994, 2000). According to Solé (1994), social status and educational attainment were directly and independently related to place of birth within Spaniard migrants resulting in scarce career development opportunities. As a consequence, immigrant families were overrepresented in the most disadvantaged sectors of the society.

The first international migration inflows arrived to Catalonia mostly from less developed countries at the end of the seventies. During that time, the main difference between internal and international immigrants was on legal terms. They had to obtain the residence and work permit in order to access the labour market, but they have also remained longer in non-skilled positions as their Spanish counterparts. As a result, international immigrants –especially women– were often overqualified. The progressive specialization contributed to the ethnic segmentation of the labour market. Consequently, lower occupational scale jobs were rejected by Catalan natives and –progressively– by Spaniard migrants. Then, the first international migration inflows were determined by the segmented demand expansion of the most regressive sectors rather than a generalized growth. Even when the consequences and the assimilation processes have been mostly the same for both internal and international migrants, the effects of the economically incentivized latest wave of international inflows have focused the policy debate. As a result, internal

migration as an issue has no longer been studied.

The objectives of this research are to examine which sociodemographic determinants promote or inhibit educational attainment of children according to origin and to establish the main path that students follow after compulsory education according to migration's nature. We will compare internal (Spaniard) and international immigrants and native-born children of native parents in the Autonomous community of Catalonia. Additionally, it is aimed to observe the differences in educational attainment among immigrants and exploring whether achievements are segmented. The empirical analysis is based on data from the INE-IPUMS International 1991 and 2001 Spanish Census databases. Our findings suggest that the migrant status of the parents and the individuals themselves are both influential in determining educational attainment and persist once socioeconomic determinants are accounted for.

6.2.1 Data and methods

The data used in our analysis consist on the 1991 and 2001 Census microdata samples (INE-IPUMS International) at familiar and individual level for Catalonia. As contextual effects are negligible through primary and lower secondary because attendance is governed by legal norms, we will limit our sample to population between 17 and 24 years old –the average period between high school and 5-year university completion. In order to include family background and to avoid selection bias from individuals who migrate with the purpose of completing their education, only those living with at least one parent will be considered. As a result, 70,953 individuals will be included in our sample.

The variable selected as representative of educational differences among groups is occupation. It has been coded as studying, working or none according to school attendance and occupation reported. For those whom study and work, occupation has been defined according to the reported worked hours per week. The reason for focusing on occupation is that it involves a choice that has as a direct opportunity cost: the expense of immediate income instead of investment on education. We will then estimate the educational attainment model by the following utility equation using a multinomial probit defined as:

$$u_{ij} = X_i' \alpha_j + Y_i' \beta_j + \varepsilon_{ij} \quad (6.5)$$

where X_i is a vector of individual characteristics plus year and Y_i is a vector of familiar background characteristics.

To study the differences in access to higher education of internal and international migrants and natives, we will consider place of birth as proxy of origin. Natives will be

then defined as those born in Catalan municipalities while internal migrants would be those individuals born in the rest of the Spanish territory. Hence, foreign-born will be considered as international migrants regardless their nationality. Even when we do not observe the utility of each alternative, we will assume that individuals choose the option that derives the highest utility. We will also assume that error terms (unobserved utility) are independently and identically distributed with a joint normal distribution.

The vector X_i of individual characteristics is defined as:

- Gender
- Age
- Place of birth: comprising three categories Catalonia, Spain and abroad (reference).

Familiar background vector Y_i is defined as:

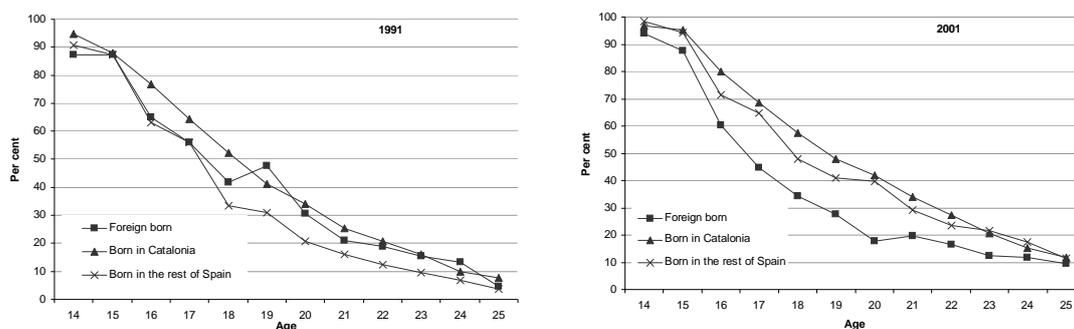
- Family size
- Education of the mother/father: for which we use a series of dummy variables denoting less than primary completed, primary, secondary or tertiary education.
- Employment status of the mother/father: we use four dummy variables denoting employed, unemployed, inactive and missing data.
- Origin: to account for the effect of individual and parental place of birth. The reference category is native children of native born parents.

Table 6.8 presents percentage distributions for the individual and familiar variables included in our models. The effect of origin is measured by two variables at individual and familiar level based on place of birth. In order to include the joint effect of parental and origin, we have constructed a variable that comprises 6 categories: native-born child of natives, native child of at least one Spanish immigrant parent, native child of at least one foreign-born parent, Spanish child of at least one Spanish parent, foreign-born child of at least one foreign-born parent and other. Catalan-born children represent 91.83% of the total sample but only 30.24% of them have also native parents. Due to the massive arrival of international migration inflows after the Census reference data, population of foreign origin has a minor weight in aggregate terms and for some nationalities is not even representative.

Considering that in Spain –as a Southern-European society– families would support individual expenses during education (see Esping-Andersen 1990), we can expect that familiar socioeconomic characteristics strongly affect the decision to pursue post-compulsory education by direct and indirect costs. Consequently, a larger family size or an inactive or unemployed parent will directly affect the available resources for a longer education. Additionally, we will expect a positive relation between parent’s and children’s educational attainment.

Native children have the higher enrollment share compared to their Spaniard and foreign-born peers. The higher percentage of foreign-born children without studying or working suggests that they face higher opportunity costs but also that reported results could be biased by administrative status. Children of immigrants whom are not legal residents may not have access to higher education. As it is not guaranteed by law, schools are allowed to discretionary discrimination depending on each case. On the other hand, even when they are not entitled to work they can be active in the submerged economy and not reporting it. Figure 1 illustrates the differences in enrolled population by age and place of birth in Catalonia. Apparently, internal migrants tend to converge to natives, but the gap between foreign-born and both groups suggest that some assimilation takes place with length of residence.

Figure 6.3: **Enrolled population in Catalonia by age and place of birth 1991-2001.**



Source: 1991 and 2001 Census microdata (IPUMS International, Minnesota Population Center).

In the following analysis we will look first at the observed differentials in educational attainment between Catalan natives, Spaniards and foreign-born in a simple model of individual characteristics. We will then measure the effects of including family background

in the model specification, as well as the combination of both parental and individual origin.

6.2.2 Results

Five different models were estimated considering individual and familiar variables. Table 6.9 contains the multinomial probit results where each column represents a different model. The two outcomes in the table are studying and working. The omitted outcome is working. Model 1 contains only individual controls; model 2 contains only familiar controls whereas model 3 includes both. Variable “origin” is included in the last two estimations to account for the effect of individual and parental place of birth.

Consistent with a priori hypotheses, the effect of year, gender and age remain constant regardless of the model specification. As for the rest of variables included, year indicates the trend towards retarding the entrance in the labour market among the selected period. By its inclusion, we pretend to internalize the educational and social policies that have affected educational attainment between both censuses. General enrolment rates have increased between 1991 and 2001, but also the proportion of those who remain without studying or working. According to Quintini and Manfredi (2009), in 2006 the share of youth between 15 and 24 neither in employment nor in education or training (NEET) in Spain was 14 per cent, representing more than half million persons. With respect to gender, males are more likely to not attend higher education or to remain inactive than females. The substantial growth that women experienced in the last decades in enrolment has derived in surpassing men in the attainment. According to MEC (2005), feminine participation in university studies is predominant except in technical studies, where they represent only 27.1% of the total. The negative effect of age is consistent with the implicit opportunity cost of losing immediate income that tends to be higher in time. At older ages it is less likely that individuals remain studying given the completion of their degree.

The inclusion of familiar background variables shows that there is a positive relation between parent’s educational attainment and enrolment that in some cases is even more influent than economic variables. Cultural capital in the form of parent’s educational attainment can also be seen as a proxy of familiar income and could contribute to explain the children’s education (Valiente 2003). In that sense, it is consistently more likely to attain a higher education while parents hold a university degree showing that parent’s educational background has stronger effects for those that remain studying. On the other hand, employment status can be considered as a proxy of transitory income. Unemployment directly decreases available income and investments in education, rising education’s

opportunity costs. However, as long as fathers are mostly household heads, their effect is stronger than mother's employment status on the final decision. A large family of origin means fewer resources to invest for a longer education (Blake 1989). It clearly determines per capita available expenses and potential future investment, limiting then which path individuals follow.

With respect to origin, when it is measured by individual's place of birth –models 1 to 3–, native-born are more likely to attend than Spaniards and foreign-born individuals. However, once familiar characteristics are included, place of birth is no longer significant. Apparently economic and social capital backgrounds are the clear determinants of educational attainment more than the individual's place of birth. Once ethnic background is accounted for (models 4 and 5), being non-native but also having immigrant parents, significantly reduces the possibility of studying post-compulsory education. Being native and having at least one migrant parent has a lesser but still significant effect showing that the influence of the individual and the parental migration status is not uniform across groups. Our results would suggest that origin affects access to resources, increasing the relative costs of studying and has still consequences in terms of human capital accumulation. Also, regardless of nature, results suggest that individuals with either a close or far familiar history of migration are systematically experiencing underachievement with respect to natives in entering higher education.

6.2.3 Discussion

The objectives of this research were to analyze the sociodemographic determinants that promote or inhibit educational attainment of children according to origin and to establish the main path that students follow after compulsory education according to migration's nature. It represents the first approximation whether educational attainment of internal and international migrants in has been compared to natives based on census data. We have distinguished between categories by place of birth and ethnic background. Our results suggest that in post-compulsory stages, being non-native reduces the chance of continue studying calling into question the integration of migrants regardless their cultural capital.

Given the antiquity of migration inflows, differences by place of birth suggest that some assimilation is segmented and that it takes place with length of residence. This clearly benefits internal migrants specially considering that international migration is a relatively new phenomenon in Catalonia. Consistent with Recaño and Roig (2003), for those native-born, the migrant origin of parents provides evidence that inequalities are not simply due to differences in human capital and other measurable traits. It clearly

affects access to resources, formal and informal settings, and provides evidence that other mechanisms are at play.

Regarding familiar background, results also suggest that parental education is a determinant of educational attainment but it is clear that final choice will be influenced by economic decisions given the relative costs of studying. Available monetary resources are directly involved in decision making at familiar and individual level. As fathers are mostly household heads, their employment status would have more influence in attainment than their counterparts. On that same sense, the family size would limit the per capita available resources for future investments. Given that –on average– families of migrant origin are more numerous than natives their implicit costs of continue studying will be higher than their Catalan counterparts.

According to our results, it seems that the recent government proposal of increasing the number of compulsory years of schooling may be useful as it may reduce the differences between natives and non-natives. It could also reduce the probability of exiting the educational system at younger ages. Therefore, increasing the maximum age from 16 to 18 years of age could contribute to the subsequent economic integration of the new generations of migrants. Even when ethnic background effect on educational attainment has been proved, it is necessary to study longitudinal data to establish if this effect is constant across birth cohorts and migrant generations. Measuring generational effects and returns to education will be the object of future studies.

6.3 The effect of migration in educational investments

Throughout the chapters we have analyzed how foreign population participates in the educational system in Catalonia. However, we have constrained our analysis to the underage population that is mostly enrolled in compulsory education. To that extent, we have neglected one part of the contribution of foreigners to the host society that is provided by the human capital formed abroad.

A common shortcoming when studying migrant's educational attainment is the lack of information about educational tracks prior to migration. Therefore, differential educational attainment between foreign-born and native populations is often constrained to the maximum level attained. One of the features that make this research particularly relevant is the opportunity of consider a more detailed profile of the educational life of migrants,

i.e. before and after their arrival to destination. Even if it is true that determinants of education prior to migrate rely on the characteristics and conditions that individuals experience at origin, we will be able to obtain a more detailed profile of migrants in terms of preferences and investments in education.

Some of the questions that arise while studying the international migration phenomenon are: Which is the real human capital stock contribution from migrants to the host country? To what extent immigrants (not only children) are acquiring education in destination? Which is the impact of the migration process on the human capital formation of children and young adults? To what extent low educational investments at destination is related to the lack of opportunities instead of a low assimilation of migrants into the host societies?

The aim of this section is to introduce, first, the educational background and the educational attainment differences between migrants and natives. In that sense, our analysis is aimed, first, to shed some light in the study of the differential educational attainment reached by immigrants and natives by exploring one of the newest datasources in Catalonia. Secondly, we will explore how educational attainment is determined by pre- and post-migration investments in education. In that sense, we will not explore the education as an integration instrument but as a result of the decision making process and the individual characteristics. As most of the population included has already overpassed the maximum compulsory ages before the migration process was completed, the transition between the educational system and the labor market has already been completed. In that sense, post-migration investments in education should be considered as an investment in job opportunities. To do so, we will explore the data from the Catalan Demographic Survey 2007 conducted by the Statistical Institute of Catalonia (Idescat). One of the main advantages of this retrospective survey is that it allows the study of the characteristics of the most recent migrants and, to a broader extent, their migration patterns before settling in Catalonia.

6.3.1 Data and sample characteristics

We have considered the data reported by the entire population surveyed in order to maximize the feasibility of our results and the estimations presented. Therefore, we will include the data referred to 27,911 individuals –representing an estimated total population of 7,222,705 individuals- interviewed between the third quarter of 2007 and the first quarter of 2008. Foreign-born represents 14 percent of survey's total sample and 17.5 percent of the estimated population. At territorial level, the survey did not cover the

entire territory resulting in an overrepresentation of Barcelona and its metropolitan area. Consequently, we will not perform a territorial analysis and will not use any other spatial proxy.

This data source also allows us to calculate the elapsed years between the completion of the maximum academic degree obtained and migration. Therefore, it is possible to estimate the length of stay of migrants until and since educational completion as well as the incidence of migration in the decision making process. This information is not available in traditional data sources as Census or demographic statistics based on registers. The main variables considered in our analysis are the following: sex, country of birth, year of birth, year of migration, main reason for migration and maximum educational attainment level. Table 6.2 shows the variables included in our analysis and their basic coding.

As for the age at migration, even though the population surveyed is living in the Autonomous Community of Catalonia, it is not necessarily the point of entry into the Spanish territory. Considering that the aim of this section is to estimate the determinants of the pre and post- migration investments in education, we will use a broader definition of migration considering the earlier date of entrance. As one of the aims of this section is to estimate the effect of migration on investments in education, we will analyze the effects of the main migration process resulting in international movements. We will assume that the significant migration is the transnational one and that subsequent internal movements inside Spain have a smaller disruptive effect on the life of migrants. Therefore, for those who arrived first to another Autonomous Community we will consider the “year of arrival” into Spain (not into Catalonia) as reference. As a result, we will obtain the main indicators on time and place of maximum degree obtained, as well as age at migration and attainment. Also, the “native” group to which we compare migrants in the rest of the study refers to individuals born in Spain and residing in Catalonia at the time of the survey.

We must stress that we will use the country of birth instead of nationality criteria to define native and foreign population. We have selected this instead of continuing with the nationality criteria used before because of a possible bias on the reported nationality. The survey included two questions referred to nationality. The first one, referred to the acquirement of the Spanish citizenship and the second, to nationality at birth. The analysis of these variables and the reported country of birth suggested the possibility of erroneous or mistaken data. Some of the individuals that reported the Spanish citizenship acquisition did not report any additional information and therefore, part of the information concerning origin was lost. In that sense, in order to maximize the information we have

chosen the country of birth given that the entire sample reported results. Also, considering that most of the people surveyed pertained to a wide number of cohorts and, therefore, some of them have acquired Spanish citizenship, we have considered that including place of birth should increase the feasibility results. Based on the reported birthdate, we have calculated the age at the moment of the survey instead of the reference date. Therefore, the variable explored would be the individual exact ages.

As for educational attainment variables, the survey included the maximum degree attained classified in eleven groups from illiterate to doctorate according to the Spanish educational system. To simplify the results, we have grouped the degrees in five main categories based on the maximum degree attained as:

- Less than primary: Individuals who have studied less than five years and those illiterate respondents.
- Primary education: Individuals who have completed the compulsory primary education or who have studied 5 or more years but without obtaining an additional degree.
- Lower secondary: Individuals who completed compulsory secondary education.
- Upper secondary: Individuals who completed High School, Basic or Middle Vocational Education.
- Higher education: Individuals who studied or completed Higher Vocational Education and/or a university degree (under- and post-graduate degrees included).

Nevertheless, most of the surveyed population classified as ‘illiterate’ is under 6 years of age. Therefore, their presence would be controlled while studying the population by age-group. On the other hand, all the records without reported educational attainment corresponded to individuals under ten years-of-age. As we might expect, almost 80 percent of them were enrolled in pre-school and primary levels in case they have already reached the minimum enrollment age at the moment of the survey. Consequently, they have been classified on the ‘less than primary’ category for the aggregate analysis.

For those who reported it –mostly foreign-born-, we have also access to the main reason for migration. The Demographic Survey 2007 reports six main causes which have been grouped into four categories according to our scope. They have been classified as:

- Work: individuals who specified that the reason to migrate was work-related.
- Education: Individuals who migrate for educational purposes.
- Family: Tied movers who migrate as a result of family reunion, marriage or unmarried partner migration.
- Others: Individuals who migrate for political reasons, asylum, retirement or other unspecified causes.

Table 6.9: Sample characteristics.

Variable	Total sample		Natives	Spaniards	Foreign-born
	Frequency	Percentage distribution	Percentage distribution	Percentage distribution	Percentage distribution
Gender					
Female	33,332	46.98	47.03	46.28	46.76
Male	37,621	53.02	52.97	53.72	53.24
Age					
Average	19.87		19.86	20.19	19.69
Place of birth					
Catalonia	65,154	91.83	100.00		
Spain	4,300	6.06		100.00	
Abroad	1,499	2.11			100.00
Origin					
Native born/native born parents	19,702	27.77	30.24		
Native born w/Spanish born parents (at least 1)	43,952	61.95	67.46		
Native born w/foreign born parents (at least 1)	1,500	2.11	2.30		
Spanish born w/Spanish born parents (at least 1)	4,058	5.72		94.37	
Foreign born w/foreign born parents (at least 1)	963	1.36			64.24
Other	778	1.10		5.63	35.76
Occupation					
Student	30,097	42.42	43.20	32.09	38.03
Worker	32,728	46.13	45.68	54.19	42.36
None	8,128	11.46	11.12	13.72	19.61
Mother's employment status					
Employed	24,842	35.01	35.49	28.60	32.49
Unemployed	3,891	5.48	5.50	4.77	6.67
Inactive	40,296	56.79	56.39	63.86	54.10
Missing	1,924	2.71	2.62	2.77	6.74
Father's employment status					
Employed	50,183	70.73	71.34	64.49	61.97
Unemployed	3,246	4.57	4.43	5.51	8.34
Inactive	9,535	13.44	13.21	16.67	14.08
Missing	7,989	11.26	11.02	13.33	15.61
Mother's educational attainment					
Less than primary completed	13,884	20.11	18.90	35.23	30.04
Primary completed	43,779	63.42	64.61	51.83	43.92
Secondary completed	8,726	12.64	12.75	9.11	18.38
University completed	2,640	3.82	3.74	3.83	7.65
Father's educational attainment					
Less than primary completed	10,941	17.38	16.38	29.51	27.35
Primary completed	36,687	58.27	59.19	48.59	44.51
Secondary completed	11,208	17.80	18.04	14.01	17.87
University completed	4,128	6.56	6.39	7.89	10.28
Family size					
Average	4.43		4.81	4.70	4.92
N	70,953		57,972	4,300	1499

Sample size: 39,034 individuals for 1991 and 31,919 for 2001.

Source: 1991 and 2001 Census microdata (IPUMS International, Minnesota Population Center).

Table 6.10: Multinomial probit results for educational attainment.

Occupation	Model Specification				
	Model 1	Model 2	Model 3	Model 4	Model 5
Student					
Year	0.0032 ***	0.0033 ***	0.0032 ***	0.0035 ***	0.0034 ***
Gender: Male	-0.3746 ***	-0.3916 ***	-0.3920 ***	-0.3812 ***	-0.3946 ***
Age	-0.3210 ***	-0.3444 ***	-0.3440 ***	-0.3238 ***	-0.3454 ***
Place of birth: Catalonia (native)	0.0852		0.0937		
Place of birth: Spain	-0.2444 ***		-0.1232		
Origin: native w/Spanish born parents (at least 1)				-0.5047 ***	-0.1977 ***
Origin: native w/foreign born parents (at least 1)				0.0232	-0.1177 *
Origin: Spanish w/Spanish born parents (at least 1)				-0.7181 ***	-0.3711 ***
Origin: Foreign w/foreign born parents (at least 1)				-0.4421 ***	-0.2339 **
Origin: Other				-0.2472 ***	-0.1234
Mother's occupational status: unemployed		-0.0628	-0.0609		-0.0501
Mother's occupational status: inactive		0.0313	0.0336		0.0434 *
Father's occupational status: unemployed		-0.2878 ***	-0.2843 ***		-0.2797 ***
Father's occupational status: inactive		-0.1992 ***	-0.1975 ***		-0.1969 ***
Mother's educational attainment: primary completed		0.2599 ***	0.3800 ***		0.2393 ***
Mother's educational attainment: secondary completed		0.9071 ***	0.8474 ***		0.8669 ***
Mother's educational attainment: university completed		1.4607 ***	1.1876 ***		1.4263 ***
Father's educational attainment: primary completed		0.3869 ***	0.2562 ***		0.3529 ***
Father's educational attainment: secondary completed		0.8556 ***	0.9054 ***		0.7950 ***
Father's educational attainment: university completed		1.1914 ***	1.4641 ***		1.1329 ***
Family size		-0.1009 ***	-0.0984 ***		-0.1003 ***
None					
Year	0.0012 ***	0.0009 ***	0.0011 ***	0.0010 ***	0.0009 ***
Gender: Male	-0.0825 ***	-0.0790 ***	-0.0790 ***	-0.0824 ***	-0.0792 ***
Age	-0.1500 ***	-0.1615 ***	-0.1612 ***	-0.1507 ***	-0.1610 ***
Place of birth: Catalonia (native)	-0.4292 ***		-0.3595 ***		
Place of birth: Spain	-0.4160 ***		-0.3919 ***		
Origin: native w/Spanish born parents (at least 1)				-0.0134	-0.0295
Origin: native w/foreign born parents (at least 1)				0.1665 **	0.0892
Origin: Spanish w/Spanish born parents (at least 1)				-0.0066	-0.0713
Origin: Foreign w/foreign born parents (at least 1)				0.6025 ***	0.5228 ***
Origin: Other				0.1072	0.0842
Mother's occupational status: unemployed		0.1809 ***	0.1764 ***		0.1756 ***
Mother's occupational status: inactive		0.2006 ***	0.2007 ***		0.2016 ***
Father's occupational status: unemployed		0.2141 ***	0.2090 ***		0.2084 ***
Father's occupational status: inactive		0.3117 ***	0.3121 ***		0.3129 ***
Mother's educational attainment: primary completed		0.0161	-0.0137		0.0174
Mother's educational attainment: secondary completed		0.1401 ***	0.0809		0.1339 **
Mother's educational attainment: university completed		0.2413 ***	0.1366		0.2339 ***
Father's educational attainment: primary completed		-0.0170	0.0182		-0.0167
Father's educational attainment: secondary completed		0.0843	0.1419 ***		0.0668
Father's educational attainment: university completed		0.1446	0.2430 ***		0.1191
Family size		0.0347 ***	0.0321 ***		0.0298 ***

Notes: Worker is the base outcome. All models also include dummy variables for missing characteristics. *, ** and *** denote statistical significance at 5, 1 and 0.1 Source: 1991 and 2001 Census microdata (IPUMS International, Minnesota Population Center).

Figure 6.4: **Enquesta Demogràfica 2007: Sample characteristics.**

	Variable	Frequency	Percentage	Valids
Sex				
	Male	13,733	49.2	49.2
	Female	14,178	50.8	50.8
	Total	27,911	100.0	100.0
Educational attainment				
	Illiterate	405	1.5	1.6
	Knows how to read and write but has spent less than 5 years enrolled	1,880	6.7	7.5
	Has spent more than 5 years enrolled without obtaining a degree	6,547	23.5	26.2
	Primary or Lower secondary	6,463	23.2	25.9
	Upper secondary	2,926	10.5	11.7
	Middle vocational education	1,700	6.1	6.8
	Higher vocational education	1,439	5.2	5.8
	Undergraduate (3 years or less)	1,827	6.5	7.3
	Undergraduate (Bachelor, more than 5 years)	1,563	5.6	6.3
	Post-graduate (Master and Specializations)	108	.4	.4
	Doctorate	83	.3	.3
	Total	24,941	89.4	100.0
Main reason for migration				
	Work	1,692	6.1	6.1
	Education	102	.4	.4
	Family	1,190	4.3	4.3
	Retirement	19	.1	.1
	Political	1	.0	.0
	Other	130	.5	.5
	N/A	24,777	88.8	88.8
	Total	27,911	100.0	100.0
Date of birth				
	Total	27,911	100.0	100.0
Place of birth				
	Spain	4,933	17.7	17.7
	Catalonia	18,860	67.6	67.6
	Abroad	4,118	14.8	14.8
	Total	27,911	100.0	100.0
Occupation				
	Total	13,148	47.1	100.0
Year of arrival				
	Total	9,151	32.8	100.0

Source: Author's elaboration based on the Enquesta Demogràfica 2007 (Idescat).

6.3.2 Population portrait in 2007: Differential educational attainment by origin

The aim of this subsection is to explore the variations in the educational attainment of the Catalan population according to the information provided in the Demographic Survey 2007. In order to study the differential educational attainment by origin we have first, identified the different cohorts of the sample in order to reconstruct the different generations included in the survey. We have defined each generation following 10-year cohorts considering that first, compulsory education and, therefore, minimal educational attainment has changed in time. Second, social conditions have not been constant in time and population has been affected by a variety of circumstances according to age. As a result, eight cohorts were reconstructed.

Even when we have already explored the sociodemographic characteristics of the resident population in Catalonia on Chapter 3, we will briefly analyze their main composition at the time of the Survey. Subsequently, we will explore the differential composition once educational and migratory background are considered.

Figure 6.3 shows the population pyramid for both native (light blue) and foreign-born (green) population in Catalonia. As we can observe, the differential composition by age and sex between both populations is clear. At younger ages, we could observe the effect of the convergence of the recovering fertility of natives and the children of immigrants born at destination. Nevertheless we must remember that we are following the nativity criterion (i.e. place of birth) and does not necessarily mean that children born in Spain were granted Spanish citizenship. In that sense, the narrow base of the foreign-born pyramid could be explained by the family migration project and the complimentary role family reunion plays. Reunified children at ages younger than 5 is scarce in the majority of the groups indicating that, on the one hand, descendants are reunified closer to compulsory enrollment ages and, on the other, that childbearing is postponed after arriving to the host country. Therefore, the increased foreign-born population between 10 and 19 years of age is also influenced by the legal constraints of family reunion procedures. Legislation establishes that descendants must be under 18 years of age -except for children with disabilities- in order to be considered for the procedure. Based on previous results (Domingo et al 2011; Domingo, López-Falcón and Bayona 2011, 2010) the effective arrival would finally rely on the visa procedures at their home country, resulting in some cases in a delay of more than one year.

Directly related to the arrival of economically incentivized inflows from abroad, foreign-born population is concentrated at early working ages. The predominance of young adults

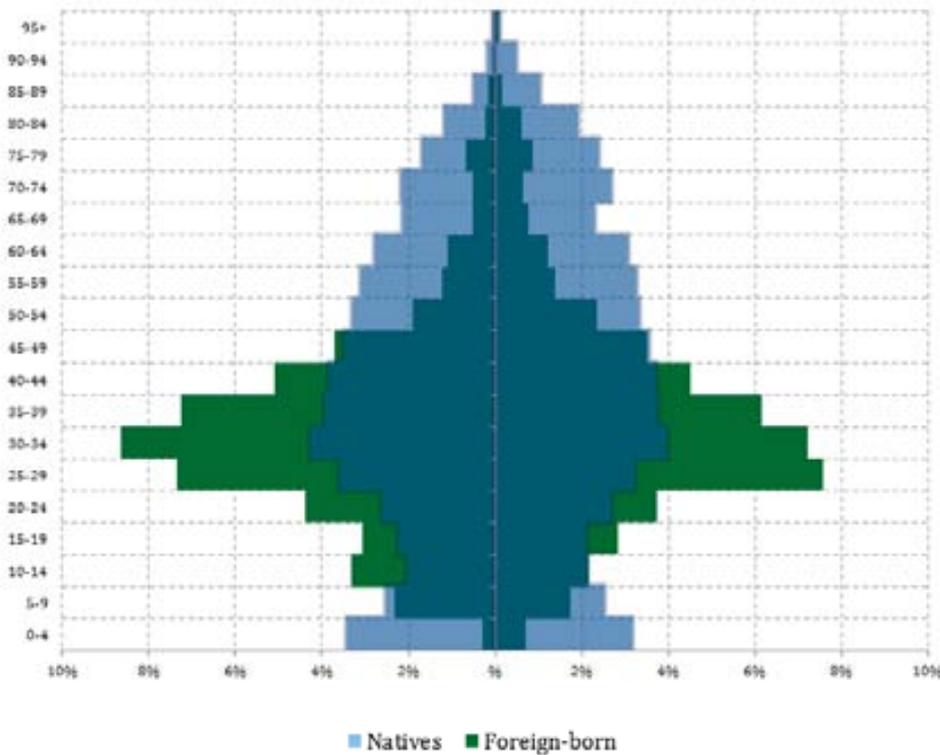
of foreign origin between 20 and 44 years of age is reflected in a share of 62 percent of the total (780,640 persons). At that same ages, their native-born peers represent 35.5 percent of the population with 2,116,134 persons. It is not until population reaches the age group 50-54 where natives overpass foreign-born. As we might expect, migration dynamics and restrictive policies would not only affect the inflows but the family dynamics, and particularly for the elderly.

Elderly foreign-born population is not only composed of European retirees and pensioners, but from third-country ascendants who arrive to the country as part of family migration strategies. Rather than being economically incentivized migrants, they take care of their grandchildren in order to simplify the access to the labor market of their descendants at working ages. This particular case of intergenerational solidarity is the one that has facilitated the participation and permanence of foreign-born women in the labor market. Latin-American women are clear beneficiaries of this familiar strategy. Representing one of the major contributors to the supply of informal daycare of children and the elderly, Latin-American women reunify their ascendants in order to guarantee their own children's care. Given the restrictive migration policy addressed to reduce the inflows of reunified population over 65 years of age, we might expect that their future share in the population structure would not be related to family reunion processes.

Figure 6.4 shows a first approximation to the distribution of the educational attainment population over 15 years of age. Only population aged 15 or older is considered for the study given that is at this ages where -generally- at least primary compulsory education has been completed and also consistent to international literature and datasets on educational attainment (see for example Crespo Cuaresma, Lutz and Sanderson 2009; Lutz et al. 2007; Barro and Soto 2007; De la fuente and Domenech 2006; Barro and Lee 2001). Consequently, we could assume that those individuals with an educational attainment lower than primary abandoned as a result of adverse socioeconomic conditions -particularly for the older generations. In addition, we will assume that origin human capital was formed at the country of birth, even when people could have experienced a previous migration.

The distribution of each group shows that individuals with less than primary education hold the minoritarian share, with 7.4 percent for foreign-born (83,227 persons) and 8.5 percent for native born (428,512 persons). However, the educational attainment for higher levels shows a divergence between groups. Even when 49 percent of the Spanish-born hold a degree of primary or lower secondary education, 46.8 percent of the foreign-born hold a post-compulsory degree. This could be a result of the definition of educational attainment used. Considering that it refers to maximum degree attained, younger individuals could

Figure 6.5: **Population pyramid of native and foreign-born population. Catalonia 2007.**

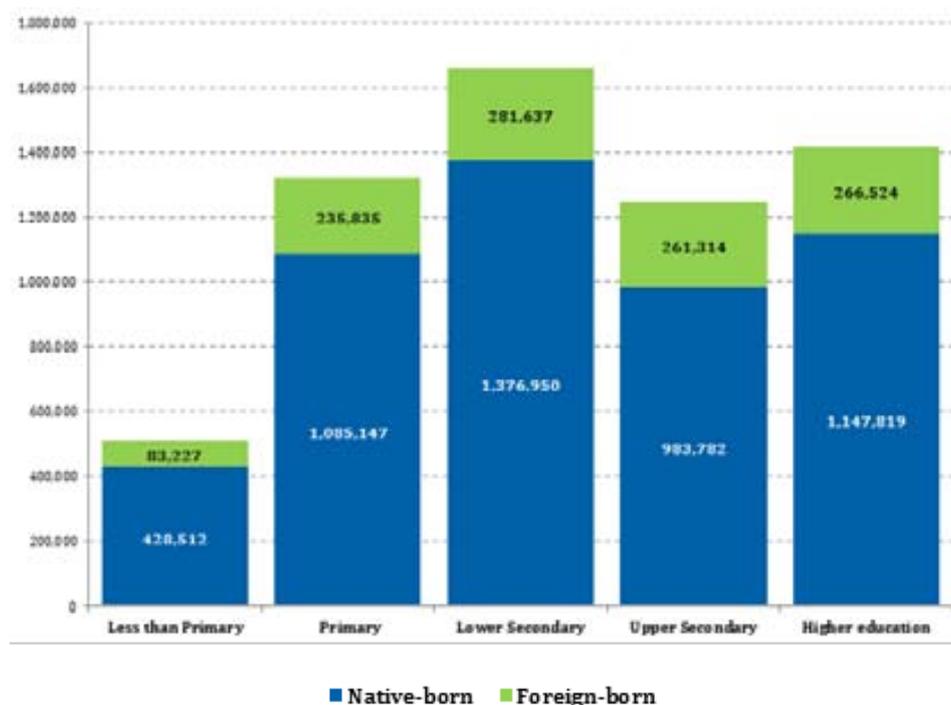


Source: Author's elaboration based on the Enquesta Demogràfica 2007 (Idescat).

still be enrolled in higher education programs while others could have completed their studies without graduating.

By comparing the composition by educational attainment, we can observe that there are clear differences by age. The differences between generations could be explained, first, by the socioeconomic and political conditions that the older generations experienced. Later on, educational policies addressed to guarantee universal access to at least basic education, has also increased the human capital levels of the population. In that sense, population over 75 years of age regardless their origin, is mostly composed by individuals with less than primary studies. As we might expect, the adverse socioeconomic conditions experienced by those who were born in around 1932 are directly related to the maximum educational levels attained. We must remember that it was during the 1930s when the great depression and major political changes took place. For the native-born, the period between 1936 and 1939 compelled the Spanish Civil War. As a result, 45.1 percent of the native and 11.3 percent of the foreign-born with less than primary studies are individuals older than 75.

Figure 6.6: **Population over age 15 by origin and educational attainment. Catalonia 2007.**

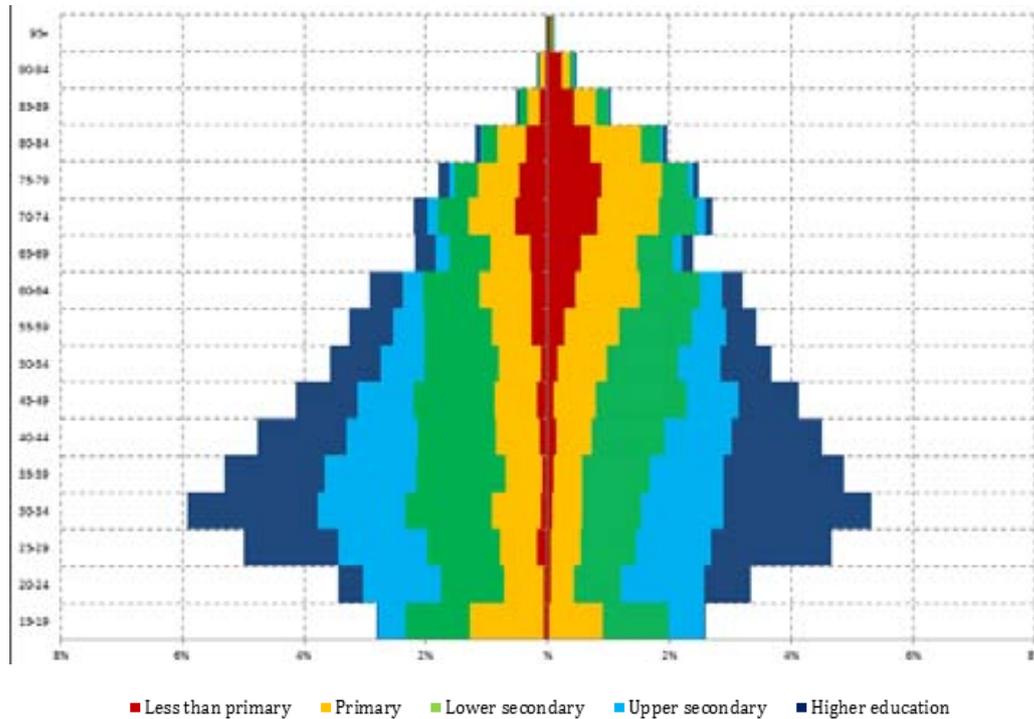


Source: Author's elaboration based on the Enquesta Demogràfica 2007 (Idescat).

The heterogeneous distribution by educational attainment suggests that there are crossed effects of origin and generation. Moreover, the legal framework that settles the compulsory education by country could also affect the dynamics of the educational composition of the population. These factors should not be left aside in the study of foreign human capital and the process of human capital formation in Spain. To obtain a better approximation on how population structure reflects the evolution of educational attainment levels we have depicted the multi-state population pyramid for the total, the native and the foreign-born population in Catalonia for the year 2007 (see Figures 6.5, 6.6 and 6.7). The colors show the contribution of each educational attainment level to the overall distribution by 56-year age groups above age 15. Please note that the pyramids by origin and the one for the total population are in different scale.

In the three distributions it is clear that younger cohorts are better educated than the older ones but to some extent women are still less educated than men. The previous result could be related to the generalized access to education and the improvement of the living conditions of the younger generations, thus motivating the enrollment in higher educational stages.

Figure 6.7: **Population pyramid by maximum educational attainment reached. Catalonia 2007.**



Source: Author's elaboration based on the *Enquesta Demogràfica 2007* (Idescat).

The distributions by group are depicted in Figures 6.6 and 6.7. The comparison of the distribution suggests that the arrival of inflows from abroad mostly concentrated at young working ages, could have positively contributed to the human capital stock in Catalonia. Nevertheless, there are clear differences by origin and maximum attainment that should be considered. The distribution by age of native-born individuals with less than primary studies are concentrated on ages above the age-group 55-59 -with 94.8 percent of the total. For that same educational level, foreign-born population are evenly distributed among age-groups. A similar result is found for individuals with completed primary studies. Nevertheless the wider pyramid base for both foreign and native-born individuals aged 15-19 -especially compared to the immediate age-group 20-24 - could be related to individuals enrolled at compulsory secondary at the time of the survey or, to some extent, to the incidence of dropouts.

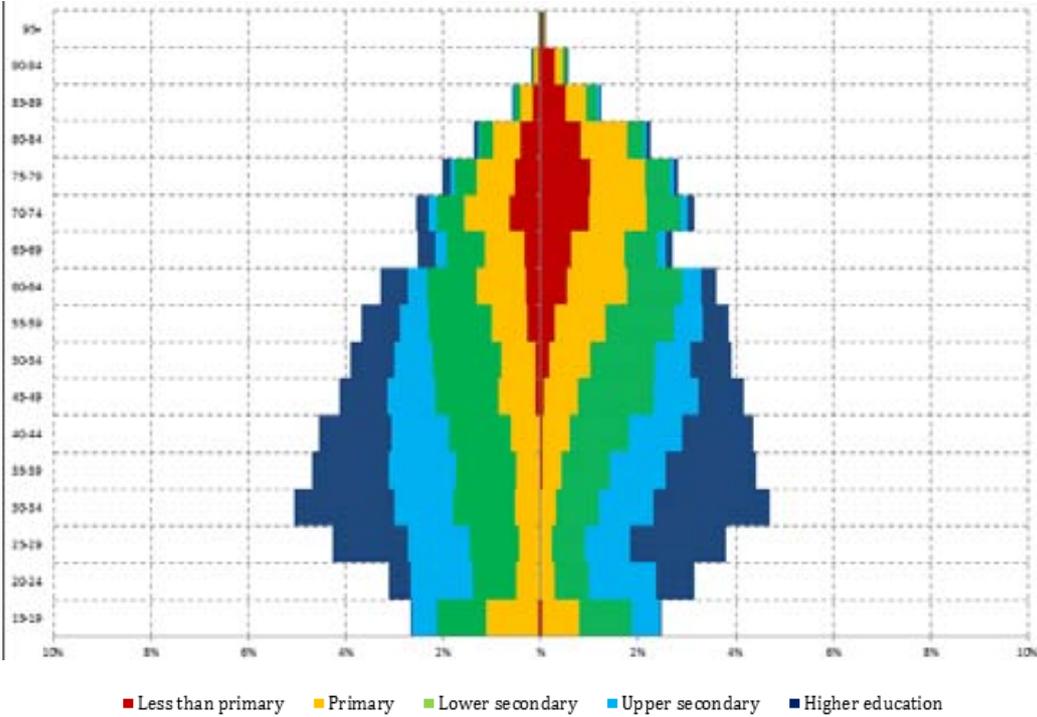
This first result could confirm the generational differences that become steeper once origin is controlled for. However, for both groups and leaving aside the younger age-group 15-19, the elderly native-born and the younger foreign-born individuals with completed primary studies or even lower educational attainment levels, the causes for dropping out of

the education system could be summarized in the lack of opportunities and resources. In the elderly, due probably the socioeconomic and political uncertainty they lived whereas for the younger of foreign origin, the lack of resources increased the individual and familiar opportunity cost at origin.

Even when the distribution of the population with lower secondary studies could also reflect the effect of those younger individuals who are still enrolled at that stage, we must not left aside the incidence dropouts had at the time of the survey. Probably related to the expansive economic conditions experienced in previous years, dropout and grade repetition rates at lower secondary have been mentioned by the OECD as a priority for the Spanish educational policy (OECD 2011).

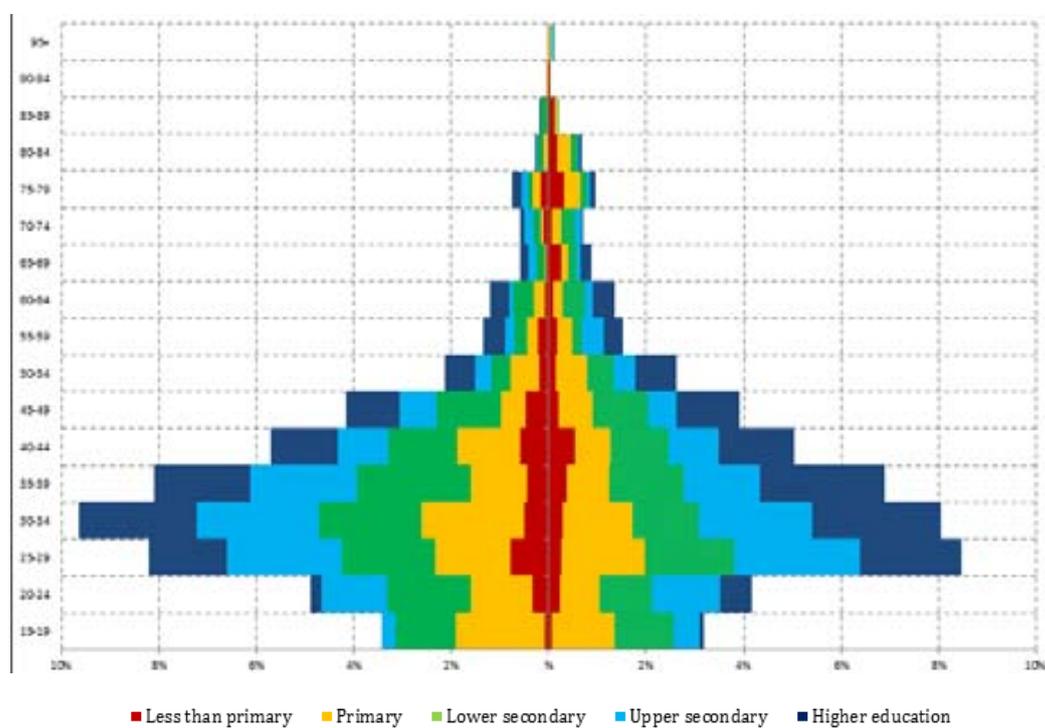
For the higher levels attained, the above mentioned differences among groups suggest that, on average, foreign-born population is better educated than natives. Given that those with the higher educational attainment are concentrated between ages 25 to 49, the evolution of the maximum levels attained by younger cohorts would also be related to their integration process in the host society and the educational system in the host country. All in all, we must stress that the analyzed survey does not allow to obtain results or to infer indicators of the quality of the human capital formed abroad or in the host country regardless origin. Considering the scarce transferability of origin human capital in the Spanish labor market, the assumption on the quality of origin human capital based on the qualification required in the job performed could lead to erroneous conclusions. As Sanromá, Ramos and Simón (2008) argue, there are different degrees of human capital transferability in Spain depending on the country or region of origin. Immigrants often suffer from over-education in the job performed, implying a higher relative wage penalty.

Figure 6.8: Population pyramid by maximum educational attainment reached: Spanish-born population. Catalonia 2007.



Source: Author's elaboration based on the Enquesta Demogràfica 2007 (Idescat).

Figure 6.9: Population pyramid by maximum educational attainment reached: Foreign-born population. Catalonia 2007.



Source: Author's elaboration based on the *Enquesta Demogràfica 2007* (Idescat).

Host and origin human capital of the foreign-born

Just as migration, education is embedded in the life-course. For migrants, the school continuation decisions and processes could be truncated by migration itself. As we might expect, the skills and knowledge brought by international migrants to Catalonia is heterogeneous. The diverse educational systems in which migrants were enrolled represent a barrier to their effective assimilation in the labor market. As employers do not have complete information about the educational system at origin, the transferability of origin human capital is often limited. Therefore, the incentives to obtain a degree at destination would experience an increase.

In that sense, two aspects should be considered. First, being foreign-born does not necessarily imply that education was completed abroad or that individuals have not completed the formal procedure in order to homologate their degree with those of the host country. Second, in some cases, working in under-qualified jobs is compensated by the higher salary perceived with respect to origin.

As we know, reasons for migration are quite diverse, even when they could have a significant impact in a migrant's life. Table 6.5 shows the maximum degree attained by main reason for migration of the foreign-born over 15 years of age. As we know, foreign-born population that arrived to the country with the last migration wave has mostly arrived for economic reasons. Close to 65 percent of the foreign-born that answered this question affirmed that the motivation behind the movement was work. With respect to their qualifications, we can observe that individuals holding a post-compulsory degree (upper secondary or higher) represent 44.7 percent of the total. This accumulated years of education at young working ages could explain a good part of the divergence by origin shown in the multi-state population pyramids of the previous section.

Family migration represents the second cause for arriving to the country with 25 percent of the respondents (218,941 persons). However, as we do not know the ways family migrants used for arriving to the country, we cannot affirm that they migrate after a family reunion procedure. Even when family reunion has a complementary role on the completion of family migration projects, it is also possible that spouses or offspring accompany the pioneer migrant from the very first moment. Possibly linked to the migration of the offspring, family migrants hold the higher share of individuals without an academic degree with 10.8 percent who have not completed primary studies.

Even when Catalonia -and particularly Barcelona- represents one attraction node for students, it is the last reason listed by the respondents. The distribution by educational

stage clearly shows that people migrating for studies are concentrated at higher education levels with 64.1 percent of the total.

Table 6.11: **Maximum degree attained by the foreign-born population over 15 and main reason for migration. Catalonia 2007.**

	Less than primary	Primary	Lower secondary	Upper secondary	Higher education	Total
Work	41,550	128,841	143,037	145,328	107,949	566,705
Study	172	2,903	5,760	5,802	26,105	40,742
Family	23,584	57,743	63,833	39,453	34,328	218,941
Other	2,718	3,031	10,661	15,588	12,777	44,775
N/A	15,206	43,314	58,350	55,141	85,367	257,378
Total	83,230	235,832	281,641	261,312	266,526	1,128,541

Source: Author's elaboration based on Enquesta Demogràfica (Idescat).

In order to obtain a first approach to the interaction between migration and educational attainment, we have analyzed how events occurred in time. The characterization of the phenomenon has been developed under two premises. First, as the object of study is the impact of international migration, we will assume that internal movements or residential changes has a lower impact on individual's decision-making processes. Second, under that same line, we will consider the reference date for migration the one in which the 'major' movement was performed. That is, for those individuals whom first port of entry was another Autonomous Community, the year of migration would be considered as the one they entered the Spanish territory. For the rest of the individuals considered, we will include the year of arrival to Catalonia. Only foreign-born individuals were included in our sample.

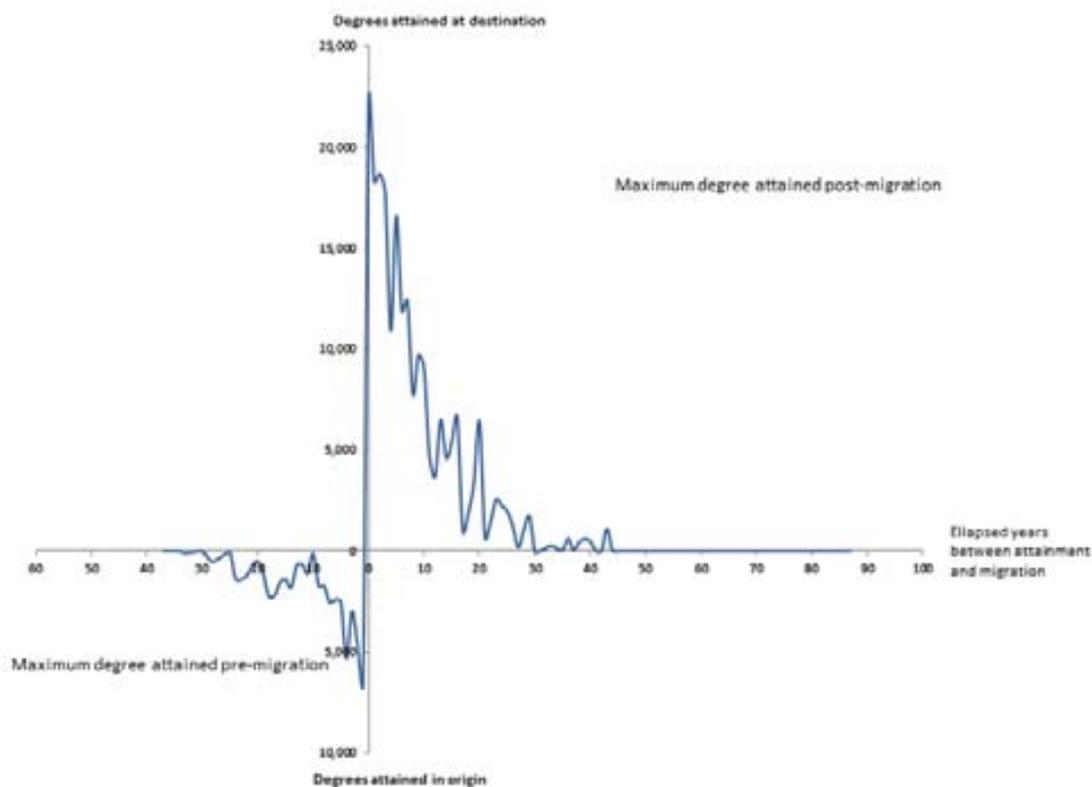
Figure 6.8 shows the number of degrees attained according to the time elapsed between the moment the maximum academic degree is attained and that of migration. For illustrative purposes, data has been depicted using the four quadrants of the plane in order to differentiate between time of migration and attainment, but also between origin and destination. In that sense, the origin ordinate - the point where the line intersect the y-axis - show the number of degrees obtained at the same year of migration. For those particular cases, and based on the additional data provided by the survey, we cannot conclude if degrees were obtained at origin or at destination. The number of degrees depicted at quadrant III, show the distribution of the degrees obtained prior to migration., whereas those in quadrant I refers to the ones obtained at destination.

As we can observe, there are clear differences between the number of degrees obtained

at origin and destination, as well as the diverse temporal intervals between attainment and migration. According to the years reported, there are individuals who have obtained their degree 30 years prior or after migration. The majority of the individuals who obtained their degree at origin completed their studies less than ten years before migration.

All in all, most of the degrees attained by the foreign-born population in Catalonia are obtained at destination. As the data reflects the maximum degree obtained, and based on the elapsed time between migration and attainment and the higher porportion of economic migrants, results could suggest the incompatibility of the skills attained at origin and destination. However, we must also consider those cases in which individuals migrate at younger ages and were enrolled at younger ages at destination as well as those who migrate for studies even when they are a clear minority.

Figure 6.10: **Degrees attained by the foreign-born population over 15 by ellapsed years between attainment and migration. Catalonia 2007.**



Source: Author's elaboration based on *Enquesta Demogràfica (Idescat)*.

Figure 6.9 shows the distribution of the degrees attained by age of attainment and level. For comparison purposes, we have left aside individuals who attained their degree

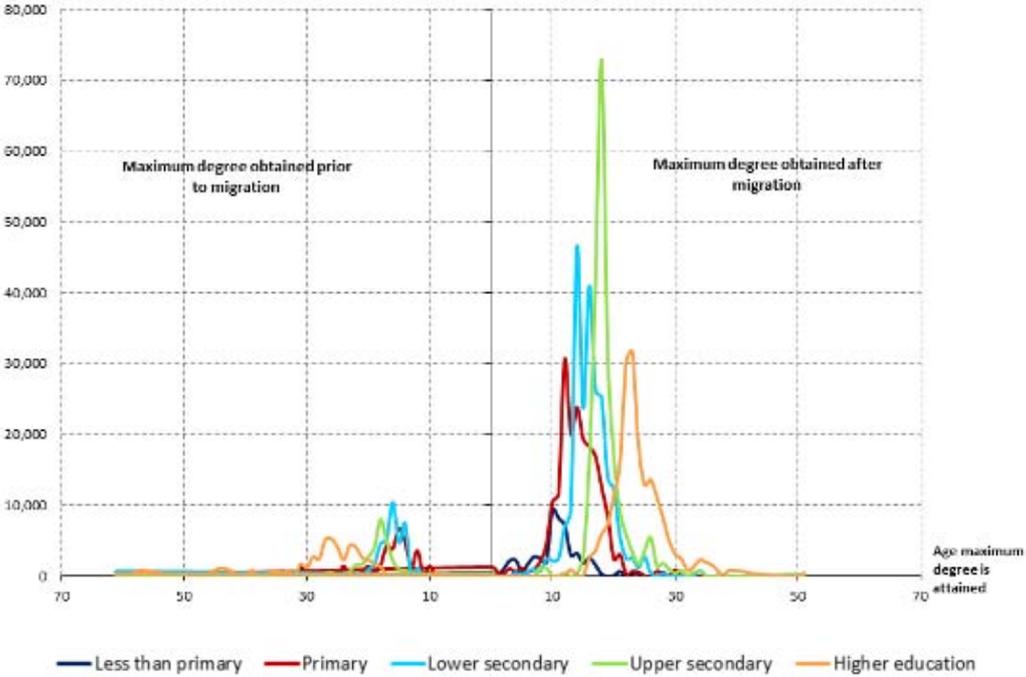
the same year of migration. As we can observe, the right side of the Y-axis (quadrant I) depicts the maximum degree obtained after migration whereas the left side (quadrant IV) depicts the ones attained prior to migration.

While analyzing the results by age and maximum educational level the differential profile between origin and host human capital. Even when in both cases attainment ages are concentrated between 10 and 30 years of age, distributions are heterogeneous by academic degree attained.

Considering that we have constrained the study to those aged 15 or older, for individuals who have significantly overpassed the maximum attainment ages and have attained their academic degree at destination, we could think that they get enrolled in adult education or social guarantee programs to gain access to better job opportunities.

The share of individuals attaining post-compulsory education is more or less the same at origin and destination countries with 48.5 percent and 47.1 percent respectively. Particularly those who reach higher education levels at origin (undergraduate and graduate studies) are the ones who are considered to lead the brain drain at the home country, even when this assumption will not necessarily be reflected at destination where they could gain access to the labor market in low-skilled jobs. The determinants for post-migration investments in education will be explored in the following section.

Figure 6.11: Maximum degrees attained by the foreign-born population over 15 by age of attainment. Catalonia 2007.



Source: Author's elaboration based on Enquesta Demogràfica (Idescat).

6.3.3 Post-migration investments in education

The study of the integration of children of foreign origin in the educational system has been traditionally focused on their outcomes and parallel phenomena as school segregation. For those migrating at older ages, the existent relation between migration and human capital formation has been constrained to the brain-gain brain-drain processes of origin and destination countries. However, there is still scarce literature on how migration affects the investments in education and the future educational attainment of migrants.

Opportunity and intrinsic costs, as well as aspirations and expected future earnings could determine the permanence or desertion from the educational system for both foreign and native-born. As we have defined in the previous section, we will only consider as migrants to those individuals arrived from abroad, assuming that residential changes at local level would not have a significant impact on academic trajectories. The aim of this section is to analyze to what extent international migration has determined school continuation decisions and investments in education of the foreign-born in Catalonia.

Post-migration investments in education will be a determinant for the effective integration in the labor market for those individuals who face skill transferability problems for having completed their education abroad (Chiswick 1978). Skill transferability or human capital portability is not only related to the capacity or willingness of the labor market for assimilating skills obtained abroad, but for the existing legislation in education. Therefore, we could assume that incentives to post-migration education would also rely on the maximum level attained and the migration project itself. That is, it is less likely to consider labor migrants or those who consider accessing the labor market as final objective as future investors. The former may include individuals who migrate using a different administrative procedure as way of entrance (i.e. family reunion or marriage). On the other hand, for those holding a higher degree, barriers to effective skill transferability would increase the opportunity costs for not studying at destination, unless salaries compensate their human capital underutilization.

Until this point we have left behind the study of those who have contributed to the economy with human capital acquired abroad or who arrive to the country at non-compulsory ages. As we have analyzed in previous chapters, the foreign population in Catalonia is mostly concentrated at young working ages and we could expect that they have accessed the labor market if not with an academic degree, with previously acquired experience (*learning-by-doing*). Based on the novelty of the migration phenomenon in Spain and Catalonia, and also in the absence of detailed but sufficiently large databases, similar studies in the field of demography have been constrained by to specific nationalities or groups after ad hoc studies and not by the study of public databases.

At this time, we could only quote the study performed by Fokkema and de Haas (2011) focused on the socio-cultural integration of four African immigrant groups in Italy and Spain. The data was generated by the research project "Push and Pull Factors of International Migration" consistent in interviews with persons between 18 and 65 years belonging to recent migrant households.

We have consistently used the definition of foreigner or non-national as those holding a citizenship different than Spanish. However, for the analysis of the Enquesta Demogràfica 2007 we have chosen to follow the place of birth criteria as above mentioned. Based on the results obtained in a first exploration, the divergence between nationality, country of birth and the acquisition of Spanish citizenship suggested that results were biased. Inconsistencies shown by nationality and the acquisition of Spanish citizenship variables suggested that could be the result of erroneous registrations. Therefore, we have considered that the most homogeneous response was the one obtained by the country of birth. Consistent with the previous results, the sample will be constrained to individuals who migrate at ages above 15.

Framework Following van Tubergen and van de Werfhorst (2007), we will analyze, first, to what extent opportunity costs influence post-migration investments in education and, second, the educational attainment of those who completed their education at destination. We will constrain the analysis for foreign-born individuals who migrate to Spain at ages older than 15.

The development applied by van Tubergen and van de Werfhorst (2007: 884) relies on the two-period Immigrant Human Capital Investment (IHCI) model by Duleep and Regets (1999, 2002). The model is defined as:

$$\max\{w\tau_{M1}H_S(1 - \theta) + w\rho[\tau_{M2}H_S + \gamma f(H_S, \tau_{P1}, \theta)]\} \quad (6.6)$$

where:

w = market rate of return on a human capital unit.

τ_{M1} = proportion of origin-country human capital initially valued in the labor market at destination.

H_S = immigrants' initial stock of human capital acquired at origin.

θ = proportion of initial human capital foregone as a result of the investment at destination.

ρ = probability of staying at destination.

τ_{M2} = proportion of origin human capital valued in the second period.

τ_{P1} = transferability parameter in the production for new human capital.
 γ = human capital productivity coefficient varying across individuals.

The human capital production function is denoted by $\gamma f(H_S, \tau_{P1}, \theta)$ where f is a positive function of H_S, τ_{P1}, θ and γ . By definition, the optimal investment θ^* maximizes total earnings over two periods.

As we can observe, the model includes the mechanisms on settlement intentions, skill transferability and opportunity costs that the authors use to formulate three hypotheses instead of analyzing the mechanisms. Nevertheless, the empirical evidence analyzes the mechanisms indirectly by including determinants as age of migration, length of stay and premigration education.

The probability of staying at destination (ρ) is directly referred to the settlement intentions of the foreign population at destination. According to Duleep and Regets (1999), for immigrants who plan to stay longer at the host country, investments in post-migration education would be more attractive than temporary migrants. Therefore, we could assume that investments would also be more profitable if they are closer or specific to the labor market needs at the host country.

Even when van Tubergen and van de Werfhost (2007) also consider the presence of a partner as an indicator of settlement intentions, based on the young ages and the recent inflows that compose the foreign-born population at the time of the survey, we will not include this measure. Also, as spouses could also arrive after completing a family reunion process, being separated at the time of the survey does not necessarily mean that the pioneer migrant has no settlement intentions.

The next mechanism included in the model is the skill transferability problem. As we have mentioned before, the transferability of the educational level attained before migration. As intentions and results may vary among groups, the authors assumed that labor migrants are more educated than family migrants. Therefore, it can be assumed that the investments in education would be higher for family migrants in order to compensate their lower attainment level. We might also expect that the opportunity costs for investments in education would be higher for economic migrants for obvious reasons.

Based on the sample size, we will not differentiate by country of origin as the authors do, but by continental origin. By considering the differences generated by language and culture, we could expect that the integration process for people coming from Latin America would be smoother than for Asians or Africans. However, based that Catalonia has its own language we could assume that the catching-up process could be perhaps faster but

the surplus obtained by host country language proficiency would benefit all the origins. In that sense, instead of hypothesizing about language-motivated differential investments by origin as van Tubergen and de Werfhost (2007), we will consider that based on the administrative and legal constraints that foreign population should face in Spain, Europeans will be the origin with a higher possibility to enroll.

Finally, the authors considered the role of opportunity costs at arrival based on socio-economic conditions in the country at the moment of migration. As the year of arrival goes from 1933 to 2008 and we have not find estimation of unemployment rates for the entire period needed nor the territorial dimension, we will not estimate the incidence of the opportunity cost in post-migration education. In case it was included, we would consider a negative effect on educational investments.

Data and methods As we have analyzed in the previous sections, the educational attainment data contained in the Demographic Survey 2007 reports the maximum degree attained of the respondents, and there is no specific reference to years of education. As educational attainment levels are a progression of states, instead of estimating a multinomial probit as in Section 6.2, we will define the model as an ordered probit. As the dependent variable would show more than two ordered categories, we will need two cutting-points (also called Z-scores in the binary probit) to divide the distribution curve into three sections.

The ordered probit is built around a latent regression in the same manner as the binomial probit model (Greene 2002):

$$y^* = x'\beta + \varepsilon \quad (6.7)$$

where y^* is unobserved. What we do observe is:

$$\begin{aligned} y &= 0 \text{ if } y^* \leq 0, \\ &= 1 \text{ if } 0 < y^* \leq \mu_1, \\ &= 2 \text{ if } \mu_1 < y^* \leq \mu_2, \\ &\vdots \\ &= J \text{ if } \mu_{J-1} \leq y^* \end{aligned}$$

which indeed is a form of censoring. The μ unknown parameters will be estimated

with β .

The variables included in the model are listed on table 6.11

Table 6.12: **Descriptive statistics. Catalonia 2007.**

		Frequency	Percentage	Valids
Sex	Male	1,478	50.6	50.6
	Female	1,446	49.5	100.0
Educational attainment	Less than primary	286	9.8	9.8
	Primary or Lower secondary	679	23.2	33.0
	Lower Secondary	716	24.5	57.5
	Upper secondary	669	22.9	80.4
		574	19.6	100.0
	Higher education			
Reasons to migrate	Work	1,567	53.6	53.6
	Education	52	1.8	55.4
	Family	581	19.9	75.2
	Other	121	4.1	79.4
	N/A	603	20.6	100.0
Place of birth	EUROPE	1,057	36.2	36.2
	AFRICA	627	21.4	57.6
	AMERICA	1,090	37.3	94.9
	ASIA-OCEANIA	150	5.1	100.0

Source: Author's elaboration based on Enquesta Demogràfica (Idescat).

As we have mentioned before, we will focus our estimation to the post-migration investments in education. Educational attainment will be the dependent variable using less than primary as reference. In addition to the variables listed, we will include sex in order to verify if there is an additional effect differentiating between men and women, as well as years since migration for the estimation of the settlement intentions. In addition, age at migration and its quadratic value will be also included. As we can observe, the variables will follow the classification used in the previous section.

With respect to the skill transferability, we find that economic migrants to Catalonia are the least likely to invest in education. As we might expect, they are the ones experiencing higher opportunity costs for studying based on the income not perceived. Also, the results confirm the non-significant effect on post-migration investments in education

Table 6.13: Ordered Probit Regression of Immigrants' post-migration completed educational levels in Catalonia.

	Coef.	Std. Err.	z	P>z	[95% Co Interval]	
Sex						
Male	-0.01	0.05	-0.11	0.91	-0.10	0.09
Place of birth						
Africa	-1.21	0.06	-19.00	0.00	-1.34	-1.09
America	-0.07	0.05	-1.26	0.21	-0.17	0.04
Asia	-0.54	0.10	-5.20	0.00	-0.74	-0.33
Age at migration	0.07	0.01	7.31	0.00	0.05	0.09
Age at migration, squared	0.00	0.00	-7.81	0.00	0.00	0.00
Main reason to migrate (ref. work)						
Study	1.17	0.17	6.99	0.00	0.84	1.50
Family	0.00	0.06	0.08	0.94	-0.11	0.11
Other	0.41	0.10	3.91	0.00	0.20	0.61
Years since migration	0.02	0.01	2.78	0.01	0.01	0.04
Years since migration, Squared	0.00	0.00	-2.41	0.02	0.00	0.00

Source: Author's elaboration based on *Enquesta Demogràfica (Idescat)*.

of family migrants. On the other hand, migrants who move to improve their educational status would be expected to be the major investors from the groups analyzed.

Even when the results for gender are non-significant, the effect responds to the evidence. To measure skill transferability based on country of origin we have selected Europeans as the reference group based on the relative advantages they have, particularly in legal terms, with respect to the rest of the origins listed. Africans are the group less likely to complete a degree at destination with respect to Europeans, followed by Asians. We have expected that American migrants should also invest in education given the differences, particularly in language, to natives, but as we can observe in the results the hypothesis could not be verified.

Discussion The aim of this section was to obtain, on the one hand, a more recent profile of the foreign-born population in Catalonia based in one of the most recent databases as

the Demographic Survey 2007. One of the major contributions of the exploration of the database was the opportunity of generating the educational attainment profile not only for the population of foreign-origin but also to natives. In that sense, the results provided show that, even when the majoritarian job insertion of non-natives had been at unskilled occupations, the results suggests that this could be related to the barriers to skill transferability rather than the absence of human capital.

On the last section, have based our study in that on pre- and post- migration investments in education of van Tubergen and van de Werfhorst (2007). The main difference behind both approaches were given by the available database, thus not allowing for a complete replication of the model. As a matter of fact, one of the main differences between both studies is that van Tubergen and van de Werfhorst (2007) use a database of repeated cross-sectional data instead of only one observation as in our case.

Nevertheless, we could consider that the results provide enough evidence to suggest differential investments in education at destination. We have conducted an ordered probit estimation for foreign-born population that migrated to Catalonia at age 15 or above.

Chapter 7

Conclusions

In this final chapter we will present the main findings and shortcomings of the research, as well as the future research lines to be developed.

After the Introduction, the first part of the dissertation includes two chapters. Chapter 2, Education: Pathways and barriers to integration, was devoted to develop the theoretical framework of this research. The chapter includes the state of the art on the access and permanence of the children of immigrants in the educational system at destination. Sections 1.2 and 1.3 were aimed to introduce the specific legislation in migration and education that could determine the enrollment of children of foreign origin. Chapter 3 explores the main databases used. The most important Spanish population databases were included, namely: the Padrón Continuo (the Continuous Register of population stocks); the Estadística de Variaciones Residenciales (Residential Variation Statistics on population flows), and the Spanish Censuses 1991 and 2001. In addition, we have used the recent results of the Enquesta Demogràfica 2007 (Catalan Demographic Survey 2007) and the Estadística de l'Educació (Non-university Enrollment Statistics) produced by the Catalan Department of Education. This database has allowed the study of the enrolled population in Catalonia at all non-university educational stages; the main advantage of this database is that it allows for the study of first-hand data that is not publicly available. However, as we have seen before, the database represented one of the major challenges and constraints to the research project that has been partially solved by the inclusion of secondary databases. As the study will be developed under a multidisciplinary approach, the methodological framework was introduced accordingly. As for the period considered, the empirical investigations are based between the academic courses 2000/01 to 2007/08.

The second part of the thesis was focused on the descriptive analysis of the enrolled population and was divided in two chapters. First, Chapter 4 analyzes the evolution of the foreign enrolled population during the eight years considered. In spite of the absence of data that allows the estimation in terms of academic outcomes, we found evidence on the

differential enrollment by educational stage and origin – particularly at post-compulsory stages. In terms of academic tracks, the results showed that foreign pupils are mostly concentrated at vocational school but, in general the enrolled population experienced a significant decrease after the first academic transition. All in all, we must stress that the advantages in terms of a shorter length of stay of Latin American nationals before applying for the Spanish citizenship could be reflected in the database. In that sense, even when previous results have shown the shorter permanence of foreigners in the educational system, the acquisition of the Spanish citizenship may generate the statistical invisibility of the children of immigrants. As parental background is not registered, we could only assume the incidence of this effect but we cannot contrast it by incorporating external databases.

Chapter 5 was aimed at developing the study of the territorial distribution and the incidence of the concentration and the school segregation in Catalonia at different scales. In the study of the spatial distribution of the foreign pupils we have incorporated two main assumptions:

First, we assumed that the final distribution reflected by the database will be at the same time a reflection of the familiar preferences in the decision-making processes. That is, all things equal, the school in which children are enrolled would be satisfying the particular needs and maximizing the utility for one household. Thus, preferences will be revealed in the sense that changes between centers would respond to personal or familiar criteria instead of external decisions.

Second, we will analyze how the origins are distributed across the school strata under the assumption that the observed interactions would also be a reflection of a spatial assimilation process. We have not considered the interactions in terms of friendships and networks constructed inside the classroom but that spatial distribution would also shed some light in the contact among origins. The results obtained show that interactions are, in fact, not homogeneous among origins. However, its interpretation deals with a scale effect linked to the size of the municipality and the share of foreign population. In order to develop three different approaches to the school segregation phenomenon, we have considered the Autonomic, Provincial (Girona) and municipal (Barcelona) administrative levels.

Despite the limitations and constraints mostly related to the dataset explored, results show that, first, the scope or scale used is important not only for the interpretation of the segregation scores but to the development of efficient policies targeted to segregation and access to education.

Subsequently, the first section of Chapter 6 was focused in analyzing the latent re-

lation between school and residential segregation as well as contextual variables. Even when results are not conclusive given the scarce number of indicators at municipal level and the sample-size used, the findings showed the low correlation between the residential and school level. Nevertheless, this could be directly related to the supply of education available not only in the corresponding catchment area but in the neighboring municipalities.

Finally, we have estimated two additional models on the educational attainment determinants. The results confirmed that school transitions are determined by family background and also by the main reason for migrating. People migrating to Spain for education or other than working invest significantly more in education than economic or family migrants.

Considering the results presented and the challenges faced in the research, it can be said that the first challenge to be curtailed is definitely information. In order to develop efficient policies and to identify the real needs of a society regardless the origin, it is necessary to know the real characteristics of the population that is being affected. Even if it is true that the existence of schools in which concentration of foreigners could be considered as dysfunctional, the mechanisms behind concentration could not only rely on families and individual decisions. In that sense, school changes and familiar preferences are not only related to preferences with respect to origin but also to the quality of education that parents are looking for or school installations and values that are not related to the origin of the pupils their offspring is supposed to share with.

All in all, the intense arrival of the inflows has also showed the delayed and in some cases scarce policy response to effectively satisfy the needs of the enrolled. In that sense, the current adverse economic conditions in Spain have directly affected the resource allocation for educational and social policies targeted to fight social exclusion.

7.0.4 Future research lines

As we have seen throughout the study, the study of school segregation and the human capital formation process is still conditioned by the characteristics and accessibility of the data. The lack of public databases and the absence of variables that allow the study of the characteristics of the population enrolled and their families represent one of the biggest challenges for policy evaluation. In that sense, the future research lines that this thesis has motivated are aimed to the dynamic analysis of the population of foreign origin and the effect of the migratory process in the own and familiar decisions and behaviors.

Further research might also investigate into the influence of the migratory processes on those family members who are left behind, well by the irruption of the economic crisis or by incomplete family reunion processes. More specifically, we would like to study, first, the effects related in terms of family structures and the impact in, for example, budgetary allocations as a result of the remittances sent to the origin country. Second, and directly affecting children left at origin, we would like to analyze to what extent the educational attainment of children of immigrants is related to the familiar migratory process and their previous experience at origin. To fulfill this objective, a detailed analysis of the determinants of pre- and post-migration investments in education should be carried out. In terms of the effect at origin and destination, this research line would seek for measuring the disruptive effect of international migration at origin and destination countries. However, more than being focused on the brain-gain / brain-drain phenomena of adult migration, the motivation behind the research line would be to understand the links between international migration and education; their relation to drop-outs and ineffective policies at origin, and the likelihood of enrollment at destination.

For the study of the immigration and naturalization policies, we would like to analyze the incidence of the Spanish citizenship acquisition in integration policies. As we know, nationals from former Spanish colonies should spend a reduced period of two years before applying. Therefore, to what extent could we talk about preferred origins that are becoming statistically invisible but in some cases still differentiated in practice? What is the incidence of integration policies in children of immigrants who were born at destination and also hold the Spanish citizenship? Are they being considered as Spaniards and therefore, not a target for integration policies? Being born and enrolled since early ages at destination, is their performance similar to the expected for Spaniards or there is no real catching-up process with respect to natives?

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