# School in Social Sciences

# University of Trento

## Programme in Sociology and Social Research

XXIV° cycle

**Ph.D. candidate: Davide Azzolini**

**Advisor: Carlo Barone**

**Doctoral committee: Gabriele Ballarino; Giovanna Fullin; Irena Kogan**

## Immigrant-native educational gaps.
## A systematic inquiry into the schooling of children of immigrants throughout the Italian education system

Trento, April 2012

# Table of contents

# List of figures and tables

*Figures*

*Tables*

# Introduction

Disparities in educational opportunities are among the most pervasive challenges across Western societies. Educational setbacks perpetuate broader inequalities in later stages of life, particularly for the socioeconomically disadvantaged and for children with an immigrant background. This dissertation investigates the educational gaps between natives and children of immigrants in Italy.[1] Along with other new immigration countries, immigration to Italy is a recent phenomenon which has grown steeply over the past two decades. Consequently, the presence of school-age children of immigrants has grown substantially, exceeding seven percent of the total student body in 2009, up from only one percent in 1999. For its current and future demographic impact, the increased presence of children with immigrant background raises important research and policy questions about how these children integrate into the school system and adapt to the receiving society. This dissertation is aimed at shedding light on this emerging factor of educational inequality and at increasing knowledge about this topic, which still represents a rather novel research field in a context of recent immigration like Italy.

In this dissertation, I add to the existing literature on children of immigrants' education through a systematic and comprehensive assessment of the phenomenon. First, I will investigate both the achievement and attainment components of education, thus both the cognitive dimension (i.e., what students know) and the educational vertical and horizontal stratification (i.e., what level and what field of education students attain). This distinction is important in order to understand whether children of immigrants' drawbacks are more related to the achievement of learning abilities or have more to do with their, and their families, difficulties in making educational choices. Drawing on research on social mobility and immigrant adaptation, I regard these two components as important measures of children of immigrants' integration to the host society and future life chances.

Second, I will provide an overview on the phenomenon throughout the different levels of the Italian education system. Such a comprehensive approach will allow me to reach robust conclusions regarding the nature of the phenomenon. Moreover, this multi-stage perspective is important also because skill formation is a process which proceeds in stages, therefore it is useful to assess immigrant-native inequality at different life and educational stages, starting from the earliest ones.

---

[1] In this work I use the term "children of immigrants", to identify school-age children, either born in Italy or in a foreign country, whose parents were both born abroad. If not otherwise specified, I will label children of immigrants born in Italy as the second generation, and those born abroad as the first generation.

Next, the dissertation also aims at contributing to the literature by comparing the patterns and explanations of the phenomenon in Italy with the most established findings from countries with older immigration traditions. Because previous evidence at the international level is essentially limited to traditional receiving countries, the empirical basis for theoretical explanations of immigrant student achievement is also predominantly restricted to these countries. In light of the important changes and trends in recent international migration, which have seen a marked shift in migration flows from old to new destinations, this research gap should be redressed urgently. Moreover, it shall be underlined that Italy—similar to other South-European countries, but different from Northern European and Anglo-Saxon countries—is characterized by several important peculiarities not only in terms of immigration patterns (e.g., recent and quick increase in the migratory inflows, high shares of illegal entries) but also in regard to the structure of the economy and labor markets, as well as in its welfare regimes. This institutional setting makes the Italian case markedly different from old receiving countries and consequently it is unclear the extent to which explanations of educational achievement gaps derived from traditional immigration countries extend to this "new" case.

Drawing on research findings from traditional immigration countries, I will investigate the heterogeneity among the immigrant student population by documenting how school outcomes vary by immigrant generational status and country of origin. A large body of empirical evidence points to pronounced generational progress of children of immigrants, meaning that those born in the destination country benefit from not having to adapt to the new context and acquire a new language and culture, as opposed to their first-generation counterparts, who left their home country and had to make sense of a new one. At the same time, research has also repeatedly established that this regularity does not apply everywhere and to every segment of the youth immigrant population. Huge variations in generational patterns of children's schooling occur between ethnic groups. Whereas some groups fill into the "assimilative" hypothesis—that would predict that children of immigrants adapt to the native population and experience upward mobility with time spent in the destination country—some groups seem never to catch up and enter the bottom strata of the receiving society. Therefore, optimistic and pessimistic views on children of immigrants' integration into the receiving countries co-exist. As we are going to see, empirical literature on the educational achievement and attainment of children of immigrants in Italy has not proved conclusive so far either. Hence, this dissertation aims at significantly advancing research on this point.

A key question addressed in this dissertation is about the contribution of a "traditional" form of inequality, social origins, to the explanation of immigrant-native educational differences, as well as variations by immigrant generation and country of origin. Drawing on Heath and

Cheung (2007), throughout all empirical sections of this dissertation, I will compare gross and net differences between natives and children of immigrants, which indicate the overall differences existing between immigrants' children and natives and the differences adjusted for social background, respectively. Comparing gross and net immigrant-native differences is of great interest for it allows to disentangle the contribution of one of the most relevant traditional factors of inequality to the observed immigrants' disadvantage. A great amount of research has demonstrated that social origins are responsible for substantial parts of the disadvantage of children of immigrants. Put differently, a large part of the problems faced by immigrants' children at school can be attributed to the fact that their parents experience socioeconomic deprivation more than native parents do. On the whole, considering the low occupational attainment of adult immigrants in Italy, such a pattern is expected to take place in Italy as well. At the same time, however, the contribution of family background might not be as strong in Italy as it has been in many traditional receiving countries. Although a substantial number of immigrant adults show poor labor market outcomes, recent immigration waves to Italy have exhibited relatively high educational levels, conceivably translating into higher possessions of educational and cultural resources and thus weakening the link between family socioeconomic background and children's achievement. Hence, it is unclear whether "traditional" forms of inequality "work" the same way for natives as for immigrants, and across national-origin groups.

Moreover, the educational setback of children of immigrants cannot always be reduced to socioeconomic factors only. For example, children with an immigrant background often have lower mastery of the language spoken in the host society; or they might experience various forms of social and scholastic segregation, which could reduce their educational outcomes independently from their actual skills and motivations and over and beyond their family resources. In particular, mastery of the language spoken in the host society is regarded as one of the most important explanatory factors and represents a crucial determinant of educational attainment and achievement. Also, because language acquisition is a process which develops over time and because distances between languages vary depending on the specific idioms considered, language is a factor which could serve as a possible explanation for differences between generations and national groups. These additional hypotheses will be also investigated in the empirical sections of this dissertation. However, in order to properly address such finer research questions, the contribution of social origins has to be first precisely established and statistically controlled.

The thesis is organized as follows. In Chapter 1, I provide a broad overview of the theoretical arguments and concepts employed in the subsequent empirical sections of this work. More precisely, I explore the competing theories on the schooling of children of immigrants and

highlight the main factors that can either accelerate or provide obstacles to it. Next, I document the main regularities found in research regarding children of immigrants' educational outcomes by highlighting variations by generation and country of origin. Finally, I review some widely established explanatory factors of immigrant-native educational differences: I mainly focus on the contribution of social background but I also consider the contribution of other factors like language proficiency, aspirations and parenting, and local and school context.

The second chapter is aimed at reviewing the state of the art of empirical research in Italy. After providing some information on the Italian education system and the presence of foreigners in Italian schools, I try to highlight some underdeveloped areas in the empirical works thus far produced in order to lay out the research advancements that can be delivered with the present dissertation.

The empirical analyses are presented in chapters 3, 4, 5 and 6. To the purpose of enhancing a comparability of the results, each chapter follows a similar structure, hypotheses are stated following similar criteria and variables are operationalized in the most similar way possible. Also, chapters are ordered following the levels of the education system: the empirical section opens with an investigation of the achievement gaps between natives and children of immigrants in Italian primary education (chapter 3). This is an important domain because the acquisition of cognitive skills at early school stages is crucial for future academic outcomes and human capital development. More precisely, Chapter 3 investigates reading and mathematics achievement gaps in the second and fifth grades of primary education using INVALSI (National Institute for the Evaluation of the Education System) data.

Chapter 4 moves on to lower secondary education and compares the performance of natives and children of immigrants in the exit exam as collected in the ITAGEN2 (Italian Second Generation Survey) survey. Relative to the previous chapter, marks instead of test scores are analyzed, providing insight on whether any discrepancy exists between these two measures of pupils' skills.

Chapter 5 uses recent Labor Force Survey and ISFOL (Institute for the development of vocational training of workers) data to investigate differences by generation and country of origin in the horizontal and vertical dimensions of educational attainment in upper secondary education. More precisely, I will compare children of immigrants and natives in the choice of school track (vocational, technical and general schools) as well as in the risk of dropout.

The last of the empirical chapters (Chapter 6) examines achievement gaps between natives and children of immigrants at the age of 15, and thus in the last year of compulsory education. For this purpose, I use PISA (Programme for International Student Assessment) 2009 data,

which allow me to investigate reading and mathematical competences of students enrolled in the different tracks of upper secondary education.

The last chapter summarizes the main results and provides a discussion in regard to patterns of achievement and attainment by generational status and country of origin and also in regard to the contribution of social origins to these gaps.

# 1 The educational outcomes of children of immigrants: a review of the literature

## 1.1 Introduction

As a result of massive international migration over the past decades, growing numbers of children of immigrants are now becoming of age in Western societies and are entering educational systems and labor markets. Their experiences are of great significance and have important implications for equality of opportunity and social integration in receiving countries. As we will see, pessimists foresee problems for children of immigrants, with the possibility of downward assimilation into the lower social strata for some groups. In turn, optimists claim that children of immigrants will undergo an upward mobility process, thus improving their socioeconomic conditions compared with their parents. In both accounts, education is key, both in the form of human capital, with its valuable payoffs in the labor market, and as a crucial mechanism of social integration (Heath and Brinbaum 2007, Rivas and Portes 2011).

However, a quite large amount of empirical evidence has made clear, over the past decades, that educational opportunities are not equally distributed in the population, because several ascriptive factors influence individuals' educational outcomes over and beyond individual effort and talent. As we will see in greater detail throughout this chapter, social background plays an important role in affecting children's educational outcomes, and migration background adds to—and possibly interacts with—this "traditional" form of inequality of educational opportunity. In this chapter, I review the theoretical and empirical research that has been produced on these topics at the international level, while I will dedicate the following chapter (chapter 2) to the review of research on Italy.

According to most empirical research, the general tendency is that children of immigrants underperform natives. However, high heterogeneity is found with respect to at least three key observable features of individuals' immigrant background: generational status, age at arrival, country of origin. Furthermore, it is important to underline that, in order to get a clear picture of the actual mechanisms underlying the immigrant-native gaps in education, it is important to disentangle the contribution of migration background from that of social background. On this aspect, the literature indicates that socioeconomic deprivation accounts for a substantial part of immigrant-native gaps. However, also this result is heterogeneous across destination countries and national-origin groups and, often, significant differences persist even

after controlling for socioeconomic background. We will see that other family characteristics—as well as factors pertaining to school and social contexts—help explain these residual gaps between children of immigrants relative and natives.

This chapter is organized as follows. The next section offers an overview of the theoretical debate on the adaptation of children of immigrants. The third section introduces the domains of educational attainment and achievement and summarizes the most pertinent theoretical arguments and empirical findings on inequality of educational opportunity. The last two sections review theoretical and empirical works on the educational gaps between children of immigrants and natives, stressing the contribution of socioeconomic background and documenting the role played by other relevant factors.


## 1.2 The adaptation paths of children of immigrants

International migration has been growing constantly over the past decades. In 2010 the estimated immigrant population worldwide accounted to approximately 214 millions and today foreign-born population makes up between 9 and 10 percent of the population living in developed countries (United Nations 2012).[2] This expansion—coupled with an increased feminization and stabilization of foreign-born populations (Castles and Miller 2003, Zlotnik 2003, Freeman 2006)—has raised the importance of understanding how immigrants and their offspring adapt to receiving societies (Zhou 1997, Adsera and Tienda 2012).[3]

Although immigrant adaptation has long been at the core of theoretical and empirical studies, a conclusive understanding of the patterns of immigrant adaptation is still far from being achieved and the debate is still ongoing among scholars (Alba and Nee 1997, Portes 1997, Alba, et al. 2011, Haller, et al. 2011). Classic assimilation theory has understood the adaptation of immigrants to the destination society as a two-steps process (Park 1914). The first step refers to a process of social incorporation of immigrants in terms of social relationships and interactions between them and the host society (the term commonly used to describe this stage is *accommodation*). The second step refers to the concept of *assimilation*, which implies a slower and deeper form of adaptation which eventually leads to the social and cultural incorporation of the new comers into the majority group (Rumbaut 1997, Alba and Nee 2003). The concept of assimilation is widely employed in the international literature. However, considering its potential

---

[2] The United Nations define international migrants as persons who reside outside of their country of origin for one year or more.
[3] For an overview of the theoretical and empirical literature on international migration, see Massey (1993, 1998).

misuse (Alba and Nee 1997), it is perhaps worth mentioning that in this dissertation this concept is neither interpreted nor used in a "normative" way. It is rather employed in a merely descriptive way, as a useful tool for interpreting the dynamics of immigrant adaptation. An oversimplified positive connotation of assimilation is also rejected, because, as we are going to see below, assimilation can assume either positive or negative connotations depending on the specific outcome considered. Then, it shall be also underscored that in this dissertation the main focus is on education, and thus any inference regarding children of immigrants' integration into the host society is by definition limited to the educational domain and—in light of the socioeconomic consequences of education—to the structural dimension of integration (Rivas and Portes 2011).

Besides these considerations, the concept of assimilation requires that researchers adopt a middle-term frame of analysis (Portes and Fernandez-Kelly 2008). Focusing on children of immigrants and not only on their parents is therefore necessary, first, to grasp the dynamics of immigrant adaptation and, second, to explore the patterns of intergenerational transmission of social positions between immigrants and their children. "Immigrant generational status" is therefore a central concept in studies on immigrant assimilation. However, while there is a large consensus about the employment of an intergenerational perspective in the study of the mid- and long-term assimilation of immigrants, there is no such great consensus on the definition and measurement of generation. Usually, "first generation" is the label used for those individuals who migrated at an adult age, while their children are considered the "second generation". However, also children of immigrants can have directly experienced the migratory process, hence, strictly speaking, they can be also considered as belonging to the first generation, while second generations are only those who were born in the destination country from migrant parents.[4] According to one of the most widely known classifications, immigrants can be subdivided into specific categories according to their age of arrival to the receiving society (Rumbaut 2004). The author identifies the second generation as the children born in the host country from foreign-born parents; "generation 1.75" as individuals who entered the host country with 0-5 years; "generation 1.5" as those migrated at age 6-12; "generation 1.25" who migrated at age 13-17; and the first generation who migrated at 18 or later. In empirical studies, collapsed versions of this classification have been employed. For instance, whereas some literature defines the second generation only as those born in the destination country either with at least one (Levels and Dronkers 2008) or with two foreign-born parents (OECD 2006, Brinbaum and Cebolla-Boado 2007), other studies consider as second generations also children of mixed-parentage whether born in the host country or immigrated to the country before age 12 (Portes and Zhou 1993,

---

[4] Because in this dissertation the focus is on children of immigrants and not on their parents, I take up this second definition and therefore I will refer to first-generation and second-generation children of immigrants depending on their place of birth.

Portes and Rumbaut 2001). Although the concept of immigrant generation is widely employed, we will see that also metric measures of age at migration or length of residence in the destination country are largely utilized in empirical research (Chiswick and DebBurman 2004).

In the sociological debate about immigrant assimilation, two main schools of thought have emerged. On one side, there are scholars who predict that immigrant assimilation follows a straight-line assimilation pattern—that is to say that immigrants' offspring in the long-run become undistinguishable from natives in norms, values, behaviors, and socioeconomic characteristics. On the other side, other scholars oppose this model, arguing that finer-grain analyses show that immigrants assimilate to different segments of the receiving society. According to this latter position, whereas cases of successful assimilation exist, large shares of children of immigrants undergo a process of downward assimilation, meaning that they fail to achieve good social outcomes and they end up in the lower strata of the receiving society. These two schools are mainly based on the United States' experience, but they offer useful theoretical insights for European countries as well.

The first of these theoretical positions is essentially based on a long-term perspective and was first elaborated on the experience of early immigrants of European ancestry in the US. This position is known as straight-line (or mainstream) assimilation. This model theorizes that children of immigrants assimilate both economically and culturally to the mainstream, making significant steps forward relative to their parents because they do not directly face the hurdles of immigration as their parents did. Gordon (1964) described assimilation as a stepwise assimilation process, which starts from a simple "acculturation" (exchange of cultural features that results when groups of individuals having different cultures come into continuous first hand contact) and leads at the end to structural assimilation (full integration in the society). The author also highlighted the generational change in immigrant population, arguing that the first generation was less assimilated and less exposed to American life than their American-born children (the second generation), and that their grandchildren (the third generation) were fully assimilated. This theoretical position has been renewed by the so called "new-assimilationists", whose findings point to the continuity between past and contemporary immigration to the US in terms of patterns of assimilation (Alba and Nee 1997, Alba and Nee 2003, Alba, et al. 2011). These authors assert that there exists no systematic downward assimilation among the contemporary second generation. In the long-run, children of immigrants assimilate to the mainstream with respect to a wide range of cultural and social aspects and any deviation from this upward path is not to be regarded as a social phenomenon but rather ascribed to individual anomalies.

The so called segmented assimilation model opposes the above described straight-line framework, arguing that assimilationists miss the vast heterogeneity of assimilation paths because

they rely on a too long-term perspective (Gans 1992, Portes and Zhou 1993, Portes and Fernandez-Kelly 2008). The theory of segmented-assimilation instead focuses on a medium-range perspective which—according to its proponents—allows to discover that children of immigrants do not always assimilate into the mainstream. On the contrary, whereas some ethnic groups are found to assimilate quickly, some others are more likely to experience deprivation and social exclusion. Theorists of the segmented assimilation maintain that these differentiated paths of assimilation are all but random deviations or individual anomalies. On the contrary, they are profoundly structured and, as such, they can be object of study. A specific theoretical model aimed at explaining these different paths of assimilation was elaborated (Portes and Zhou 1993, Zhou and Bankston 1998, Portes, et al. 2009). This model is based on three main concepts: human capital, modes of incorporation and family structure. By human capital the authors understands the formal education and occupational skills of the parents. High-skilled and high-educated immigrants enjoy—all else being equal—easier access to the labor market, as well as higher chances of attaining desirable positions in the host society, which are generally transmitted to the children's generation. However, the social context of the receiving country is crucial to facilitate (or obstacle) the recognition and exploitation of this human capital in the host society. The authors use the concept of "modes of incorporation", arguing that three main levels—namely, government, society, and community—affect the positive or negative acceptance of newcomers. For instance, it is expected that a receptive government policy will ease the assimilation process, while a hostile one will provide obstacles to it. Moreover, the prevalence of prejudices in the receiving society is predicted to further obstacle immigrants' integration. Also, at the community level, ethnic social networks shall be considered because they might play an important role in the exploitation of educational qualifications and resources brought into the receiving society from the home country (Borjas 1992, Zhou 1997, Hatton and Leigh 2011). The last of the three concepts of the model is family structure. Stable families with strong relationships are thought to increase the likelihood of upward assimilation of their descendants, because having strong family ties and living in bi-parental families decreases the risk of deviation and increases the motivation to study (McLanahan and Percheski 2008, Portes, et al. 2009). Moreover, although it is often thought that younger siblings in numerous families are disadvantaged because of dilution of resources invested in education (Becker and Lewis 1973), it can be also hypothesized that having older siblings serves as a protective factor for immigrants' children, because older siblings—who have had direct experience in the school of the receiving country—can help them integrate into the school system.

According to the segmented assimilation approach, the combination of these three factors (human capital, modes of incorporation, and family structure) leads to three main "paths"

of assimilation (Portes, et al. 2009). A full and consonant acculturation and occupational integration is the first theoretical path, indicating the existence of an upward assimilation. It mainly occurs for families with high human capital and high occupational positions—who are able to quickly accommodate to the host society. However, other paths are possible. There can be cases of selective acculturation, when immigrants accommodate to the host language and rules without giving away their cultural elements (Portes and Zhou 1993). This path can lead to a satisfying socioeconomic attainment through educational attainment combined with biculturalism, as also argued by Gans (2007, p. 154) who posits that acculturation operates separately from social mobility. Accordingly, some literature suggested the existence of "accommodation without assimilation" (Gibson 1988, Portes and Zhou 1993), that would take place when ethnic groups are willing to acquire the host language, to accept social customs of the receiving society, but refuse to assimilate to the cultural mainstream (e.g., Sikh immigrants in the US). The concept of accommodation without assimilation is relevant for it highlights the possible existence of resistance to assimilation on the side of immigrant groups. This path is possibly determined by the role played by the ethnic community, within which ethnicity is used as a source of social capital (see also section 1.5.4). Finally, dissonant acculturation occurs when children refuse their parents' language and culture to embrace the host culture. This attitude does not necessarily lead to low educational outcomes and consequent stagnation or downward assimilation, but these outcomes are considered more likely to happen because of the weakening of family control (Portes, et al. 2009).

The segmented-assimilation model highlights the variety of assimilative paths of immigrants of different ethnic origins. As research has consistently proven, the three main driving factors (human capital, modes of incorporation and family structure) account for large parts of the differences between ethnic groups. For example, in the US Asians have high human capital and are also positively received at the governmental level, whereas Caribbean, Mexicans and Latin Americans are mainly concentrated in low-skilled occupations (ibid.).

As already mentioned above, assimilation can assume either positive or negative connotation depending on the outcomes taken into consideration. Whereas educational attainment is generally understood as a crucial and positive outcome of immigrant assimilation, for it enhances chances of upward social mobility, there are also cases when assimilation assumes negative connotation. For instance, in the literature on Anglo-Saxon countries a well-known example of negative consequences of assimilation concerns physical health (Jackson, et al. 2010). This literature points out a physical health advantage of children of immigrants relative to native-born children, which tends to deteriorate the longer they live in the destination country; that is to say with exposure to relatively unfavorable health behaviors and environments. This might

happen because immigrant families have healthier behaviors and lifestyles relative to the native-born population (Rumbaut 1997). In conclusion, although it is widely accepted to regard educational success as positive outcome of assimilation, we should keep in mind that the benefits of assimilating to the host country may be less pronounced or, in some cases, even negative if we turn our attention to other domains. Therefore, it is important to carefully consider the specificity of the domains considered when assessing assimilation and its consequences. The next chapter is aimed at shedding light on the concepts of educational achievement and attainment and on their social determinants.

## 1.3 Education as a key (but unequally distributed) resource

Education is considered one the most powerful predictors of individuals' socioeconomic wellbeing, because it is believed to positively influence occupational attainment and several other economic outcomes, like the probability of being employed, the job position, career and earnings (Becker 1967, Blau and Duncan 1967, Erikson and Goldthorpe 1992). Possibly, education represents for children of immigrants an even more important resource, because it might be the only resource they can rely on to overcome the hindrances usually faced by immigrants. Hence, in our research perspective, education can be regarded as a means for socioeconomic advancement and, as such, also as a buffer against poor integration into the receiving society (Portes, et al. 2009).

However, as pointed out by a massive body of empirical research, education is not equally distributed in the population. In fact, educational opportunities are not determined by individual acquisitive factors only, like ability and effort, but they are significantly shaped by ascriptive characteristics—particularly by social origins. The literature on social mobility has investigated the mechanisms of intergenerational transmission of human capital and social positions by employing various measures of social origins, including parental occupation and education.[5] The contribution of these factors to educational opportunities has been extensively documented (Breen 2004, Breen and Jonsson 2005). This broad literature highlights that in Western countries—despite decades of school expansion which led to increased rates of school participation—the structure of social inequalities with regard to education has been changing at a slow pace and children of lower social strata, or lower educated parents, persistently display lower educational outcomes compared with their counterparts from higher social classes

---

[5] Among the most employed measures we find social class schemes (Erikson and Goldthorpe 1992), socio-economic indexes (Hauser and Warren 1997), as well as prestige scales (Ganzeboom, et al. 1992). Also indicators of financial resources (e.g., income) are widely employed, mainly by economists (Esping-Andersen 2004).

(Erikson and Goldthorpe 1992, Shavit and Blossfeld 1993, Erikson and Jonsson 1996, Goldthorpe 1996, Ballarino, et al. 2009, Breen, et al. 2009, Barone, et al. 2010).

Whereas the existence of intergenerational transmission of human capital and social positions has been clearly established, the mechanisms underlying this transmission often remain elusive. Before reviewing some of the most relevant theoretical argumentations on this point, a clarification of terms is needed. As pointed out by Schnepf (2004), educational success is analytically observable on two main domains: educational achievement and educational attainment. While the former has to do with educational performance and cognitive development (i.e., acquisition of competences, skills and knowledge); the second has to do with the obtainment of specific educational qualifications and titles. Conventional measures for educational achievement comprehend assessments of cognitive skills through standardized tests and marks. Both types of measures have advantages and disadvantages. Whereas standardized tests are commonly recognized as more precise measures of pupils' achievement, they might be affected by some "cultural bias", so that minority children's test performance would be to some degree negatively affected (see Koretz (2008) or Fischer and associates (1996) for a review). On the other hand, marks are not a very accurate measure of students' cognitive skills, as standardized test scores could be, because they are largely dependent on teachers and they also vary across schools. Nonetheless, marks are very important outcomes because students and parents regularly monitor student performances via marks and they are more sensitive to student input, such as hours spent on homework (Kao and Thompson 2003). In turn, the concept of educational attainment uncovers a double kind of educational stratification: a vertical differentiation (e.g., the attainment of specific titles, transitions from an educational level to the subsequent one) and a horizontal differentiation (which concerns the choice of different school tracks, subjects or institutions).

Depending on the degree of horizontal differentiation of an education system, it is of crucial relevance to focus not only on the vertical dimension, because different tracks or fields of study create different individual expectations (Buchmann and Park 2009) and are associated with different occupational prospects (Allmendiger 1989, Arum and Shavit 1995, Shavit and Müller 1998, Dustmann 2004). In general, students attending general and academic-oriented schools enjoy higher chances of attaining highly qualified and better rewarded jobs as compared with those who attended vocational schools. Moreover, educational achievement and attainment are clearly interrelated. On average, the higher student's cognitive skills are, the higher his/her progression up the education system will be. In turn, cognitive development can be determined by educational attainment. The longer a student has been exposed to education, the higher his/her cognitive skills. Likewise, attending certain school tracks relative to others (within the

19

same educational level) leads to the acquisition of different kinds of competences (Barone and Van de Werfhorst 2011), due to differences in curricula (e.g., general cognitive skills vs. work-specific cognitive skills).

The distinction between educational achievement and educational attainment draws upon the seminal work of Boudon (1974) on the reproduction of social inequality in education. Boudon lays out the existence of two main components of inequality of educational opportunity: a primary component, which expresses the cognitive and non-cognitive skills transmitted by parents to their children through the socialization process, and a secondary component, which refers to role played by the family with regard to children's educational choices. These two components have become widely employed concepts in sociology of education as "primary effects" and "secondary effects" of social origins. The former affect the student's cognitive development, while the latter affect the student's probability of progressing up the education system as a result of his/her family's higher propensity to invest in education, conditional on his/her skills.

In both cases, the emphasis is put on the mechanics of intergenerational transmission of human capital and social positions. But how does this transmission actually work? Several theoretical explanations have been advanced. A first set of explanations comes from psychology and behavioral genetics. These positions postulate that, innate intellective differences exist between the descendents of different social classes because individuals with higher skills access higher economic and social positions (Jensen 1972, Herrnstein and Murray 1996). Recent evidence confirms that genetic similarities between parents and children account for a significant fraction (roughly two fifths) of the correlation between parental and children education (Jencks and Tach 2006). However, the study of genetic contribution to educational inequality and intergenerational transmission of human capital is made difficult by several methodological limitations (see Fischer et al. (1996) for review). For instance, it is difficult to purge the effects of genes from the effects of environment, also because these two dimensions interact, meaning that genes exert their effect through the mediating role of environment (Cunha, et al. 2006). Also, the measurement of innate ability is rather troublesome. Some studies have used IQ tests as proxies for innate ability, not considering that such tests are themselves a result of social factors (Fischer, et al. 1996).[6] While the role of genes may be relevant for analyzing differences between social classes, this hypothesis is marginal when looking at differences between immigrants and natives. Indeed, a huge amount of evidence has demonstrated that no genetic differences exist between ethnic groups (ibid.).

---

[6] In addition, variations in IQ tests administered at very early age might be affected by pre- and post- natal environments, which have consequences on children cognitive development (Cunha, et al. 2006).

Sociological research has advanced various hypotheses to account for primary and secondary effects of social origins. One explanation for the former is that the education system rewards "cultural capital" (Bourdieu and Passeron 1979, 1990). This theoretical position underscores the role of socialization and intergenerational transmission of cultural values and lifestyles. In this perspective, education is seen as a means of cultural reproduction aimed at maintaining the existing social stratification and the school system is regarded as an agency of social control which advantages the dominant classes. Bourdieu postulates that children of lower social classes and children of upper and middle classes possess different cultural resources and traits (e.g., linguistic skills, values, habits, behaviors). These postulated social class-based cultural differences are reinforced by differences in parenting styles: parents of upper classes are more capable to foster the development of their children's skills and behaviors (Lareau and Weininger 2003). In line with this theoretical argumentation, children from higher classes would be advantaged because generally they master the cultural codes that prevail and are rewarded in schools and feel at ease with the values, manners and expectations that dominate the educational system (Erikson and Jonsson, 1996, p. 22). Moreover, because upper and middle-class children possess the appropriate behavior, knowledge and attitudes, they can better interact with teachers, who themselves are part of the middle-class and therefore are more inclined to reward cultural orientations, values and learning styles of upper and middle classes. It shall be underlined that this theoretical position has encountered several criticisms. For instance, Di Maggio (1982) casts some doubt on the idea that social classes display a strong cultural identity and also suggests that cultural capital may work as a factor which promotes social mobility. Moreover, some empirical research has rejected the argument that educational outcomes are significantly influenced by cultural capital (Barone 2006).

As mentioned above, research has acknowledged the importance of the active role played by parents. Net of parent-child transmission of some cognitive and genetic traits, human capital is not automatically transferrable across generations. Human capital possessed by the parents can be irrelevant for their children if it is employed exclusively outside the family (Coleman 1998). An active involvement of the parents in their children's process of cognitive and non-cognitive skills development is required. Hence, the role of parents and the social capital within the family are key factors in the process of creation of human capital (Coleman 1988). The economics of education posits that the education of children is a result of an "education production function", where family investments play a relevant role (Becker 1964, Dearden, et al. 2009). In this framework, family investments can be both monetary and non-monetary (e.g., support for children's schooling in terms of parental involvement, encouragement, and practical help with homework, etc.). Because resources are not distributed equally, it is evident that also

21

investments in education might differ significantly across families of different social backgrounds. Moreover, it shall be noted that parental investments are not necessarily limited to the school period only, but they can start from the early years of life of children. On this aspect, research has demonstrated that the earlier the investments, the more effective and the more efficient they are (Heckman and Masterov 2004, Cunha, et al. 2006). This empirical evidence makes clear that educational inequality is a result of a cumulative and long-run process and that policy efforts aimed at reducing social disparities should be primarily concentrated on early childhood.

As described above, children with socioeconomically disadvantaged backgrounds exhibit lower transitions rates to higher educational levels than children from upper classes even if prior performance is held equal (secondary effects). While culturalist hypotheses, as we have seen, might to a certain extent explain "primary effects", a systematic and comprehensive theoretical account for secondary effects is provided by rational choice theory (Goldthorpe 2007). This theory provides a sound and parsimonious explanatory framework for family decision-making processes about children's educational careers and the choice of type of school or field of study, which has been empirically validated in several countries (Cobalti and Schizzerotto 1994, Erikson and Jonsson 1996, Becker 2003). Following Goldthorpe (2007), in this dissertation I take up an "intermediate" notion of rationality. More precisely, a rationality which conceives the individuals as actors with some capacity for acting autonomously and seeking for their goals, but at the same time considering that they might not have clear goals, being not aware about the means to achieve them, and have different subjective perceptions of costs and risks (ibid., volume I, chapter 7). Put differently, this model of rational action relaxes some of the assumptions of the classical rational choice theory by allowing for some social attributes and subjective perceptions to affect individuals' choices even beyond their control (Collins 1993).

According to rational action theory, the choice of continuing education (A) versus not continuing (B) is given by the expected utility associated with the decision taken ($U_A$).[7] Formally, the choice can be described with the following utility function (Mare 1980, 1981, Breen and Goldthorpe 1997, Breen 2001, Becker 2003):

$$U_A = E*B + (1-E) * P_{SD} (-SD) - C$$

_____

[7] The model can be applied also to school track choice. Although, in this case, some additional and more specific mechanisms could be at place: e.g., the type of job of the parents might affect educational decisions of the children. For instance, children could value more vocational education than academic one if their parents have working class jobs (Erikson and Jonsson 1996).

$U_A$ is given by costs (C), benefits (B), expectations (probability of success associated with the decision taken, E), and risks of status decline, which results from an educational career which does not guarantee intergenerational status maintenance (SD). All of these factors are likely to differ—and being differently perceived—across social classes. First, although costs of education (C) are constant across social classes, lower class families' decisions are expected to be more sensitive to them, due to their financial constraints. Second, lower class families could underestimate benefits (B) (i.e., occupational returns to education (Boudon 1974), while highly educated parents may influence the children's perceptions of the costs and benefits of education. Because perceptions are socially structured, it is important to distinguish between actual and perceived costs and benefits (Erikson and Jonsson 1996).

Likewise, expectations of success (E) are higher in upper classes than in lower classes, even net of ability. The interaction term E*B indicates that the expected benefits are dependent on the relative expectation of success; therefore there exist differentiated investment risks between classes. Children from upper classes may perceive the risk of failure to be lower, because they have a deeper knowledge of the education system and feel more at home in it. Also, knowing people who have completed higher education may also influence individuals' perceptions of their own probability of success (Coleman 1998). In addition, upper class families are usually more able to compensate their children's eventual failures and also have a strategic knowledge of the educational system, because they have had longer experience within the education system compared with lower classes parents. These are examples of the importance of having access to social networks and information channels—also informal ones (Granovetter 1973). As also discussed below, children of immigrants might be particularly disadvantaged with regard to access to information because their parents have scarce knowledge of the system—having in most cases completed their education in the sending countries—and do not master the language of the host society.

A final important component of the decision making has to do with differences between classes in educational aspirations and values attached to education. More precisely, children tend to form their educational aspirations using their parents as a benchmark. This implies that the higher the education of the parents, the higher tend to be the aspirations of the children. The mechanism at work is one based on the willingness of not experiencing social demotion: families take schooling decisions considering the risk of status decline (SD) rather than their ambitions of social advancement (Breen and Goldthorpe 1997). This mechanisms is given by the term (1-E) * $P_{SD}$ (-SD), which indicates that the negative effect of SD is inversely correlated with the expected probability of success and correlated with the subjective likelihood of status decline. This risk is higher for families in the middle and upper classes. Whereas the mere fact of continuing to

secondary education is perceived as a success by children from lower classes, children from higher classes might perceive it as a failure. Hence, the higher the social position of the parents, the greater is the risk of a status decline. This implies that upper classes are further stimulated to sustain high investment in education to maintain their social positions across generations (ibid.).

## 1.4 What education do children of immigrants obtain? Patterns and variations in educational achievement and attainment

A large body of empirical research at the international level has pointed out that children of immigrants display substantially lower educational outcomes compared with their native counterparts throughout all educational stages. Substantial gaps in cognitive development between natives and children of immigrants are observed already at very early ages (Biedinger, et al. 2008, Lahaie 2008, Yiu 2011). This implies that children of immigrants and natives start school from different levels of school readiness, with clear consequences on subsequent academic achievement (Rouse, et al. 2005). School readiness can be defined as the cognitive and non-cognitive skills that children are expected to possess when school starts (ibid.). Such skills are for most part acquired at home. This argument points to the relevant role of family and home environment, especially at young ages (see next section), although also the availability of quality childcare and preschool programs seems to be a particularly beneficial factor for children of immigrants, for it represents a substitute for educationally relevant resources which might be lacking within immigrant families (e.g., language) (Biedinger, et al. 2008).[8]

Significant immigrant-native achievement gaps are found in both primary education (Condron 2009, Bodovski 2010, Cebolla-Boado and Medina 2011) and secondary education across several countries (Entorf and Minoiu 2004, Schnepf 2004, Marks 2005, Levels and Dronkers 2008). Immigrants' disadvantage is particularly pronounced in reading and vocabulary skills and—to a lesser extent—in mathematics skills. As we are going to see in greater detail in the next section, the relatively higher gap in reading and writing skills is most likely a consequence of the fact that children of immigrants lack an adequate knowledge of the host country language (Portes and Rumbaut 2001, Esser 2006, Kristen, et al. 2011).

---

[8] The existence of such early childhood differentials is of particular concern, since, as we have seen above, educational inequality develops in a cumulative way and thus early differences yield long-run consequences (Cunha, et al. 2006). Most research measures readiness for school using academic skills, such as vocabulary size, complexity of spoken language, familiarity with the alphabet and books, basic counting, classification. However also non-cognitive skills (e.g., social and emotional skills) are important: Children have to be able to follow directions, work with a group, engage in classroom tasks, and exert some impulse control (Rouse, et al. 2005).

As anticipated before, children of immigrants are disadvantaged also with regard to educational attainment, meaning that the gap is not limited to cognitive development but that it also extends to aspects like the acquisition of educational qualifications, dropout risk, and the choice of school type and field of study. In this regard, many empirical studies indicate that children of immigrants tend to achieve lower qualifications than natives and that—in countries where tracking is in place—they more often enter shorter, vocational tracks at secondary level (Kristen 2002, Kao and Thompson 2003, Brinbaum and Cebolla-Boado 2007, Van De Werfhorst and Van Tubergen 2007, Heath, et al. 2008). Besides tracking, another factor of horizontal differentiation often considered in both economics and sociology of education is school private/public ownership—with immigrants having usually lower chances to get access to private school (Kerckhoff 2001, Dronkers and Robert 2008). Thus, the educational systems can act as "sorting machines" by differentiating the student population and thus affecting students' opportunities to learn (Hanushek and Wößmann 2006, Maaz, et al. 2008, Van de Werfhorst and Mijs 2010). Indeed, the literature on this topic has indicated that the characteristics of the national education systems are associated with the magnitude of the immigrant-native educational gaps (Crul and Schneider 2009). More precisely, it has been found that more differentiated and less standardized educational systems lead to higher inequality in educational opportunities. For instance, systems where early tracking is in place are found to be more penalizing for immigrants because they are more likely to attend low ability school tracks—in many cases because of language deficiency rather than actual skill deficits. Conversely, high-standardization of the education system has been found to benefit children of lower social strata and of immigrant origins (Van de Werfhorst and Mijs 2010).

These disparities extend to tertiary education as well. At this level, empirical evidence is mainly restricted to countries of longer immigration traditions, where children of immigrants have already reached the age to enter university. For instance, in the US some minorities (i.e., Hispanics and Afro-Americans) are found to underperform whites and Asians in terms of enrollment rates, grades and degree attainment (Hirschman 2001, Alon, et al. 2010). However, some other studies point out that some severely disadvantaged ethnic groups at lower educational levels, (i.e., Turks in Germany) display higher tertiary education enrollment rates (Kristen, et al. 2008). Moreover, there is evidence of "horizontal" differentiation across fields of study and across university institutions: whereas it is clear that immigrant minorities are over-represented in lower prestige tertiary-level institutions in the USA (Karen 2002) mixed evidence exists on whether immigrants are more or less likely than natives to opt for more applied subjects (e.g., medicine) over more theoretical ones (Kristen, et al. 2008).

Despite the above described patterns, which point to an average disadvantage for children of immigrants, more fine-grained analyses reveal the existence of great heterogeneity in the educational performance of immigrant populations. Hence, looking at the immigrant student population as an indistinct body might lead to scarcely informative—if not even wrong—conclusions. Research isolates three main features of individuals' migration backgrounds which contribute to educational outcomes: immigrant generational status, age at migration and country of origin.

Immigrant generational status is surely a major factor of internal differentiation of immigrant student populations. In general, second-generation children display better outcomes compared to their first-generation counterparts who arrived later to the country (Kao and Tienda 1995, Schnepf 2004, OECD 2006). In some cases, the second generation reaches or even outperforms natives (Glick and White 2003, Chiswick and DebBurman 2004, OECD 2006). The "relative" advantage of second-generation children is generally explained by the fact that they do not directly experience the hurdles of migrating to a new context—and thus they do not have to adapt to a new school, make new friends, etc. One of the most problematic issues faced by the first generation, as we are going to see later on, has to do with the acquisition of the new language. Indeed, the main argument employed for explaining the "advantage" of the second generation over the first generation is that of "acculturation": second-generation migrants perform better at school than first-generation ones because they have spent more time in the destination country and thus have acquired country-specific norms and skills from their birth. On the other hand, it should be also underscored that the process and pace of adaptation of children of immigrants is also strongly affected by parents. Immigrant parents of children born in the receiving country are more likely to have lived longer in the receiving country relative to those whose children were born abroad. The longer duration of their residence in the host country is likely to have positive consequences on their own labor market outcomes, and this conceivably reflects into higher educational outcomes of the children (Nielsen and Schindler Rangvid 2011). As already noted above, proponents of the segmented assimilation framework have posited—and a lot of empirical research has consistently proven—that the educational outcomes of children of immigrants might take differentiated paths depending on family resources and contexts of receptions (Portes, et al. 2009). These aspects will be further examined in the next section.

Another source of heterogeneity among first-generation immigrants is age at migration, or length of residence in the destination country (Chiswick and DebBurman 2004, Myers, et al. 2009). In general, the younger a student is when entering the host country for the first time, the higher his/her subsequent educational achievement and attainment. Two mechanisms appear to

26

explain this trend. The first is that exposure to the host culture and educational system enhances immigrant acculturation and language acquisition. The second mechanism relates to the specific age at migration. Because cognitive and linguistic development is not constant over age, it is generally argued that the sooner a child enters a host country's education system, the better are his/her chances of achieving high education levels. Analogously, the earlier the student enters the receiving society, the quicker and more complete is his/her acquisition of the new language (Esser 2006). As far as educational attainment is concerned, a further mechanism could be in place. Higher age at immigration is associated with higher opportunity cost of schooling, because late arrived migrants have a shorter remaining working life in the destination labor market to receive returns, compared to those who migrated at an earlier age (Chiswick and DebBurman 2004, pp. 364-65). Therefore, the older the age at migration, the lower immigrants' incentives in investing in further education.

Several studies question the linearity of the relationship between age at migration and education, suggesting that some periods might be more sensitive than others. For instance, it has been argued that migrating during adolescence could exert particularly negative effects on education (Chiswick and DebBurman 2004, Myers, et al. 2009), because oftentimes individuals who immigrate as teenagers exhibit higher risks of acquiring less schooling and develop lower cognitive skills compared to both immigrants arrived at earlier and at later ages. Other scholars, drawing from the literature on child development, posit that a sensitive period is also when children attend school for the first time, make friends outside the family, and master new physical and mental skills. At this age children make the transition from "learning to read to reading to learn", meaning that they acquire the skills needed to become self-learners (Beck, et al. 2012), hence migrating during or after this period might have notably negative impacts on the future schooling of children.[9]

Finally, an important source of variability in the educational achievement and attainment of children of immigrants is country of origin. Country of origin is a relevant factor for several reasons. In the first place, coming from a rich country rather than from a less affluent one could imply differences in the quantity and quality of human capital and skills possessed by the parents. Immigrants from Western and Eastern European countries (former Yugoslavia) are in a position of relative advantage in several European countries (Heath, et al. 2008), which may be attributed

---

[9] In light of these arguments, age at arrival is oftentimes used either in its squared specification or in a categorical specification. Whether a metric or a categorical classification of children of immigrants is preferable, it is object of debate (Meyers 2009). Existing evidence seem to point out that age at arrival and generational classification are mutually informative of one another, although their explanatory power changes according to the outcome of interest (e.g., education and language acquisition a quadratic age of arrival is preferable (ibid.). However, Chiswick and DebBurman (2004) warn on employing categorical measures, showing that significant linear relationship between age at arrival and educational attainment could be obscured when too few categories are employed.

to better education systems, the higher human capital to the host country of these immigrants. Second, there are variations in cultural and linguistic distances between countries of origin and destination (Chiswick and Miller 2005, Adsera and Pytlikova 2012). For instance, the high cultural and linguistic barriers may be responsible for the systematic disadvantage of immigrants from Maghreb—which is a pretty established regularity across several European countries, like France, Belgium and the Netherlands (Brinbaum and Cebolla-Boado 2007, Phalet, et al. 2007, Van De Werfhorst and Van Tubergen 2007). Third, the geographical distance between sending and receiving countries is a further theoretically relevant factor. The closer the two countries, the lower the costs of migrating (Feliciano 2005). Therefore, geographical distance becomes a proxy for selection of immigrants: when costs of migration increase, also the positive selection of emigrants on the basis of drive, skills, motivations and resources increases. This argument could partially explain the poor performances of Mexican in the US, or North-Africans in Southern Europe. Fourth, country of origin might be also a proxy for different valuation of education. A well-established regularity is that some Asian nationalities outperform natives in several old immigration countries. This is the case, for instance, of the Chinese in the US and the UK (Hirschman and Wong 1986, Glick and White 2003, Chiswick and DebBurman 2004, Zhou and Kim 2006, Portes, et al. 2009) and of Indians in Norway and UK (Fekjær 2007, Rothon 2007), possibly because their families have higher aspirations, attach more importance to the investment in education of their children and also have more strict parenting styles and spend more time with them (Kao and Tienda 1995, Louie 2001). Fifth, ethnic ties and networks can also explain part of the observed differences between national-origin groups (Massey, et al. 1993). The longer a community has lived in the country, the higher the country-specific resources available within the community might be. Moreover, the larger the community residing in the destination country and the closer the ethnic networks, the higher the potential support that their members could get. Also, as networks expand, the costs and risks of migration fall and the flow becomes less selective in socioeconomic terms (ibid. pp. 449-50). As we are going to see in greater detail in section 1.5.4, these community-level factors could affect children's educational success, however the direction of these effects is unclear and largely depends on the human capital available in the community. Finally, as already mentioned above, different ethnic groups may encounter different context of receptions (both legally and socially), and these could have consequences on the socioeconomic attainment of their members. For instance, in the US contexts of reception range from "negative" for Mexicans or Haitians (because of the association with illegal status) to "positive" for Cubans and Vietnamese (because of the official assistance provided for escapees from communist regimes) (Portes, et al. 2009).

**1.5 Why do they lag behind? Explanations of the immigrant-native gaps in education**

In the previous section, while describing the main sources of variation in the educational attainment and achievement of children of immigrants, different potential explanatory factors have been invoked. For instance, I have mentioned the role played by proficiency in the language of the country of destination, as well as parental involvement in children's education and, more in general, the availability of educationally relevant resources within the family. This section is expressly aimed at providing a more systematic overview of these explanations as well as uncovering factors which have not been mentioned yet. Drawing upon both theoretical and empirical research, I will focus mainly on factors at the individual and family level—and more specifically on socioeconomic background—but I will also consider contextual factors pertaining to both the school level and the social context of reception. Before reviewing these different explanations, I will recall the concepts of primary and secondary effects, underscoring their applicability to the schooling of children of immigrants.

*1.5.1 Primary and secondary effects of immigrant background*

As already seen in section 1.3, the conceptual framework of primary and secondary effects is useful for it allows to separate the component of social inequality that results in differentiated learning abilities (primary effects) from the component that determines variations in educational choices conditional upon prior ability (secondary effects). This framework is also applicable to the study of immigrant-native differences (Heath and Brinbaum 2007, Cebolla-Boado 2011, Kristen, et. al. 2011) and helps identify immigration-specific influences that persist after controlling for the effects of social background (Kristen, et. al 2011, p. 124). However, compared to the original definition, additional arguments shall be made. For example, the pronounced primary effects of immigrant background, briefly documented in the previous section, might be explained by lack of key resources, like an adequate knowledge of the language spoken in the host country (Kristen, et al. 2011). As far as secondary effects are concerned, these seem to be less relevant, because some research findings indicate that, once adjusted for achievement and family background, the immigrant-native gap often vanishes or even becomes positive for some groups. Thus, children of immigrants' drawbacks seem to be mostly attributable to primary rather than to secondary effects. For example, this is the case of Turks in Germany, who perform poorly in compulsory education but then show even higher tertiary education enrollment rates than natives net of previous achievement (Kristen, et al. 2008). Similar patterns have been also

established for second-generation immigrants in France (Cebolla-Boado 2011). Whereas lack of linguistic skills is thought to be one of the main obstacles to the development of competencies and skills, other mechanisms are often invoked to account for secondary effects. On the one hand, it has been argued that immigrants' families and children are more inclined to invest in longer educational careers in view of expected discrimination in the labor market or because they conceive education as a means for social advancement. On the other hand, there might be different opportunity-cost balances between immigrant and native families when taking educational decisions, which could explain immigrants' lower transition rates. Moreover, with regard to school choice, one could hypothesize that children of immigrants are more attracted by shorter, more technical and more work-oriented school programs because they perceive them as more closely linked to the labor market and because they possibly give them chances to access types of occupations that are more similar to those of the parents. A final possible explanation has to do with the role of teachers, who may discriminate against immigrants by counseling families to enroll their children in short-term educational tracks basing on children's linguistic skills rather than on their actual logical and cognitive skills, motivation and aspirations (Kristen and Granato 2007, Lüdemann and Schwerdt 2010, Werum, et al. 2011).

*1.5.2 Family socioeconomic background*

A central aspect in current research on immigration and educational inequality is the role played by family socioeconomic background. In several European countries large parts of immigrant-native differences in educational achievement and attainment are indeed accounted for by social origins (Kao and Thompson 2003, Heath, et al. 2008). The reason why social background explains significant portions of immigrants' educational disadvantage is simple. First, as seen in section 1.3, socioeconomic background affects educational attainment (Erikson and Jonsson 1996, Breen and Jonsson 2005). Second, it is well-known that adult immigrants, on average, attain lower occupational positions than natives in the labor market (Piore 1979, Heath and MacMahon 1997, Constant and Massey 2005, Kogan 2006, Kogan 2011, Reyneri and Fullin 2011). Because the low occupational outcomes of parents are likely to be reflected in the educational outcomes of their children, then it is not surprising that the unconditional educational gaps observed between natives and children of immigrants shrink or even vanish when taking into account family socioeconomic status (Heath and Brinbaum 2007).

Because immigrant background and social background are closely associated with each other, it is necessary to separate the effects of these two factors in order to have a proper understanding of the actual mechanisms that produce the disadvantage of children of

immigrants. In other words, not taking into account family background might lead to wrong conclusions regarding the "causes" of the educational disadvantage of immigrants. Figure 1.1 shows this problem graphically. Children's educational achievement or attainment (E) can be understood both as a function of migration background (MB) of the individuals as well as a function of their social background (SB). Moreover, because immigrants face a specific labor market penalty, the figure allows MB to affect SB. Also, considering the existence of immigrant selectivity (Feliciano 2005), we could not completely omit the possibility that MB is dependent on SB, because it is often observed that individuals who decide to migrate are the higher educated ones. In light of this "selectivity" process, the figure should allow for a bidirectional association between SB and MB, that here is not shown for the sake of simplicity and also because we are interested in SB as measured in the receiving country rather than the socioeconomic position occupied in the sending country.
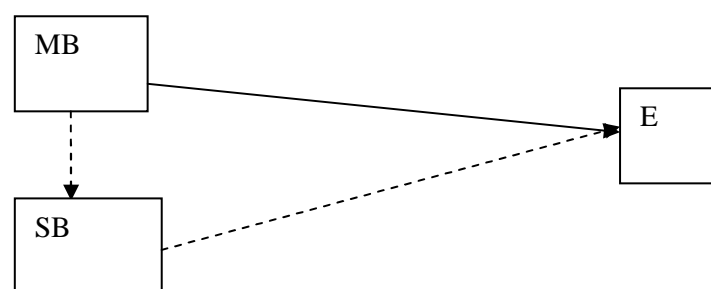


Figure 1.1 Linkages between immigrant background (MB), social background (SB) and educational achievement/attainment (E). Readapted from Heath and Cheung (2007) and Heath and associates (2008).

Figure 1.1 allows to visualize the conceptual distinction between "gross" and "net" disadvantage. The gross disadvantage is the overall MB-E association that is given by the sum of the solid and the dashed lines. The net disadvantage is instead the part of that association which is not mediated by SB, that is to say the direct link MB-E (solid line). Put differently, the "gross disadvantage" indicates the overall differences existing between immigrants and natives. The examination of gross differences is surely interesting because they give an idea about the magnitude of the disadvantage faced by immigrants. However, in the perspective of inequality of educational opportunity, gross differences are less informative than net ones, because they do not distinguish the contribution of social background from that of immigrant background.

As often pointed out in empirical research, net educational gaps are much smaller than gross gaps (Schnepf 2004, 2008, Schneeweis 2011). For example, regarding educational attainment, social class has been found to account for at least half of children of immigrants' disadvantage relative to natives in several European countries (Heath et al. 2008). However, the

relevance of family socioeconomic background differs significantly between receiving countries (Marks 2005) and between national-origin groups (Duncan and Magnuson 2005, Fekjær 2007, Heath and Brinbaum 2007, Kristen and Granato 2007, Rothon 2007, Levels, et al. 2008). These variations are essentially due to the highly heterogeneous labor market outcomes of the immigrant populations. For instance, the small disadvantage of children of European migrants is entirely explained by socioeconomic background, while for children of immigrants from less developed countries a significant gap relative to natives persists even after holding socioeconomic resources equal (Heath, et al. 2008). In some other cases a "reversed" pattern has been observed: it is the case of Chinese and Indian youths in the UK and France, whose "advantaged" position relative to natives further increases after controlling for socioeconomic background (Brinbaum and Cebolla-Boado 2007, Rothon 2007). Moreover, in countries with longer immigration traditions, like Canada and New Zealand, children of immigrants exhibit an advantage which decreases after controlling for family socioeconomic status: this pattern can be explained by the positive selection of immigrants to these countries, which is partially stimulated by selective policies (Schneeweis 2011). Despite this heterogeneous picture, the majority of immigrant population in many destination countries is labor migration, attracted by the need for foreign workers in the labor-intensive secondary sectors of the labor markets in industrial economies (Piore 1979). Therefore, the main tendency is—as already said—that net disadvantages are smaller than gross ones.

All in all, it seems that children of working class migrants face both "old" and "new" forms of inequality—meaning that they face at the same time the hurdles of adapting to a new context as immigrants and the typical challenges that all children of lower classes face at school. But do immigrant and social background always work cumulatively way or do they also interact? A recurrent research finding points to weak and inconsistent interactions between social class and immigrant status, suggesting that the "traditional" forms of stratification tend to operate in much the same way for natives and children of immigrants (Heath and Brinbaum 2007). However, there is also a growing literature that casts some doubts on the idea that "traditional" forms of inequality always work the same way for natives as for immigrants, and across national-origin groups (Jackson, et al. 2010).

On this aspect, let us quickly consider two possible theoretical scenarios. First, it could be hypothesized that the association between economic resources and educational achievement would be smaller for immigrants compared with natives. This would happen if we assume that financial resources alone do not suffice in supporting children's education, but they need to be complemented with other resources (e.g., country-specific knowledge and social capital), which might be lacking in immigrant families (Heath and Cheung 2007). This means that within the

same social classes immigrants would still lag behind natives because they would miss some of the "benefits" of belonging to that class. When such resources are missing, immigrant parents' investments on their children's education can be less effective. In such a scenario, educational returns to economic resources are for immigrants relatively smaller than for natives.

Second, it could be also hypothesized that the effects of economic resources would be stronger for immigrants than for natives. This scenario takes place when immigrants possess more education than their native counterparts belonging to the same social class. This implies that immigrant workers could compensate the lack of financial resources with the higher human capital possessed and therefore afford better quality non-monetary investments compared to their native colleagues. Such a scenario is also a consequence of the fact that several migrants experience a decline in their social standing as compared to the one they held in the country of origin. A decline in social standing experienced by the parents may also make their children more strongly interested in education, if children's ambitions reflect the status of the parents in their home country, and not their current status in the new country. To rephrase, education of the children gives the family an opportunity to reclaim what the parents have lost through migration (Platt 2005). This would imply greater social mobility and a weaker negative influence of deprived social background for immigrants than for natives (Fekjær 2007).[10]

This second scenario is closely related to the issue of immigrants' overqualification (Chiswick 1978, Heath and Cheung 2007). Among the explanations provided for this overqualification, the main one refers to the so called "portability" or transferability of educational credentials (Chiswick 1978, Friedberg 2000, Chiswick and Miller 2009). Educational titles obtained abroad may be less valued than those obtained in the country; hence, for a given job, employers require higher education from immigrants than from native workers (Friedberg 2000). This may be due either to the fact that human capital acquired outside the host country provides less country-specific skills or to a lower quality of schooling in origin countries. However, also discrimination against immigrant workers could partially account for the higher overqualification as well as for the general lower labor market outcomes—as found, for example, in Belgium and Spain by Kalter and Kogan (2006) and in Germany by Constant and Massey (2005). Moreover, there are often problems of recognition of educational credentials, which could vary depending on whether or not countries of origin and destination have agreed on a formal recognition of educational titles. Beyond all these considerations, it shall be noted that studies on the educational pay-offs of migrants are threatened by severe methodological issues involving the accurate measurement of education when parents come from a foreign country and the comparability of educational credentials between origin and host countries. Such

---

[10] On the role played by ambitions and aspirations, see also section 1.5.3.

methodological issues are difficult to overcome and sometimes lead scholars to opt for more direct measures of family educational resources (Van De Werfhorst and Van Tubergen 2007).

In this section, I have argued that socioeconomic background is a strong determinant of the educational gaps between immigrants and natives. However, some immigrant groups exhibit significant educational setbacks, even after controlling for social origins. How to explain these remaining gaps? In the next sections, I examine theoretical and empirical literature on the role played by some additional explanations at the individual, family, and contextual levels.

*1.5.3 Language and country-specific knowledge*

Although parental education captures some of the cultural factors relevant for children's education, some additional cognitive factors are more specific to children of immigrants and their families. Language and country-specific knowledge are typical examples. In the first place, language represents one of the most important types of human capital possessed by immigrant families and it is consequently found to be a crucial determinant of the educational achievement of their children (Portes and Rumbaut 2001, Esser 2006). The acquisition of the language spoken in the host country is a process which develops over time. Indeed, both generational status and age at migration are correlated with proficiency in the host language (Portes and Rumbaut 2001, Esser 2006, Bleakley and Chin 2010). Then, language also accounts for differences between ethnic groups, because it is known that some groups might be advantaged relative to others in acquiring the host-country language, considering the existence of different distances between different languages (Chiswick and Miller 2005, Adsera and Pytlikova 2012). Empirical studies also point out the value of bilingualism: students of foreign origin who maintain their native language—in addition to speaking the language of their host country—appear to have advantages over mono-lingual immigrant students who only speak the language of the country of destination (Zhou and Bankston 1998). This finding suggests that preserving cultural and linguistic identity not necessarily undermines the process of immigrant adaptation to the receiving society. On the contrary, it may enhance chances of success in the receiving country, this being a further argument against an "orthodox" and "normative" interpretation of the concept of assimilation.

Following Coleman (1998), the social capital relevant for the creation of human capital also lies in the information channels families have access to (Kao 2004b). Because parents of immigrant youth have received their education in their home country, and possibly encounter even higher hindrances to language acquisition than their children do, they might lack important knowledge and familiarity with the education system in the receiving country (Kristen 2005,

Kristen and Granato 2007). These shortcomings can lead to less informed educational choices. For instance, poor information about the functioning of the education system could lead parents to over/underestimate the requirements of certain schools as well as over/underestimate the actual chances of their children to successfully complete them (ibid.).


*1.5.4 Educational aspirations and the role of parents*

As already mentioned in section 1.3, the presence of high-educated parents does not suffice in itself to transmit human capital from a generation to the next one (Coleman 1988). Parents should take up an active role and a precondition for that is that they attach great value to education. Parents who assign high value to education can transfer to their children high educational aspirations, motivation and commitment, through frequent interactions when they are young and by providing them with cognitive stimulating resources and activities at home (Kao and Tienda 1998). In this section, I first review the topic of educational aspirations as an explanatory factor of immigrant-native educational gaps and, second, I quickly go over the literature on how parents might concretely foster their children's education.

Educational aspirations—definable as the ideal level of education that individuals would like to attain or would like their children will attain—are key factors for subsequent achievement and attainment (Sewell, et al. 1969, Kao and Tienda 1995, Kao and Tienda 1998, Portes, et al. 2010). In addition to what already seen above when explaining the rational theory model for educational decisions, it shall be underscored that aspirations and expectations represent two distinct concepts because the former refer to ideal ambitions, whereas the latter to more concrete expectations (Kao and Tienda 1998).

Aspirations are generally understood as an important predictor of the educational prospects of both natives and immigrants' children, because they signal drive and motivation (Portes, et al. 2010). The key question is the extent to which they are actually followed by consequent outcomes and, especially, whether immigrants' children and natives equally manage to realize them. Empirical research indicates that there exist substantial variations by immigrant status both in the levels of aspirations and in the chances of accomplishing them. For instance, immigrant parents and children of certain ethnic groups tend to have higher educational aspirations and expectations compared with natives (Kao and Tienda 1995, Brinbaum and Cebolla-Boado 2007) while other immigrant groups adjust their aspirations to their situation in the host country or have lower aspirations than natives (Kao and Tienda 1995, Portes and Rumbaut 2001). A range of factors appears to shape the educational aspirations of children of immigrants. In the first place, ample variations are found according to generational status and

age at arrival. Second-generation children and those arrived at early ages tend to show higher aspirations, compared to those arrived later, although evidence is mixed across ethnic groups: for example, Mexican-origin students experience a decrease in their aspirations with length of residence in the United States (Portes and Rumbaut 2001, St–Hilaire 2002). Ethnic variations in aspirations are found in several other contexts (Kao and Tienda 1998, Brinbaum and Cebolla-Boado 2007, Portes, et al. 2010). For instance, studies in the US show that Asian and Black students have higher aspiration compared to their native peers but only Asians are able to achieve them, while Hispanic students, as said above, do not aspire to higher levels of education than natives. Similarly, in Germany a discrepancy between high educational goals and low educational achievements is detected for Turkish migrants, while the so called *Aussiedler* (i.e., ethnic German repatriates) have similar educational goals as native Germans (Kristen and Dollmann 2010).

The empirical literature just described has made clear that aspirations are a necessary but not sufficient condition for educational success. Some groups—either ethnically or socially disadvantaged or both—fail in achieving the aspired education. From a theoretical point of view it is interesting to have a deeper understanding of the determinants of these discrepancies between aspirations and educational outcomes and why some groups are able to successfully realize their aspirations while others fail.

First, social origins, as seen in section 1.3, shape aspirations and expectations. Given the different social class distributions of immigrants and natives, social origins can be understood as an important explanatory factor for the observed ethnic variations in educational aspirations. More precisely, differences between immigrants and natives could be accounted for by different opportunity-cost balances between more affluent and more deprived families when choosing between continuing on the educational career or accessing the labor market.[11]

However, over and beyond this "traditional" account, also some explanatory mechanisms specific to children of immigrants might be in place. A first immigrant-specific explanation is linked to the so called "blocked-opportunities" framework, which stresses the importance of the structural obstacles that shape aspirations (Kao and Tienda 1995, 1998). According to this framework, parents encourage their children to pursue high educational qualifications to overcome possible discrimination in the labor market. Therefore, expected discrimination in the labor market works as an additional input for immigrant families' decisions on children's education. On the other hand, blocked opportunities can also lead to educational

---

[11] Also gender is important in shaping aspirations, with girls systematically exhibiting higher aspirations than their male peers (Feliciano and Rumbaut 2005).

underperformance if children of immigrants do not perceive educational success as a means for upward mobility (Kao and Tienda 1998, p. 353).[12]

The aspiration-achievement paradox (that is to say, the existence of higher aspirations among immigrants) can also be explained by the "immigrant optimism" hypothesis (Kao and Tienda 1995). Proponents of this theoretical position draw upon the already mentioned evidence which indicates that immigrants are oftentimes a positively selected group. This positive selection should theoretically lead to high educational aspirations, because these immigrants left their countries to improve their situations in search of chances of upward mobility. In this perspective, families conceive immigration as an upward mobility process, and they attach high importance to their children attainment in the destination society. Even when the first generation is not able to realize this upward mobility due to language or cultural barriers, they transmit their high aspirations to their children (Kao and Tienda 1998, p. 353).

So far we have reviewed literature on differences between immigrants and natives in the educational aspirations. Now, let us go back to the question anticipated at the beginning of this section: how are parents' aspirations concretely transmitted to children? The framework of social capital, as laid out by Coleman (1988), is once again useful to understand this process. As already seen in section 1.3, the quantity and quality of time that parents spend with their children play a decisive role, and the immigrant-native gap in learning achievement might emerge also because of lacking cognitive and non-cognitive stimulation given to children (Kao and Tienda 1998). The literature on parental involvement is rich, and encompasses factors positively affecting children's academic outcomes like the time spent by parents with children (e.g., talking and reading to them, playing with them, etc.), parental involvement in their children homework,[13] parental involvement in out of school activities, and parental interactions with teachers and schools' boards, participation to teachers-parents conferences (Kao and Tienda 1995, Kao 2004a, Lahaie 2008, Bodovski 2010). Finally, the involvement of children in socially recreating activities, like sports, tends to be positively associated with their educational performances (Crosnoe 2001), whereas other activities like watching TV, or playing video games might negatively affect student achievement (Keith, et al. 1986, Hancox, et al. 2005, Notten and Kraaykamp 2010). Parenting styles could also be partially responsible for country-of-origin variations in educational attainment. For instance, Louie (2001) and Moodod (2004) argue that the educational success of

---

[12] The hypothesis of "oppositional cultures" posits that some ethnic minority students reject the values and educational goals widespread at school and in the receiving society and underachieve on purpose as a form of protest. This mechanism could theoretically work for both educational performance and choice, and could partially explain the phenomenon of dropout (Gibson and Ogbu 1991).

[13] On this specific point, it shall be noted though that parent involvement can also have negative impact on the value of homework. For example, parents can confuse children if they do not know the teaching techniques used in the classroom and they can also interfere with children cognitive development if they complete tasks that children are capable of completing alone.

the Chinese and South Asians in the US and in Britain might be explained by the combination of high parental ambitions, high parental authority that immigrant parents have over their children.

*1.5.5 Outside the family: the role of local and school contexts*

A final group of explanations for the immigrant-native gaps in education concerns the extra-family environment. School-age children spend significant amount of their time outside the family, establishing social networks that affect their accumulation of human capital over and beyond their individual and family characteristics (Jenks and Mayer 1990). According to Granovetter (1973), the so called "weak ties"—that is to say networks that extend outside the circle of relatives and closed friends—play a relevant contribution. In this perspective, children's educational aspirations and choices adjust to the average behaviors and to the social norms existing in their neighborhoods, communities and schools (Jenks and Mayer 1990). For instance, the quality of peers living in the community might affect the educational achievements of children—again, over and beyond individual characteristics—because of daily interactions in play and homework (i.e., peer effects). Such contextual effects involve the parental generation as well: the presence of high-educated parents in the neighborhood might represent a beneficial factor for it eases the access to cheap information regarding existing educational chances and the organization of the school system (i.e., human-capital externalities).

Studies on immigrant assimilation have explored this contextual dimension by investigating the role played by ethnic community, and the characteristics of the parental generation members of the community (Borjas 1992, Borjas 1995, Portes and MacLeod 1996, Zhou 1997). One hypothesis is that "immigrants assimilate also as communities, not just as individuals" (Hatton and Leigh 2011) and that the human and social capital available in the ethnic community (i.e., ethnic capital)[14] plays an important role in determining individual outcomes, including the educational success of children. While there is some consensus in finding that the low educational attainment and achievement of immigrants' children are partially influenced by residential segregation into poor neighborhoods (Jenks and Mayer 1990), it is still debated whether growing up in an ethnic neighborhood is beneficial or detrimental for socioeconomic outcomes. Proponents of segmented assimilation theory maintain that ethnic ties can compensate for the difficult integration into receiving country (Portes and Zhou 1993, Zhou 1997, Portes and Rumbaut 2001). Immigrant communities with high human capital and educational aspirations can favor the educational success of their offspring by means of social

---

[14] Borjas (1992) defines ethnic capital as the average educational attainment, the social norms and valuation of education among the parental generation.

control and direct support (Kristen, et al. 2011). This works especially well if ethnic networks are dense and closed because, in these cases, immigrants are obliged to meet educational goals, and deviant behaviors are sanctioned (Portes and Zhou 1993). Moreover, belonging to an ethnic community could have positive consequences because it provides quick and cheap access to relevant information regarding the functioning of the education system (Kristen, et al. 2011). On the contrary, "new assimilationists" argue that ethnic networks could provide obstacles to the establishment of ties to the receiving society and thus limit children's integration in the welcoming society (Alba and Nee 1997, Perlmann and Waldinger 1997). The example of proficiency in the host-country language is a telling one, because children who have grown up within an ethnic community are less frequently exposed to the language spoken in the destination country. Moreover, ethnic communities provide fewer opportunities for interethnic contacts, and this can hindrance social integration in the receiving society and limit the access to important information on the school system. As we have already seen, this lack of information might negatively affect educational choices. To sum up, research has so far proved inconclusive: strong ethnic networks are sometimes seen as a "mobility trap" and other times as beneficial resources for socioeconomic success (Kristen, et al. 2011, p. 130).

High levels of social or immigrant residential segregation are oftentimes associated with more segregated schools. However, whether social/immigrant school composition affects students' achievement over and beyond their individual, family and other contextual characteristics is another debated question. Whereas classes with higher percentages of immigrants display, on average, lower educational outcomes, the causal relationship between school composition and educational achievement remains unclear (Coleman, et al. 1966, Portes and Hao 2004, Cebolla-Boado 2007, Fekjær and Birkelund 2007, Hanushek, et al. 2009). Because immigrant families are not randomly distributed across neighbourhoods, classroom immigrant composition is endogenous. Put differently, because immigrant families self-select into the most socioeconomically deprived neighbourhoods, their children are more likely to attend schools with lower average socioeconomic composition, which are also schools with lower quality (e.g., less qualified and motivated teachers, less resources, etc.), lower performing peers and consequently schools with lower average educational outcomes. As a result, the simple negative association between school immigrant concentration and educational outcomes is likely to be an overestimation of the actual causal effect of immigrant concentration in schools.

Beside these composition effects, two broad groups of mechanisms can be identified as responsible for the negative association between percentage of immigrants and average class achievement (Cebolla-Boado and Medina 2011). The first concerns resource allocation: since resources within schools and classes are limited, the higher is the percentage of children of

immigrants, the more time teachers have to spend assisting them overcoming their difficulties and thus subtracting time to the other students in the class. Parallel to this argument, teachers might also be led to adjust their expectations and their teaching to the level of children of immigrants, whose language fluency is lower and this would reduce the average quality of teaching (Fekjær and Birkelund 2007). An opposite consideration regarding the role played by teachers, could be that immigrants can profit from segregated schools because teachers of these schools may be more aware of the difficulties of immigrant students and therefore more able to target their needs if they sit in more homogenous classes (Cebolla-Boado and Medina 2011).

The second group of hypotheses refers to existence of "peer effects" (and thus to the effects of classroom interactions) and predicts that students' performances are negatively affected by the lower achievement of their immigrant classmates (Ryan 2000, Fertig 2003, Cebolla-Boado 2007, Entorf and Lauk 2008a), although has research proven inconclusive in identifying a clear causal association between peers and achievement so far (Hanushek, et al. 2009, Abdulkadiroglu, et al. 2011). Results obtained in different contexts seem to indicate that it is the children of immigrants themselves who are most negatively affected by school immigrant concentration (Fekjær and Birkelund 2007, Hanushek, et al. 2009) and that, more in general, low-ability students and students with poor or immigrant backgrounds profit from being placed in schools and classes with high-ability students or with students whose parents have favorable socioeconomic characteristics (Entorf and Lauk 2008b).

# 2 The immigrant-native gap in Italian schools: what we know and what we still do not know

## 2.1 Introduction

Despite its past as an emigration country, since the late Seventies Italy has progressively turned into a destination of significant migratory flows. Over the past two decades—as it also happened in other "new immigration countries" of Europe like Greece, Ireland, Spain and Portugal—immigrant population has been continuously and rapidly growing (Massey, et al. 1993, Castles and Miller 2003, Colombo and Sciortino 2004b, Ribas-Mateos 2004).[15] In 2010, the stock of resident foreigners in the country was more than three-times as higher as ten years before, shifting from about 1.2 millions in 2000 up to more than four millions, thus representing seven percent of the total population (Figure 2.1).[16] Similar to the other new immigration countries mentioned above, the immigrant population residing in Italy displays huge diversity with regard to country of origin, with the nationalities most represented being Romanian, Albanian, Moroccan and Chinese (Istat 2005).

Over the past decades, the presence of immigrants in the country has changed not only in quantitative terms, but also qualitatively (Ambrosini 2001, Ambrosini and Molina 2004, Colombo and Sciortino 2004a, Cvajner and Sciortino 2010). Today's immigrant population is not exclusively composed of "young and male workers", as it used to be during the first stages of immigration to the country (Ambrosini 2001). On the contrary, a significant portion of the actual inflows is motivated by family reunifications (Ambrosini and Molina 2004). These changes have led to a rapid growth in the presence of immigrants' children, both migrated at young ages and born in Italy (Gabrielli, et al. 2009, Mencarini, et al. 2009).[17] As already said in the previous chapter and in line with most literature on children of immigrants, in this dissertation the former are labelled as first generation while the latter as second generation. This latter group, as we are going to see, represents a minority and very young component among children of immigrants, although it is rapidly increasing, witnessing the newness of immigration to Italy.

---

[15] Immigrant population has continuously increased, although after 2009 this growth has slightly slowed down because of the global financial and economic downturn.

[16] These figures do not take into account the irregular component, which represents a relevant part of the migratory flows to Italy (Sciortino 2006, Fasani 2008, Sciortino 2008).

[17] The amount of young immigrants aged 18 or less grew from 59,000 in 1999 to around 862,400 in 2008; thus shifting from 0.6 percent to 5.9 percent of the total population under the age of 18. In the same period the number of births from both foreign parents increased from 7,000 in 1993 to more than 72,000 in 2008, representing 12.5 percent of the total births in the country (Istat 2009).
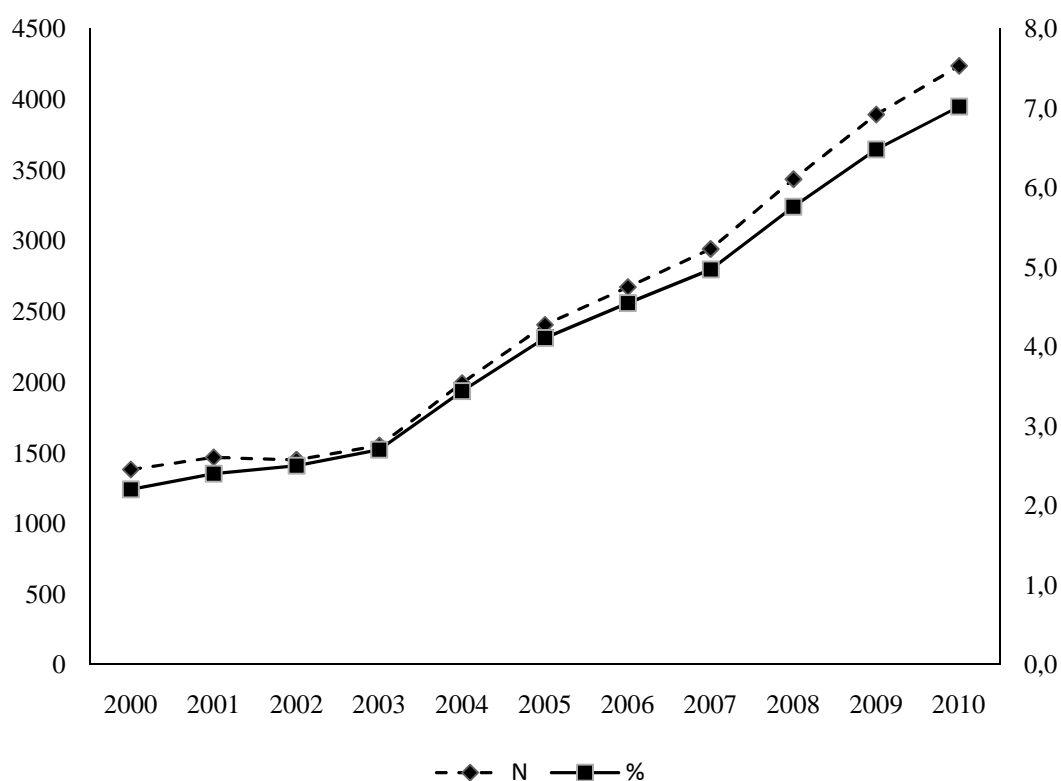
Figure 2.1 Stock (thousands, left column) and percentage (right column) of foreign population
(Italy, 2000-2010). Own elaboration based on Eurostat data.

How are these newcomers performing in Italian schools relative to their native classmates? As I
am going to document, foreign students have not only increased by significant rates (six times in
the decade between 1998 and 2008), but they also exhibit particularly problematic scholastic
careers. Unfortunately, because of the novelty of the phenomenon and because of the scarcity of
data at the national level, empirical research on educational inequalities has only recently begun
to cover this topic and it is mainly limited to small surveys conducted at local level. However,
this situation has rapidly changed in the past few years. Data have slowly become a minor
problem, thanks to the diffusion of international surveys on student achievement; to the
introduction of new variables (on nationality or migratory status of the respondents) and to the
growth in numbers of foreigners in Italian surveys. As a consequence, there exists an emerging
body of recent empirical research, which represents a precious contribution to the knowledge of
the phenomenon and a valid starting point for the empirical analyses contained in this
dissertation.

The aim of this chapter is to review this research. Drawing on the theoretical
background and the major research insights presented in chapter 1, I ask what empirical
literature has taught us and what still remains to be learned about the educational gap between

natives and children of immigrants in Italy. More precisely, what are the patterns of immigrants' educational performances throughout the different educational levels and across the different domains of educational attainment and achievement? What is the contribution of immigrant generational status and country of origin? And, finally, to what extent are immigrant-native differentials in education explained by family socioeconomic background? This last question is at the core of the present dissertation and it is of great relevance if we consider the strong penalties faced by adult immigrants in the Italian labor market (Ambrosini 1999, 2001, Reyneri 2004b, Fullin and Reyneri 2011).[18]

The chapter is organized as follows. After a brief overview of the Italian education system (Section 2.2), in Section 2.3 I document the increasing presence of children of immigrants in Italian schools and also comment official figures regarding their scholastic outcomes. Moreover, I briefly describe the actual state of the art of educational policies targeted to children of immigrants. Sections 2.4 and 2.5 provide an overview of empirical research and highlight the explanations advanced to account for the immigrant-native gaps. More precisely, in section 2.4 a special attention is addressed to understand the extent to which 'traditional explanations' of educational inequalities (i.e., socioeconomic background or social class) account for the observed immigrant-native gap. Next section (2.5) is aimed at investigating which other explanations have been advanced in order to account for immigrant-native differentials over and above socioeconomic deprivation. Finally, section 2.6 summarizes and discusses the most relevant research findings in Italy and underlines the major gaps in the literature that I attempt to redress in the empirical chapters of the dissertation.

## 2.2 Overview of the Italian education system

The Italian education system is organized in five levels (figure 2.2). The first level is represented by pre-primary education (*scuola dell'infanzia*), which is non compulsory and accessible to all children aged between 3 and 6. Pre-school attendance rate in Italy is very high: in 2001 nine out of ten children of the corresponding age were enrolled.

At the age of 6, every child has to enrol at primary school. This first level of compulsory education lasts five years. Over the past decade primary schools have been enjoying increasing

---

[18] Research has repeatedly found that immigrant workers are heavily concentrated in unskilled jobs, receive lower salaries and face high job instability, even when they are highly educated (Ambrosini 1999, Reyneri 2004a). In a recent study, Fullin and Reyneri (2011) found robust evidence that, although immigrants are hardly disadvantaged with regard to the risk of unemployment relative to natives, they are strongly concentrated in the lower ranks of the occupational ladder. The authors also proved that a strong devaluation of educational qualification is in place for contemporary adult immigrants in Italy.

autonomy in terms of teaching hours, class size, curriculum, budgets.[19] The levels of learning and the behaviour of pupils are assessed periodically and every year by teachers, who are also responsible for certifying the skills pupils have acquired. Private schools make up around 10 per cent of all primary schools.

| Grade | | | | | | Age |
|---|---|---|---|---|---|---|
| | Master Degree (Laurea Magistrale) ISCED 5A | | | | | 22 |
| | Bachelor degree (Laurea) ISCED 5A | | | | | 21 |
| | | | | | | 20 |
| | | | | | | 19 |
| 13 | | | Technical Schools (Istituti tecnici) ISCED 3a/3b | General schools (Licei) ISCED 3a/3b | | 18 |
| 12 | | | | | | 17 |
| 11 | Regional vocational training courses ISCED 3b/3c | Vocational schools (Istituti professionali) ISCED 3a/3b | | | | 16 |
| 10 | | | | | | 15 |
| 9 | | | | | | 14 |
| 8 | Lower secondary school (Scuola secondaria di primo livello) ISCED 2a | | | | Compulsory education | 13 |
| 7 | | | | | | 12 |
| 6 | | | | | | 11 |
| 5 | Primary school (Scuola primaria) ISCED 1 | | | | | 10 |
| 4 | | | | | | 9 |
| 3 | | | | | | 8 |
| 2 | | | | | | 7 |
| 1 | | | | | | 6 |
| | Pre-school (Scuola d'infanzia) ISCED 0 | | | | | 5 |
| | | | | | | 4 |
| | | | | | | 3 |

Figure 2.2 Organization of the Italian Education System

Once students have completed primary education, they enrol in lower secondary school (from 11 to 14). This school lasts three years and is subdivided into a two-year period and a third year aimed at strengthening connection with the upper secondary education. Contrary to primary education, lower secondary school ends with a final exam (*Esame di Stato*). Students who do not achieve sufficient marks are not admitted to the exam and have to repeat the year: the percentage of not admitted students ranges between 3 and 5 percent (Miur 2010a).This exam is the first formal national assessment of students' achievement after eight years of education. It comprises three to four written tests (the subjects are Italian, mathematics and science, and one or two

---

[19] For example, teaching time can differ between schools, from a minimum of 27 hours a week up to 40 hours.

foreign languages) and a multidisciplinary oral test. Since scholastic year 2009/2010, also a national standardized test on mathematics and Italian skills has been introduced by INVALSI (National Institute for the Evaluation of the Education System) and contributes to the overall mark of the exam. Only a very small fraction (around 0.5 percent) of students who are admitted to the exam, fails it (Miur 2010).The final marks obtained by students are Sufficient, Good, Very Good, Excellent. Since scholastic year 2008/09 the scale has changed into a numeric scale starting from six (Sufficient) up to ten (Excellent).

Because the first two educational levels are fully comprehensive, the first important decision occurs at the age of 14 when it comes to choosing an upper secondary school.[20] Students are faced with three main options. The first option is general schools: they are called *licei,* last five years and provide a general and academic oriented education with further distinctions in humanities, natural sciences, languages, pedagogical sciences. A second branch is the group of technical schools, called *istituti tecnici*, that also last five years and are subdivided into different curricula within economic or technological sectors. Vocational schools, called *istituti professionali*, lasted three years with the possibility of one or two additional years until scholastic 2010/11. Today, also this type of school lasts five years and it is subdivided in several branches within two sectors: service and industry and handicraft). Upper secondary education ends with the "Esame di Stato". This examination consists of two written ministerial tests; a third written test set by the school; and a final oral examination. Tests are specific to the type of school attended. Beside these three options, a further branch is represented by regional training courses (*Istruzione e Formazione Professionale*). Efforts to increase the integration of this branch with vocational schools have been implemented over the past years, although still today this branch is managed at the regional levels and it is more closely connected with the labor market. These courses last three years after which there is the possibility of one additional year. Regional training courses have been traditionally attended by higher shares of students with disrupted school careers and with deprived family background (IARD 2011).

The majority of youths enrolls in general schools (46 percent), while students who enroll in technical and vocational schools account to 32 and 22 percent respectively. Vocational training courses account to approximately 5 percent of the total body of students. However, these patterns change substantially across social classes, genders and areas of residence. For instance, children of upper classes and females exhibit higher propensity to enroll in general schools (Cobalti and Schizzerotto 1994, Pisati 2002, Sartori 2009, Barone, et al. 2010). With regard to geographical differences in upper secondary school participation, they have declined hugely over

---

[20] Students and their families receive guidelines for orientation from teachers, who mainly rely on students marks obtained during lower secondary education (Checchi and Flabbi 2007).

the past two decades (Schizzerotto and Barone 2006), but still in the Southern regions there is a slightly higher propensity to enroll in general schools over technical ones. Moreover, huge achievement levels disparities exist between Northern and Southern regions (Bratti, et al. 2007). As far as gender differences are concerned, some research has identified distinction between technical fields of study and subjects with a relational and "care orientation" (Barone 2011b). As we are going to see in the next section, immigrant background adds to these differentiated school participation patterns as a new form of educational inequality. These differences are even more important if we consider that transitions from one type of school to another are possible, but the permeability between types of schools is in fact rather low. Among youths who completed a three-year vocational training course, only a small fraction (about 7 percent) continues to an upper secondary school after completing the first three-year cycle (Barone 2011a).

In addition to track placement, it should be considered that compulsory education lasts until the age of 15.[21] This means that students can leave school after two years of upper secondary education, without any school certificate. Hence, the second important decision in upper secondary education is whether to continue the studies at the age of 16. Dropout rates have always been particularly high in Italy compared to other European countries (Eurostat 2011). In 2010 the incidence rate of early school leavers among 18-24 was around 18 percent, still far above the "Europe 2020" target of 10 percent. Moreover, dropout risks are differentiated across upper secondary school branches, more precisely they are higher in vocational schools relative to general schools (Miur 2009).

As far as tertiary education is concerned, following the implementation of the Bologna process in 1999, the Italian system has recently turned into a sequential system comprising bachelor (three years) and master courses (two years). The upper graduate level, which comprehends Ph.D. Programs, usually lasts between three and four years. Because in this dissertation I focus on compulsory education, I will not go into details of the tertiary education level. Nevertheless, it is worth mentioning that the type of upper secondary school attended is strongly associated with students' chances of continuing on to the tertiary level and also to the likelihood of transiting from the bachelor to the master level (Barone 2012).[22] Hence, the choice between upper secondary schools is highly consequential for students.

---

[21] Between academic years 2007-08 and 2009-10 compulsory schooling was set at age 16.
[22] More than 88 percent of students who graduate from general schools enroll in a University as opposed to 17.8 percent of the students coming from vocational schools (Checchi and Flabbi 2007).

## 2.3 School-age children of immigrants: a fast-growing population with checkered scholastic integration

The impressive growth of the immigrant population in the Italian society has been reflected in schools as well **(**Figure 2.3). Indeed, foreign students (i.e., students with a foreign citizenship) in Italian schools increased by almost six times between academic year 1998/99 and 2008/09, changing from 85,500 to about 629,300. In academic year 2008/09 foreign students accounted for 7 percent of the whole student population while in 1998/99 they accounted for only 1 percent. Figure 2.3 also shows that the presence of foreign students is unbalanced across the different school levels, being higher in primary and lower secondary education (8.3 percent and 8.0 percent respectively in 2008) and lower in upper secondary education (4.8 percent).
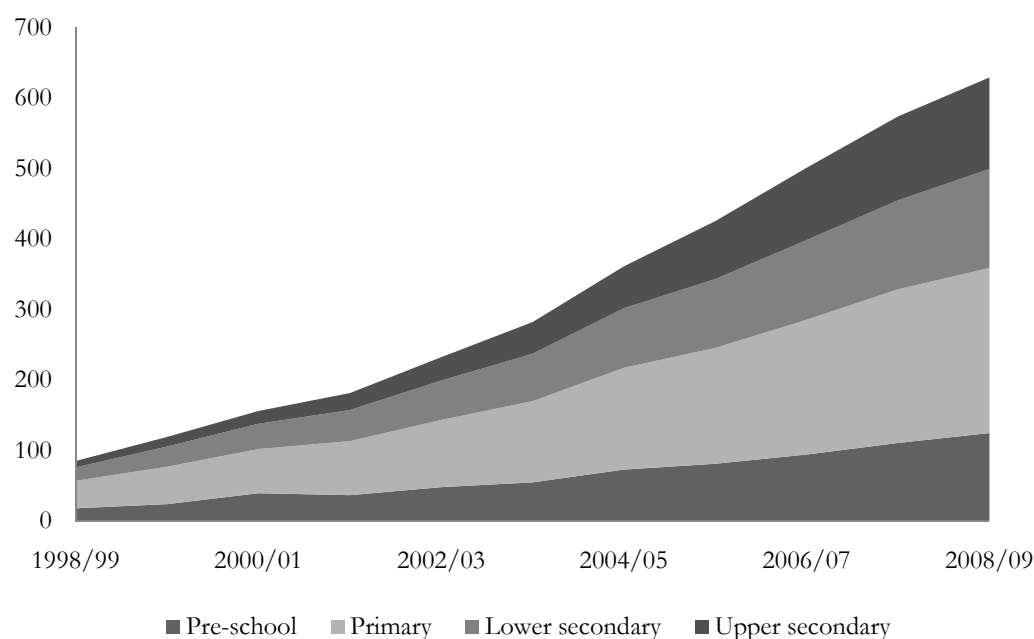


Figure 2.3 Foreign students (thousands) in Italian schools, by educational level (Italy 1998-2008). Own elaboration based on Miur (2009) data.

The presence of foreign students displays relevant geographical heterogeneity, which reflects the demographic distribution of immigrants in the country, who mostly settled in Northern regions (Blangiardo and Tanturri 2006).[23] Also, with regard to countries of origin, Italian schools display a wide heterogeneity: Europeans (Non-EU nationals) are the largest group (28.3 percent),

---

23 It is important that data are disaggregated at province level, since – even though differences with regard to educational attainment have been progressively reducing in the last decades - literacy outcomes are still highly heterogeneous across geographical areas (Bratti, Checchi, et al. 2007).

followed by Africans (23.8 percent), EU-citizens (21.6 percent), Asians (14.7 percent) and Americans (10.9 percent). The most represented nationalities are Romanians, Albanians, Moroccans and Chinese (MIUR-ISMU 2011). Given the novelty of immigration to the country, first-generation students represent the majority of this population, although students with immigrant origins born in Italy (the second generation) are continuously increasing (Ambrosini and Molina 2004). Moreover, confirming the recency of immigration to Italy, the second generation is highly represented in lower school levels, while it is still a small presence in upper secondary education.[24]

Besides offering a detailed picture of the presence of foreigners in schools, Miur (2009) data also report the existence of large differences between Italian and foreign students with regard to several relevant aspects of school success: school delay, grade retentions, marks, dropout, and school choice in upper secondary education.

Foreign students have higher risk of experiencing scholastic delay: the overall difference between Italians and foreigners is larger than 30 percentage points. Four out of ten foreign students experience school delay, against only one out of ten Italians. Although the risk of school delay increases with age and school level for both groups, differences between foreigners and Italians tend to increase as well, shifting from roughly 18 percentage points in primary education, up to 43 and 47 points in lower and upper secondary schools respectively. As we are going to see below, scholastic delay has several causes, among these: grade retention and the practice of lower class enrolment for immigrant students.

Regarding lower secondary education, foreign students have three times higher risk (12 vs. 4 percent) of not being admitted to the final exam and, if admitted, they have much higher risks to fail it (Miur 2010b). Moreover, foreigners also obtain lower marks in the exam. These differences are particularly pronounced for first-generation immigrants. However, with regard to marks, differences between first- and second-generation students are rather small (ibid.), suggesting that the second generation might not always benefit from being born and grown up in the destination country. As we are going to see in greater detail in the next section, the existence of a clear advantage of the second generation over the first generation is not consistently identified in the empirical research either.

Foreign students display systematic higher rates of grade retention compared to their Italian classmates. In upper secondary education foreigners-natives differences amount to 8.5 points in *istituti professionali* to 12.0 points in *istituti d'arte*, 10.1 in *licei* and 11.1 points in *istituti tecnici*. Moreover, foreigners also experience higher dropout risks in upper secondary education,

---

[24] Its incidence rate on the whole foreign student body varies from 71.2 percent in pre-schools and 41.1 percent in primary schools, to 17.8 percent in lower secondary schools and only 6.8 percent in upper secondary schools (Miur 2009)

and thus more often leave the education system without having earned a qualification (Miur 2009).

As anticipated in the previous section, foreign students attending upper secondary education appear to be disproportionately concentrated in shorter and more work-oriented tracks. The incidence rate of foreign students is higher in *istituti professionali* (12.0 percent) and *istituti tecnici* (7.0 percent) and lower in *licei* (2.9 percent) and *istituti d'arte* (4.8 percent). These data do not encompass *formazione professionale di base*, which attracts particularly high numbers of immigrants (Dalla Zuanna, et al. 2009).

As a consequence of the recency of the migratory phenomenon to Italy, only very few children of immigrants have reached the age of attending tertiary education. Therefore, the examination of their performances at this higher level it is impeded by the scarcity of data thus far available.[25]

*Educational policies*

The education of children of immigrants can be improved both through targeted educational policies and universalistic equal opportunity policies (Nusche 2009). But what is the actual state of educational policies in Italy? Unfortunately, the Italian situation is characterized by the absence of a general, coherent policy framework to promote school attainment and achievement of children of immigrants as well as to promote equal opportunities at school in general. In spite of formal statements and recommendations,[26] educational policies aimed at improving the scholastic integration of children of immigrants are rather flawed (Cnel-Censis 2008). Facing the lack of systematic efforts at the national level, schools take their own initiatives. The most relevant activities to support children of immigrants originate at the local level on the initiative of single schools or teachers. Hence, we assist at a proliferation of local initiatives on a voluntaristic

---

[25] The available MIUR data do not differentiate between students who completed their secondary education in Italy and students arrived to Italy with the purpose to attend the university. Consequently, this data source does not give insight on differentials in transitions rates. Nonetheless, MIUR data offer a general overview of the presence of third-country-nationals at the university. In academic year 2005/06 5,027 out of 300,735 students who completed university had a foreign citizenship. In the same year foreign students enrolled at the university amounted to 41,589, representing roughly 2 percent of the whole student population. Apart from students from European Union countries, the largest groups are represented by East-Europeans (44.2 percent of the whole student population), followed by Asians (11.4 percent), Africans (9.7 percent) and South-Americans (6.8 percent). Finally, foreigners appear to be mainly concentrated in applied fields like medicine, economics, and engineering, and in arts and humanities.

[26] The Italian constitutional law (article 34) states that school is "open to *everyone* and the first years of schooling are free and compulsory. Students who excel in school – even if they lack the economic means – are entitled to reach the highest level of education. The Italian Republic enforces this right through the provision of scholarships, household subsidies, and other form of grants designated through public competition". Moreover, law no. 40/1998 has formally recognized the value of intercultural education and some other general principles of social and school inclusion of children of immigrants. Other governmental acts have provided guidelines that schools should and also have lead to the creation of the "Observatory for integration of foreign students and intercultural education".

basis, often in cooperation with local authorities and NGOs. One of the more widespread practices is "lower class enrolment", that is to say the practice of enrolling children of immigrants in one class behind that corresponding to their age as they enter the Italian school system. Even though officially discouraged, this practice is quite widespread (Mantovani 2008b). It is motivated by the need to deal with children of immigrants with inadequate language proficiency, in a context where specific financial resources to support them are lacking. Dalla Zuanna and colleagues (2009) argue that this practice represents for them an additional source of cumulative inequality: first, because it hinders relations with class mates of the same age and, second, because it may negatively affect their self-esteem and future academic outcomes.[27] As we are going to see in the next section, no evidence exists on the actual effects of this practice on immigrant students' consequent educational outcomes.

Other initiatives comprise, for instance, welcome activities for children of immigrants, specific interventions to foster the involvement of their parents, new forms of intercultural education with laboratories on arts and music, etc.[28] Unfortunately, good intentions are often not enough: Cnel-Censis (2008) notes that "teachers often face the problems of the integration of immigrant pupils in solitude and without the required training" and adds that "projects for the integration of immigrant pupils and for promoting intercultural education are too often based on limited resources", concluding that new forms of cooperation and synergies between schools should be encouraged, but also that stable financial resources should be invested to support the educational attainment of children of immigrants. Perhaps even more important, the education system does not provide extra classes in which foreign students can learn the new language (Dalla Zuanna, et al. 2009), which, as seen in chapter 1, is consistently found to represent one of the most relevant hindrances for immigrant children.

In the public opinion, the increased presence of children of immigrants in Italian schools—coupled with the just above indicators of their checkered scholastic integration—has been accompanied by mounting anxiety about the potential negative consequences of classrooms with high percentages of immigrants on natives' achievement. As a response to this sentiment, in 2010 the Italian Ministry of Education introduced a new policy measure aimed at averting high immigrant concentration in individual classes. More precisely, the Ministry established a cap of 30 per cent to foreign-born students in any given class. The measure also established that

---

[27] The authors hypothesize that delay can affect future education decisions, because students with delay mostly underestimate their skills and their future academic potentials and therefore have higher probability to choose shorter school tracks or to leave school earlier.

[28] With regard to good practices implemented by schools, the project "Interculture" promoted by Fondazione Cariplo is worth mentioning. The project, which has been carried out by Asvapp and Ismu, reviews a few projects implemented by schools in Lombardia and provides policy indications for future initiatives.

children of immigrants born in Italy (i.e., second-generation immigrants) could be excluded from the computation of the threshold because they are understood as having adequate language skills. Hence, the cap applies to first-generation students only. Official statistics, however, show that the high concentration of immigrant students does not represent a sizable phenomenon yet. In the academic year 2009-10, only a negligible number of schools exceeded the cap of 30 per cent. In the academic year 2009-10, these classes made up only 5 percent (7,300 classes) in primary education and 4 percent (3,100 classes) in lower secondary education. Excluding foreign students born in Italy, this percentage further decreases to 1 and 2 percent, respectively (Miur 2010a).[29] Hence, this new measure is not likely to be the solution to the current problems of children of immigrants, at least not in lower educational levels, while it could be relevant in highly immigrant-concentrated in certain tracks of upper secondary education, namely vocational schools and vocational training courses.[30]

## 2.4 The educational gap between immigrants and natives: the role of socioeconomic background

As in many other countries, in Italy educational attainment and achievement are strongly affected by social origins (Pisati 2002, Ballarino and Checchi 2006, Checchi and Flabbi 2006, Ballarino and Schadee 2008, Barone, et al. 2010). Moreover, also other ascriptive factors like gender and area of residence are found to significantly determine students' educational outcomes (Bratti, et al. 2007, Sartori 2009). The increased presence of immigrant students adds to these factors as an additional source of educational inequality in Italy. Hence, it is important to investigate how this new form of inequality intersects these important traditional factors of inequality, especially social origins. This question is of particular interest, because it is well-known that immigrants attain poor labor market outcomes and also face a strong devaluation of their education (Ambrosini 1999, 2001, Reyneri 2004a, b, Fullin and Reyneri 2011).

In this section, I investigate whether Italian empirical research satisfyingly answers the following questions. Do immigrant-native differences persist after controlling for family socioeconomic background? To what extent family background explains the gap? And do

---

[29] These schools are mainly located in urban areas in the Northern regions of the country, where the immigrant presence is stronger (Istat 2005). Thus, the formation of classes with high percentages of immigrants in primary schools is essentially a consequence of the uneven settlement of immigrants across towns and neighborhoods.

[30] I am going to empirically test the association between immigrant school concentration and student achievement in chapters 3 and 6.

traditional indicators of family background (social class, and parental education) work the same for immigrants as for natives?

A first indicator of educational attainment covered by research is school attendance. This indicator is given by the ratio of individuals at school to the overall population of relative age. On this aspect, a detailed examination of foreigners' school participation is provided by Strozza (2008) using on Italian 2001Census data. The author shows that differences take place already at early ages and, particularly, in the pre-school period, as confirmed by Istat (2005), which reports that 95 percent natives and 80 percent of foreigners were regularly enrolled. Regarding countries of origin, children from countries like Pakistan, Macedonia, Ex-Yugoslavia, China, India, Egypt, Tunisia and Morocco display the lowest rates of pre-school attendance, whereas children from Peru, Colombia, Russia, and Brazil score the highest. These differentials in preschool attendance might have long-run educational consequences on the prospects of immigrant students, because, as we have seen in chapter 1, childhood is a key stage in the life cycle for the acquisition and development of skills.

The biggest differences in school attendance are found in the 14-18 age class, and are positively associated with immigrant generational status: second-generation immigrants show higher levels of school attendance compared to first-generation students (Strozza 2008), suggesting that foreign youngster assimilate across generations and with time spent in the country. The author argues this is mainly due to different risks of school dropout. Even though the phenomenon affects Italian students as well, among foreign students the incidence of dropout appears to be systematically higher. Recent studies based on Italian Labor Force Survey found that children of immigrants face much higher risks of dropping out of school after completing lower secondary education, even after controlling for both parental occupation and education (Canino 2010). Dropout risk is found to vary greatly across national-origin groups. Strozza (2008), finds that—controlling for birth cohort, area of residence and reason for migration but not for social origins—students from Macedonia, Ex-Yugoslavia, Pakistan, Morocco, India, Albania face the highest risks, while those from Russia, Peru, Poland, and Brazil the lowest.[31]

The flip side of dropout is title attainment (or school completion). Casacchia, et al. (2008), using ITAGEN data,[32] show that immigrants have lower educational attainment: in Veneto the share of students who do not successfully and regularly complete lower secondary school among foreigners is twice as high as among Italians. Moreover, Checchi (2009) , relying

---

31 Due to data constraints, the author defines dropouts as those individuals who are not enrolled in any school, and not as students who actually leave school.
32 ITAGEN is a national-scale survey conducted on 10,150 native and 10,554 foreign (with at least one parent born abroad) students in lower secondary schools.

on a local survey conducted in Lombardia, finds that being born abroad versus in Italy represents an obstacle to the attainment of an upper secondary level qualification, even after controlling for parental education. According to Strozza (2008), students from Pakistan, India, Macedonia, Ex-Yugoslavia, Morocco, China and Tunisia have the highest probability (around 40 percent) of not completing lower secondary education.[33]

The national-origin variations reported so far are substantially in line with the international literature (chapter 1), with the exception of Asian youths, who mainly come from India and China. These two nationalities display rather good performances in Anglo-Saxon and North-European countries (as seen in chapter 1), while in Italy they are placed among the groups with lower school participation. The relative novelty of Asian immigration to the country—coupled with a particularly strong social segregation (i.e., family autonomous work) and ethnic ties—could partially account for this "deviating" result compared to old immigration countries (Campani, et. al 1994). Also, the pronounced segregation of these communities, the Chinese in particular, might negatively affect acquisition of the Italian language, and consequently lead to low scholastic performances (Campani, et al. 1994, Ceccagno 2004). One other possible explanation has to do with the existence of different immigrant selectivity mechanisms in both sending and receiving countries. For instance, the Chinese migrating to Italy mainly come from rural areas following kinship networks (Bressan 2012) and could also have less "ambitious" migratory plans relative to those who migrate towards the US.

After completing lower secondary school, children of immigrants who continue their education end up being disproportionately concentrated in vocational schools, even after adjusting for family socioeconomic background (Canino 2010, Barban and White 2011). Barban and White (2011), relying on nationally representative data from ITAGEN2 (the follow-up survey of ITAGEN), show that marks obtained in the final exam of lower secondary school do not fully explain differences between children of immigrants and natives with regard to upper secondary school choice. Furthermore, their analysis shows that—whereas recently arrived immigrants display lower probability to enrol in *licei* and higher probability to enrol in vocational schools compared with Italians—the second generation performs roughly at the same level as natives, suggesting that not only an educational progress is taking place across generations, but also that the second generation substantially catches up with natives. Such result is rather reassuring regarding the chances of educational assimilation of children of immigrants in Italy. It shall be noted though, that the authors include in the category of second generation also those youths with only one foreign-born parent. This might lead to an overestimation of the

---

[33] The estimates of primary schools completion refers to individuals aged from 11 to 13, and as regards lower secondary education to individuals from 13 to 18. This measure is partially affected by school delay, which is not detectable with census data, as reported by the author (Strozza 2008, p. 708).

performances of the second generation, as it will be directly tested in the empirical chapters of this dissertation.

Empirical research yields interesting insights also on the phenomenon of school delay. First, Dalla Zuanna and associates (2009), relying on nationally representative data from ITAGEN2, find that the percentage of students experiencing school delay is roughly the same among second-generation immigrants and among Italians with low-educated parents, while the percentage among first-generation immigrants is much higher and increases with age of arrival. This similarity between second-generation students and natives with low educated parents represents a clue that family background is an important factor also for allowing children to have regular scholastic careers with fewer interruptions and retentions. Other studies, realized on regional sub-samples of ITAGEN2 (i.e., in Campania and Lombardia), confirm the positive association between age of arrival and delay in upper secondary education (Casacchia, et al. 2008). However, according to these authors, children arrived during lower secondary education (11-14 years) display higher incidence of delay compared to other groups arrived either before or after the adolescence period. On the basis of this evidence, the authors speculate that—in line with some research commented in chapter 1—adolescence could represent a particularly critical period for migrating, which negatively affects future educational outcomes. However, in order to further corroborate this hypothesis one would need to be able to control for cohort effects, since the correlation could reflect a peculiar composition of the cohort considered in the analysis instead of an effect of age at migration.

Although these studies shed light on the differentials between children of immigrants and natives in school delay, they do not allow isolating its different causes from each other. Grade retention is surely one of the possible causes of scholastic delay. Whereas research largely confirms the gap between immigrants and natives with regard to the risk of grade retention, mixed evidence exists on whether or not time spent in the country contributes to this risk. On the one hand, Casacchia and colleagues (2008) find that students who have spent less than two years in Italy display the highest risk of grade repetition, controlling for a rich set of covariates (like parental education, number of siblings, and social relations). On the other hand, Mantovani (2008b) uses a sample of students enrolled in first grades of technical and vocational schools in the province of Bologna to demonstrate that second-generation students surprisingly display a slightly higher incidence of grade retentions than first-generation immigrants.[34]

---

[34] In addition to these findings, the author shows that the gap between native and immigrant students in the risk of grade retention at upper secondary education is smallest in vocational schools. This could be explained again by the more pronounced negative selection of natives in vocational schools. Indeed, as we saw before, upper secondary school choice is more dependent on ability and previous academic outcomes for native-Italians than for children of immigrants (Barban and White 2011). This means that if we

As a matter of fact, delay is not exclusively due to low scholastic performance and grade retention but to a mix of other different factors. Among these, a major role is played by the practice of 'lower class enrolment' which, as seen in the previous section, consists of enrolling children of immigrants in one class behind the class corresponding to their age as they enter Italian education system for the first time. Canino (2010) establishes a positive association between grade repetition and dropout risk. The author also finds that this association is smaller and weaker among immigrants than among natives, taking this as a clue that grade repetition is less dependent on prior achievement for immigrants, since they are enrolled in lower classes only also because of lack linguistic fluency or because they entered school when it was already started.

Moving on to educational achievement, and thus to performance and skill formation, a traditionally employed indicator is marks. Several studies prove the existence of a systematic gap between children of immigrants and natives (Casacchia et al 2008; Barban and White 2009; Checchi 2009). Barban and White (2011) find that children of immigrants obtain lower outcomes on the lower secondary school final exam, but also underline that family characteristics (i.e., household possession, parental education, number of siblings) are more powerful determinants than immigrant background. Support for these findings is provided by Checchi (2009) as well. The author shows that marks of foreign students are systematically lower than marks obtained by Italians, controlling for both results of a standardized test and parental education—this suggesting the possibility that teachers underestimate skills of children of immigrants.[35]

Mixed evidence has been produced regarding the contributions of age of arrival and generational status to the outcome of the lower secondary education final exam. While Barban and White (2011) find a disadvantage of recent immigrants, net of family background, and no significant differences between second-generation students and natives, Mantovani (2008b) finds that first-generation students get better marks than second-generation students, controlling for both social origins and parental education. The author speculates, and demonstrates, that the relative advantage of first-generation students is due to the fact that they make more effort in studying and homework, compared with the second generation.[36]

---

compare a foreign student and a native student both with good marks in lower secondary education, the former is much more likely to choose a vocational school over a technical one.

[35] However, the author controls for parental education and not for parental occupation, which – as seen in Chapter 1 – is a much more powerful determinant of differences between native and foreign students, especially in Italy where immigrants have similar educational levels as the native population and have lower pay-offs in the labor market (Fullin and Reyneri 2011).

[36] Indeed, to support this hypothesis the author shows that first-generation students declare to spend much more hours a week in doing homework compared to Italians and second-generation students. A further possible explanation advanced by the author is the different composition of the two groups (first and second generations) with respect to country of origin. Indeed, once controlled for country of origin, the negative correlation turns out to be insignificant. Moreover, as the author herself points out, these results are to be interpreted bearing in mind that the sample used is not representative of the whole

Regarding school subjects, all of the reviewed studies consistently indicate that differences between children of immigrant and natives are systematically larger in reading and writing compared with mathematics. As mentioned above, length of residence in Italy is found to strongly affect school performances, but also some differences according to country of origin exist (Barban and White 2011). For example, Chinese students are found to outperform all other groups, including Italians, in mathematics (Casacchia, et al. 2008, Barban and White 2011). Romanians are also found to achieve higher marks than natives in mathematics (Casacchia, et al. 2008). These findings are of great interest if compared with above-reported data on school participation. It seems that there is a discrepancy, at least for some groups (i.e., the Chinese and Romanians), between scholastic performance in lower secondary education and subsequent educational choices in upper secondary education.

Even though marks represent an important indicator of academic performance, they may be an unreliable measure of learning achievement, because they are affected by bias due to variation in teachers, schools, and classes. Standardized tests provide useful information to overcome this type of bias. International surveys like *Progress In International Reading Literacy Study* (PIRLS), *Trends In International Mathematics And Science Study* (TIMSS) and *Programme For International Student Assessment* (PISA) represent highly useful sources of information, even in a comparative perspective. However, these surveys are still under-exploited in Italy because of the small numbers of immigrants included in the samples. Nevertheless, quite a few studies have been produced recently and have shown that immigrants perform worse than Italians in reading, science, and mathematics (Borrione, et al. 2006, Mantovani 2008a, Amistadi, et al. 2009, Checchi and Braga 2009, Dustmann, et al. 2011). All studies point out a largest gap in reading than in mathematics or science. This regularity is confirmed by preliminary results from a national-wide test carried out by INVALSI on students of primary schools (Invalsi 2010).[37] Moreover, Mantovani (2008a) finds that these immigrant-native achievement gaps in upper secondary education persist even after controlling for socioeconomic and cultural background, type of school and language spoken at home.

To conclude, the empirical research reviewed in this section points to the key importance of family socioeconomic background as an explanatory factor of the immigrant-native differentials in both educational attainment (Queirolo Palmas 2002, Bertozzi 2004, Besozzi and

student population of lower secondary schools, since students enrolled in *licei* are not included in the analysis. More precisely, the estimated immigrant-native differences in marks obtained in lower secondary school's final exam are likely to be underestimated, given the different selection processes of children of immigrants and natives in the different tracks of upper secondary education. As already mentioned above, children of immigrants tend to have higher probability of choosing vocational schools compared to natives even if they previously obtained good academic outcomes.

[37] Nationwide surveys for academic year 2008-09 have been carried out in the second and fifth grades of primary schools, and in the third grade of lower secondary schools.

Colombo 2006, Queirolo Palmas 2006, Besozzi and Colombo 2007, Mantovani 2008b, Besozzi, et al. 2009) and achievement (Mantovani 2008a, Amistadi, Bazzanella, et al. 2009, Barban and White 2011). However, neither a precise quantification of the contribution of social origins nor a comparison between "gross" and "net" gaps have been carried out so far. Finally, research has attempted to establish whether the contribution of family background is the same for children of immigrants as for natives. Whereas there is consensus in finding that parental education resources play a weaker role for immigrants' children than for natives—pointing out the problem of the devaluation of immigrants' educational credentials acquired abroad—[38] research has not clearly established yet whether immigrant and socioeconomic background interact. The empirical analyses presented in the following sections of this dissertation are primarily aimed at advancing the understanding on these aspects.

## 2.5 Not just a problem of socioeconomic deprivation: other explanations for the gap

In the previous paragraph, we saw that a significant gap between natives and children of immigrants seems to persist even after adjusting for family socioeconomic background. This is not surprising: in line with research findings from other countries (see chapter 1), the educational disadvantage of children of immigrants can not be reduced to socioeconomic related factors only.

In the first place, an adequate knowledge of the Italian language is largely recognized as the *conditio sine qua non* for a successful schooling career for children of immigrants. As seen in chapter 1, language acquisition is a long term process, which is positively correlated with time spent in the host country. Differences according to gender and country of origin also exist. Indeed, it is often found that females tend to perform systematically better than males (Giovannini and Queirolo Palmas 2002, Casacchia, et al. 2008). As we have seen above, children of Chinese origin also show particularly low language proficiency (Campani, et al. 1994, Ceccagno 2004).

As seen in chapter 1, it is also important that immigrant parents adequately master the host country language, because this enhances their possibilities to understand the Italian education system and to better support their children to keep up with their homework. The relevance of this factor is confirmed by Casacchia and associates (2008) and Dalla Zuanna and

---

[38] Queirolo Palmas (2002), on a survey carried out in 1999 in ten Italian towns, finds that children of immigrants, have higher risks than natives to choose shorter schools even after controlling for parental education. Similarly, Mantovani (2008b) shows that parental education affects the choice between vocational and technical schools both for Italians and immigrants, but less intensively for the latter.

colleagues (2009) with regard to school choice after lower secondary education. Also, the authors find that children of immigrants, regardless of their age of arrival, receive less help by the parents in their homework, most likely because immigrant parents possess low language skills.

In addition to this, Giovannini and Queirolo Palmas **(**2002) point out that differences in school performances could also be a consequence of the higher instability in immigrant family composition (i.e., absence of one parent), which might also affect the quantity and quality of time dedicated by the family to parent-teacher conferences and more in general reduce family involvement in school activities. Family instability might be the cause of the checkered scholastic outcomes of children of Latin American origins (Casacchia, et al. 2008). These authors also brought out that interesting evidence about the condition of children of mixed-couples, who seem to receive less support and perform worse on the final exam of lower secondary education relative to children with both Italian parents.

Research seems to leave out the existence of higher educational aspirations among children of immigrants compared with natives, backing the argument that children of immigrants' educational aspirations are narrowed by the expectations of lower returns to education (chapter 1). Dalla Zuanna and colleagues (2009) show that foreign-born students declare lower intentions to enrol in *licei* and university compared to natives. On the other hand, the authors point out substantial variation across national-origin groups, showing that the Chinese, Albanians, Moroccans, and more generally Sub-Saharan and Northern Africans, declare particularly low educational aspirations, as also found by Minello and Barban (2012).

Finally, the issue of friendship and peer relationships in the class is also considered as an important determinant of educational success. Empirical research reports that the intensity of relationships within classes is smaller for foreigners, though it tends to increase with time spent in the host country (Mantovani and Martini 2008). On the association between class relationships and school performance, interesting evidence is brought out by Martini (2009) and Rivellini and Terzera (2009) who—relying on a survey on upper secondary schools in Trentino and on ITAGEN2 in Lombardia respectively—find that recently arrived children benefit more than native-Italian and second-generation students from having many relationships with class mates, net of family socioeconomic background and previous scholastic career.


## 2.6 A balance: what we know and what we (still) do not know


This chapter showed that new empirical research has flourished in Italy in the past few years on the topic of immigrant-native educational gaps. In line with international literature, this new

empirical evidence points to substantial immigrant-native differentials along several dimensions of educational attainment and achievement.

On the basis of the studies reviewed in this chapter, it is now possible to summarize some of the most critical methodological and substantive points, which will be object of further investigation in the empirical chapters of this dissertation. A first methodological point is the small-scale and local limitation of most empirical studies. This has led to an overall weakness in terms of external validity of most of the empirical findings, especially if we consider the high educational divide between regions and areas of the country (Bratti, et al. 2007) as well as the heterogeneous settlement of immigrants in the country (Blangiardo and Tanturri 2006). The present dissertation aims at extending existing research to the national level by using five nationally representative microdata samples (INVALSI, Italian Labor Force Survey, PISA, ITAGEN2, ISFOL).

A second shortcoming is relative to the fact that research has investigated the educational outcomes of children of immigrants in lower and upper secondary education, leaving primary education and pre-school education hardly explored. Because most children of immigrants are still enrolled in the lowest educational levels and because it is well-known that educational inequality generates in early childhood (Cunha, et al. 2006), research should urgently redress this gap. Chapter 3 will extend existing research by examining immigrant-native differentials in learning achievement in the second and fifth grades of primary schools.[39]

Coming to the more substantive points, three aspects, on which research has not proved conclusive so far, need to be further investigated. First, the empirical literature on Italy, in line with most research at the international level, finds that there exists great variation in educational achievement and attainment according to immigrant generational status, with second-generation children generally outperforming their first-generation counterparts. As extensively described in chapter 1, the main explanation refers to a general process of acculturation of children. However, some authors claim that the differences between first- and second-generation children are negligible and that no significant evidence for an educational progress across generations is detectable. Local samples and different definitions of generational status might be the causes of these contrasting results. In this thesis, I will attempt to reach more conclusive results on this point, keeping in mind that the second generation in Italy is still a rather small and young, though fast growing, population, therefore it needs to be continuously monitored with new data in the coming years.

Regarding country of origin, all available evidence points to a marked disadvantage for students from Northern Africa and Eastern Asia. While the former result is in line with findings

---

[39] Unfortunately, to my knowledge, no survey data on preschool children are available in Italy.

at the international level, the latter strikingly contrasts with evidence originating from Anglo-Saxon and North-European countries (see chapter 1). The most puzzling result is specifically related to the Chinese: these students are found to achieve outstanding marks in lower secondary education, even higher than natives, but at the same time they seem to exhibit lower school participation in upper secondary education. In order to solve this puzzle and—more in general—to get a clearer picture of the patterns of educational achievement and attainment of the different national groups, the empirical analyses presented in this dissertation will attempt to assess educational differences between national-origin groups taking into consideration their interaction with immigrant generational status.

Finally, empirical research roughly confirms another well-established finding in the international literature, that social origins play an important role for explaining children of immigrants' negative scholastic outcomes. However, to the best of my knowledge, no study in Italy has attempted to quantify the portion of the gap explained by social origins so far. Moreover, reliable and detailed measures of parental social class have not always been employed. In order to provide more robust answers to the question of whether immigrant background represents a challenge to 'traditional' explanations of educational inequality, and whether—and to what extent—immigrant background and socioeconomic background interact, in this dissertation the role of social origins will be systematically investigated using different measures of family socioeconomic background and employing different statistical techniques. The next chapter will start addressing these questions by looking at reading and mathematics achievements of pupils attending second and fifth grades of primary education.

# 3    Early achievement gaps in mathematics and reading skills: children of immigrants in Italian primary schools

## 3.1 Introduction

In this chapter I investigate the achievement gaps between natives and children of immigrants in Italian primary education. As already seen in chapter 1, the acquisition of cognitive skills at early school stages is crucial for future academic outcomes and human capital development (Heckman and Masterov 2004, Cunha, et al. 2006). Therefore, it is very important that the empirical inquiry on the educational outcomes of children of immigrants throughout the Italian education system starts from this first level of compulsory education.

As I have documented in chapter 2, scant evidence exists on immigrant-native differentials in Italian primary schools. Hence, the primary goal of this chapter is to redress this research gap and to provide an empirical investigation of the phenomenon at the national level. To this end, I rely on recent and excellent quality data provided by INVALSI (National Institute for the Evaluation of the Education System). These data allow for investigation of the patterns of the educational gap between children of immigrants and natives in two subjects (reading and mathematics) and at two different stages of Italian primary education (second and fifth grades). This allows, first, to consider both the linguistic and the logical components of students' skill formation and, second, to have an understanding on how the relative performances of children of immigrants change between grades.

Next, in this chapter I address some more specific questions. As a first step, I investigate the association between immigrant generational status and student achievement. Then, I quantify the contribution of family background, by investigating the role played by parental occupation and education. After that, the empirical analysis explores the role of some other relevant family characteristics, namely language spoken at home and the availability of educationally relevant resources within the households. These additional analyses offer an understanding on the actual differences in home environments between natives and immigrants that potentially affect students' achievement.

Finally, I examine the existence of contextual effects, namely I investigate the association between percentage of immigrants in the classroom and students' achievement after having statistically controlled for students' characteristics. This question is especially relevant in a policy perspective, because, as already seen in chapter 2,  in 2010 the Ministry of Education introduced a cap of 30 percent to the presence of immigrants in classes. This policy implicitly assumes that

the higher the percentage of immigrants, the lower natives' performances. In this chapter I attempt to test this assumption.

This chapter is organized as follows. Section 3.2 presents and articulates the hypotheses under investigation. Section 3.3 presents the data and empirical strategy employed. Section 3.4 presents descriptive results, and multilevel analysis estimates, plus all additional analyses and robustness checks. Section 3.5 summarizes the main relevant findings, compares them against the main insights of previous research, and also discusses policy implication of the results.

## 3.2 Research questions and hypothesis

Drawing upon previous research at the international and Italian levels (presented in chapters 1 and 2, respectively), in this chapter I assess mathematics and reading achievement gaps between natives and children of immigrants. The distinction between the two subjects is relevant for it allows to consider both linguistic and logical skills developed by pupils. Also, I attempt to establish whether immigrant-native differentials are stable or change between second and fifth grade. Optimistically, one could expect that, *ceteris paribus*, the gap decreases over time, that is to say it is smaller in fifth compared with the second grade, because school exposure should reduce the influence of family background and equalize students of different social backgrounds. To properly answer this question, longitudinal data would be needed. Unfortunately, the available data for the analysis are from two different cohorts of students, which might differ from one another with regard to some relevant aspects. Nonetheless, it can be assumed that in the time-span between the two cohorts included in the survey (second and fifth graders) no dramatic changes in the migratory patterns to Italy have occurred; therefore the national-origin composition of the two cohorts is reasonably similar. Moreover, the multivariate analyses include, as additional controls, a rich set of individual and family-level variables, allowing for a number of observable differences between the two cohorts.

After assessing the achievement gaps between natives and children of immigrants, I investigate the association between immigrant generational status and achievement. A quite large amount of theoretical literature and empirical evidence has pointed out that children's generational status is associated with their educational achievement. In general, second-generation children tend to outperform their first-generation counterparts (Schnepf 2004). Such a pattern could be explained by the fact that the former have not directly experienced the challenges of immigration, such as learning a new language, adjusting to a new culture, and acclimatizing to an unfamiliar education system (Portes and Rumbaut 2001, Schnepf 2004, Esser 2006). However, as we have seen in chapter 2, this pattern is not clearly established in the literature on the Italian case, which provides mixed evidence on the alleged relative "advantage" of the second generation. In addition, we should keep in mind the specificity of children of

mixed parentage: they are likely to outperform children with both immigrant parents, because they benefit from higher social capital, which leads to a deeper country-specific knowledge and an easier access to information channels (i.e., country specific human capital, knowledge of the Italian education system, social networks, access to citizenship, etc.) (Cebolla-Boado 2011). Therefore, considering children of mixed-parentage together with children with both foreign-born parents might lead to an overestimation of the performances of the second generation. This is why the empirical analysis presented in this chapter consider mixed-parentage children as a distinct group.

Second, rather than by children's acculturation, differences between immigrant generational groups could be accounted for by their parents' socioeconomic resources. It is a quite well established fact in international research that family socioeconomic background partially accounts for the observed gap between children of immigrants and natives, because immigrant families, especially those arrived recently, display lower occupational and economic attainment and tend to be concentrated in the lowest social strata (Heath, et al. 2008). Moreover, also parental education plays a key role in determining children of immigrants' educational outcomes, for it is assumed that highly educated parents are more inclined to invest in their children's education and can provide children with higher quality support (e.g., with their homework). However, these "traditional" explanations—especially education—might not work the same way for natives as for immigrants. Indeed, quite often immigrants have lower occupational returns to education compared to natives, especially if they hold foreign qualifications (Heath and Cheung 2007). As seen in chapter 1, this over-education determines a weakening of the explanatory power of parental education on children's educational outcomes (Heath, et al. 2008). Following these research insights, in this chapter I test, first, whether the gap between natives and children of immigrants significantly narrows after controlling for family socioeconomic background (i.e., parental occupation and education) and, second, whether parental education exerts the same positive effects for children of immigrants as for natives.

Next, I try to establish the extent to which the gap not explained by socioeconomic background is accounted for by other educational and cultural resources available within the household. In the first place, I focus on fluency in the Italian language. As a proxy for this, I employ the mostly spoken language at home by the student, arguing that the more frequently he/she speaks Italian, the higher his/her fluency in Italian, and, *ceteris paribus*, the higher his/her scholastic outcomes.

Moreover, as documented in the international literature (chapter 1), also insufficient cognitive and non-cognitive stimulation that parents give to children could explain a substantial part of educational achievement differences between natives and children of immigrants. This might happen both because immigrant parents often have less time to dedicate to their children' scholastic activities (Dalla Zuanna, et al. 2009) and also because they often lack the necessary

language skills and country-specific knowledge in order to provide children with a valid support in homework as well for the engagement in recreational activities. Among the relevant forms of parental involvement, the literature refers to factors like the time parents spend with children (talking and reading to them, playing with them, etc.), parents' involvement in out of school activities and participation to parent-teacher conferences (Kao and Tienda 1995, Lahaie 2008, Kao 2004a). Also, empirical literature has shown that the involvement of children in socially recreational activities, like sport activities, could be positively associated with their educational performances (Crosnoe 2001) whereas other activities like watching TV, or playing video games, have been found to be negatively associated with student achievement (Notten and Kraaykamp 2010).[40]

Finally, in 2010 the Ministry of Education introduced a cap of 30 percent to the presence of immigrants in classes. This policy implicitly assumes that higher percentages of immigrants in the classes reduce students' performances. In this chapter, I attempt to test whether there is a statistically significant association between immigrant classroom concentration and students' achievement. Educational research has documented the possible negative correlation between a high percentage of immigrant children in schools and educational achievement over and above socioeconomic composition. Schools and classes with higher percentages of children of immigrants display, on average, lower educational outcomes (Portes and Hao 2004, Fekjær and Birkelund 2007, Hanushek, et al. 2009). However, the causality of this association is difficult to identify because classroom immigrant composition is endogenous. Immigrant families self-select into the most socioeconomically deprived neighbourhoods and, as a result, their children are more likely to attend schools with lower average socioeconomic composition and of lower quality (Hanushek, et al. 2009, Cebolla-Boado and Medina 2011). Investigating the causality of this relationship is beyond the purposes of this chapter, which, on the contrary, simply seeks to establish whether a significant association between the percentage of immigrants and students' achievement exists, after adjusting for socioeconomic factors at both family and class level. Furthermore, I ask whether class immigrant composition correlates with achievement in the same way for children of immigrants and natives, or whether the former are more affected by it, as suggested by previous research in other countries (Fekjær and Birkelund 2007, Hanushek, et al. 2009).

---

[40] It shall be underscored that the associations between these variables and achievement cannot be interpreted in causal terms, because free time' usage is clearly correlated with unobservable characteristics, like motivation and effort, which also affect student achievement.

## 3.3 Data and empirical strategy

### 3.3.1    INVALSI data

This study analyses standardised tests of mathematics and reading skills administered to second and fifth grade students in Italian primary schools. The survey was conducted by INVALSI during the academic year 2009–2010 and represents the largest nationally-representative survey available on students' achievements in Italian primary education. It also represents a valuable data source since the tests were compulsory in every school in the national education system. From the total number of schools, a three–level stratified sample was drawn. Schools were first sampled within each province; then, one or two classes were randomly selected within each sampled school. Tests were administered under the supervision of observers in each class of the sample, which prevented cheating and facilitated the procedures of testing and data collection. The survey also collected individual and family background information via school offices. After deleting some missing values (see section 6.3), the final samples used for the analyses were of 37,727 second grade students clustered within 1,880 classes and 1,307 schools and of 32,598 fifth graders clustered within 1,882 classes and 1,310 schools.

### 3.3.2    Variables

The dependent variables are Rasch-scaled scores from tests on reading and mathematics skills administered in the second and fifth grades of primary schools.[41] The reading tests measure children's reading comprehension and vocabulary. The mathematics tests encompass both content and cognitive domains and are divided into four areas: numbers, space and shapes, measurements, and data and forecasts. The specific content and task requirements of the tests vary depending on grade.

The sampled student population has been differentiated according to its immigrant generational status; that is to say, information on the place of birth (Italy vs. other countries) of the students has been combined with that of their parents. More precisely, the sample has been broken down into four categories: natives (defined as native-born children whose parents are both native–born); the second generation (native-born children whose parents are both foreign-born); first generations (foreign-born children with both parents born abroad); and children of mixed parentage (children either born in Italy or abroad with only one foreign-born parent).[42] The distribution of the different groups is roughly similar in the second and fifth grades (Table

---

41 Rasch-scale scores express a student's latent ability, and take into consideration item difficulty. The scores have been estimated using the Stata routine *raschtest* (Hardouin 2007).

42 Children of mixed parentage are put in a unique category regardless of their place of birth, because those born abroad represent only a small fraction and do not show significant differences from those born in Italy.

3.1). Native pupils make up about 85-86 percent of each grade whereas children of mixed parentage make up around 6 and 7 percent. However, confirming the relative newness of migration to Italy, first-generation pupils are slightly more represented in fifth grade (4.5 percent) compared to second grade (3 percent), while the second generation accounts for 6 percent in second grade compared to only 3.5 percent in fifth grade.

Unfortunately, INVALSI data do not allow for consideration of the heterogeneity of children of immigrants with respect to the country of origin, because the country of origin–information for both the children and their parents only distinguishes between European Union countries, other European countries, and the remaining countries. This poor classification scheme is not informative enough to adequately analyse national–origin variations; therefore, it is not included in the main analyses of this study.[43]

At the family level, both parental education and occupation are coded by selecting the highest level among the two parents (or the only parent present in single–parent households).[44] More precisely, I recoded the original information on parental occupation provided in the survey in the following six classes following the EGP class scheme: a) Salariat (composed of large employers, higher grade professional, administrative and managerial occupations, lower grade professional, administrative and managerial occupations, higher grade technician and supervisory occupations); b) intermediate employees (intermediate white collars, higher supervisory and lower technician occupations); c) petty bourgeoisie (small employers and self-employed in non-professional occupations); d) lower grade white collar workers (lower services, sales and clerical occupations); e) lower technical and routine occupations (skilled, semi- and unskilled workers); f) unemployed and inactive. Parental education is coded in four categories: primary education, lower secondary education, upper secondary education, tertiary education and above. These two variables happen to be significantly differently distributed across groups (see Table 3.1). Children of immigrants are more often the children of parents with low–level occupations (i.e., manual jobs). Regarding educational qualifications, immigrant and native parents display roughly similar distribution, as already found in other datasets (Fullin and Reyneri 2011). To validate these distributions, I compared them against those obtained from another sample of families with children aged between six and 10 and drawn from the Labor Force Survey (ISTAT), finding no relevant differences.

Additional questions addressed to fifth graders encompass a variety of subjects related to home provision with cognitively stimulating resources and students' use of time. Drawing on the literature cited above, the following questions were selected.

---

[43] Additional analyses (not shown) investigated the role played by mother's country of origin (i.e., Italy, European Union countries, other European countries, and the remaining countries). This variable accounts for a small part of the gaps between natives and children of immigrants. However, students whose mothers were born in Non–European countries systematically display lower academic achievements than students whose mothers were born within the European Union.

[44] Models using both the fathers' and mothers' education and occupation yield almost identical results.

The language spoken at home is classified into three categories: Italian, domestic dialect, and foreign language. Table 3.1 shows that first-generation pupils are more likely to live in households where a foreign language is spoken compared to the second generation and children of mixed parentage.

Measuring cultural resources within the family is a difficult task that requires highly detailed information (Lareau and Weininger 2003) which unfortunately is not available in the INVALSI data. Nonetheless, the data contain a set of indicators of home provision with cognitively stimulating resources and the children's use of time, which previous studies have found to be relevant to childhood learning development (see section 3.2). These indicators measure the number of books in the home and the availability of a computer and an Internet connection as proxies for the ICT familiarity of the children and their access to culturally relevant resources on the web. These three variables vary substantially across the different groups, with children of immigrants possessing fewer books in the home and, especially, first-generation students less frequently having home access to a PC and an Internet connection. Next, the time spent by the student in doing homework (never, less than once a week, between once and twice a week, three or four times a week, every day) and help received (does not need help, help received by parents, help received by others, does not receive help) are considered. Natives and children of immigrants are unevenly distributed across these two variables: the latter report that they spend slightly less time and receive less frequent help in doing their homework. Finally, student participation in extracurricular activities is considered. More precisely, a set of indicators of the time children spend watching TV, playing computer games, playing with friends, and participating in sports activities are used. Some differences exist between children of immigrants and natives in their usage of free time. In particular, children of immigrants report that they spend more time watching TV and have higher probability of "never practicing sports activities."

In examining the class level, the proportion of first-generation pupils in class has been used as a measure for class immigrant concentration. The analysis focuses on first-generation students for two reasons: because first-generation students are more likely to lack language fluency and this could affect average class achievement; and because the "30 percent" policy essentially applies to first-generations only. Finally, to account for the socio-economic composition of the class, the percentage of families with at least one parent holding a tertiary degree is computed within each class. The distributions of these variables are showed in Table 3.1.

Table 3.1 Description of variables by immigrant generational status (Italy, INVALSI 2009-10)

**2nd grade**

| | Natives | Mixed parentage | 2nd generation | 1st generation | | Natives | Mixed parentage | 2nd generation | 1st generation |
|---|---|---|---|---|---|---|---|---|---|
| *Parental education* | | | | | Small employer | .18 | .22 | .19 | .15 |
| Primary | .02 | <.01 | .04 | .05 | Routine worker | .22 | .21 | .60 | .63 |
| Middle School | .28 | .19 | .30 | .31 | Unemployed | .05 | .04 | .10 | .11 |
| Secondary Education | .50 | .52 | .45 | .46 | *Class composition* | | | | |
| Tertiary Education | .20 | .29 | .21 | .18 | % first-generation students | .02 | .03 | .05 | .11 |
| *Parental occupation* | | | | | % high-educated parents | .19 | .21 | .17 | .16 |
| Manager, professionals | .28 | .30 | .07 | .07 | % | 85.0 | 6.6 | 5.5 | 2.9 |
| High qualified workers | .27 | .23 | .04 | .04 | N | 27,632 | 2,322 | 1,770 | 1,003 |

**5th grade**

| | Natives | Mixed parentage | 2nd generation | 1st generation | | Natives | Mixed parentage | 2nd generation | 1st generation |
|---|---|---|---|---|---|---|---|---|---|
| *Parental education* | | | | | *Help in homework* | | | | |
| Primary | .02 | .01 | .03 | .05 | Does not need help | .22 | .24 | .21 | .23 |
| Middle School | .28 | .24 | .29 | .26 | Helped by parents | .63 | .59 | .53 | .49 |
| Secondary Education | .50 | .51 | .45 | .49 | Helped by someone else | .07 | .07 | .13 | .10 |
| Tertiary Education | .20 | .23 | .23 | .20 | Helped by nobody | .08 | .09 | .14 | .18 |
| *Parental occupation* | | | | | *After-school activities* | | | | |
| Manager, professionals | .28 | .29 | .09 | .07 | *Watching TV* | | | | |
| High qualified workers | .26 | .22 | .05 | .06 | Never | .05 | .05 | .04 | .04 |
| Small employer | .19 | .20 | .19 | .15 | Less than one hour | .40 | .38 | .30 | .32 |
| Routine worker | .22 | .23 | .56 | .62 | One/two hours | .41 | .42 | .44 | .41 |
| Not working | .05 | .06 | .11 | .10 | More than two hours | .14 | .15 | .23 | .22 |
| *Class composition* | | | | | *Playing video games* | | | | |

| | | | | |
|---|---|---|---|---|
| % first-generations | .04 | .05 | .08 | .15 |
| % high-educated parents | .17 | .18 | .17 | .15 |
| *Language spoken at home* | | | | |
| Italian | .82 | .76 | .45 | .21 |
| Dialect | .17 | .13 | .02 | .02 |
| Foreign Language | .01 | .11 | .53 | .77 |
| *Books at home* | | | | |
| 0-10 | .11 | .10 | .19 | .26 |
| 11-25 | .25 | .25 | .35 | .37 |
| 26-100 | .33 | .32 | .32 | .24 |
| 101-200 | .18 | .18 | .09 | .07 |
| > 200 | .14 | .15 | .05 | .05 |
| *ICT* | | | | |
| At least one computer | .78 | .77 | .77 | .72 |
| Internet connection | .79 | .79 | .76 | .71 |
| *Homework* | | | | |
| Never | .02 | .02 | .03 | .03 |
| 1 or 2 times a week | .20 | .22 | .28 | .24 |
| 3 or 4 times a week | .25 | .25 | .32 | .27 |
| 5 or > times a week | .54 | .51 | .37 | .46 |

| | | | | |
|---|---|---|---|---|
| Never | .10 | .09 | .13 | .16 |
| Less than one hour | .41 | .39 | .33 | .33 |
| One/two hours | .32 | .33 | .29 | .28 |
| More than two hours | .17 | .19 | .25 | .23 |
| *Playing with friends* | | | | |
| Never | .07 | .07 | .07 | .09 |
| Less than one hour | .12 | .13 | .16 | .15 |
| One/two hours | .30 | .30 | .32 | .29 |
| More than two hours | .51 | .49 | .46 | .47 |
| *Reading books or comics* | | | | |
| Never | .23 | .21 | .19 | .17 |
| Less than one hour | .45 | .43 | .50 | .48 |
| Between one and two hours | .23 | .26 | .24 | .23 |
| More than two hours | .09 | .10 | .07 | .11 |
| *Sport activities* | | | | |
| Never | .20 | .18 | .32 | .36 |
| Once or twice a week | .43 | .45 | .39 | .38 |
| Three or four times a week | .27 | .25 | .18 | .14 |
| Five or more times a week | .10 | .12 | .12 | .12 |
| % | 85.6 | 6.1 | 3.6 | 4.6 |
| N | 27,694 | 2,216 | 1,181 | 1,507 |

Note: Final student and school weights are used. Mean values of parental education and occupation and additional personal items in fifth grade are computed after deleting missing values.

The analysis is based on a sequence of hierarchical regression models through which family- and class-level hypotheses are progressively tested. To explore the contribution of class-level factors and to adjust for sample clustering, all models allow for randomly varying intercepts at the class, school and provincial levels.[45] The results presented below could be biased because the values for some family-level variables used in the models were missing. To check for the magnitude of this bias, two procedures were implemented. In the first place, as already said above, samples were validated by comparing some key variables (i.e., individuals' immigrant generational status, gender, and parental education) with estimates based on the Italian Labor Force Survey. The estimates of these variables were found to be highly comparable across the two samples, confirming the good quality of the INVALSI data and the sample. Second, estimated models have been replicated, first, by applying a list-wise deletion method (i.e., excluding from the analysis all records with any single value which is missing) and, second, by applying multiple missing imputation. All of these procedures led to the conclusion that bias due to missing values is negligible.

## 3.4 Results

### 3.4.1    *Test score distributions for natives and children of immigrants*

The distribution of test scores shows significant variation across groups (see Figure 3.1). Overall, children of immigrants display lower scores than natives. Kolmogorov–Smirnov tests indicate that distribution functions are significantly different between children of immigrants (first- and the second generation) and natives, and also between the first and the second generation. On the other hand, the distributions of children of mixed parentage are almost identical to those of natives. Moreover, higher variability is detected for both natives and immigrants' children in reading skills in the second grade compared to the fifth grade, suggesting that students enter school with highly differentiated school readiness levels, especially with regard to vocabulary

---

[45] This multilevel specification was found to fit the data better than specifications with fewer random parameters. Additional analyses also tested the variance of the immigrant–natives gap across classes, allowing for a random effect of migration background on test scores. Likelihood–ratio tests indicate that these additional models only marginally improve the accuracy of the models and that the estimated gaps remain essentially unchanged.

skills, and that school exposure reduces this variability. Also, between-group differences are larger in reading skills compared with mathematics, suggesting that children of immigrants encounter more difficulties in developing linguistic skills rather than logical and mathematical ones.
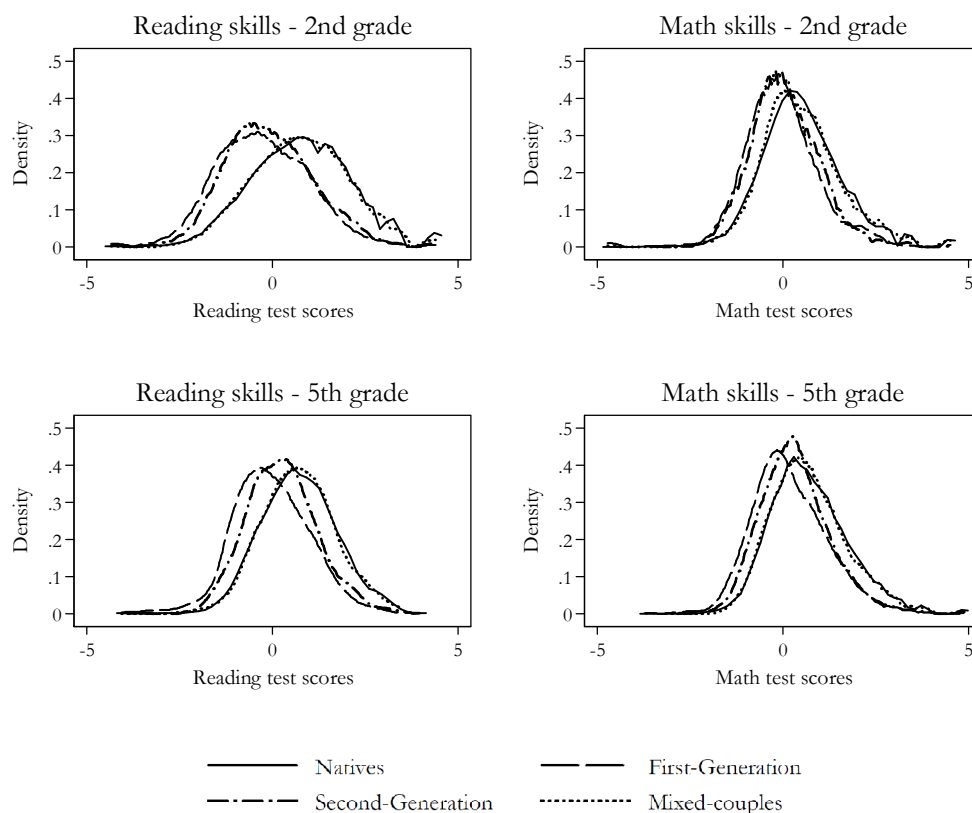


Figure 3.1 Kernel density estimation of reading and mathematics test scores in second and fifth grades (Italy, INVALSI 2009-10)

*3.4.2    How do family characteristics contribute to the gaps between children of immigrants and natives?*

The estimates determined from the hierarchical models, as reported in table 3.2, confirm that children of immigrants face substantial gaps in both reading and mathematics and in both second and fifth grade (Model 1). However, the immigrant-native gap in reading is approximately twice as large as in mathematics, clearly indicating that children of immigrants do relatively worse in reading and linguistic skills than in mathematics and logical ones. Moreover, the gap in reading achievement is higher in second than in fifth grade, whereas the gap in mathematics is roughly the same. This evidence suggests that the immigrant-native gap is decreasing over time, but only with regard to reading skills and not with regard to mathematics. As we are going to see, this

pattern holds even after controlling for family background and other family-level characteristics, suggesting that the educational gains of children of immigrants over time are mainly limited to linguistic skills.

Regarding generational differences, first-generation immigrants are the most disadvantaged group: their gap compared to the reference group (natives) is always significant and varies between .5 Rasch–points in math skills up to 1.0 points (approximately one standard deviation) in reading skills. Second-generation pupils outperform the first generation only with regard to reading skills—while in mathematics the differences between the two groups are smaller and significant only in fifth grade. This seems to suggest that language acquisition is the main factor of differentiation between first- and second-generation pupils. Finally, children of mixed parentage do not show any relevant difference relative to natives in mathematics and demonstrate only slightly lower reading skills.[46]

Model 2 incorporates parental occupation and education. As expected, these two variables are strongly associated with student achievement, and the models' goodness of fit increases significantly. Results also confirm the hypothesis that socio-economic deprivation is partly responsible for the immigrant-native gap. More precisely, socio-economic background accounts for roughly 25–30 percent of the gap in mathematics and for 15–20 percent of the gap in reading skills. Moreover, socio-economic background is more relevant in explaining second- rather than first-generation pupils' disadvantage, suggesting that first-generation immigrants are facing obstacles which are not reducible to the economic status of their families but are also due to the difficulties in migrating and adapting to a new context.[47]

---

[46] The small disadvantage in reading may be explained by the fact that in the large majority of mixed-parentage households the foreign-born parent is the mother, with whom children usually spend more time than with the father and interact in a foreign language. Such a hypothesis cannot be tested with these data because of small sample size and because information on nationality is missing, hence more research is needed to further investigate this point.

[47] Socioeconomic background also contributes to reduce the residual variance within each class, as well as the variance between schools and classes at much the same rate. As a result, the intra–class correlation (the portion of variance which is explained at class level) remains substantially unchanged both in reading (9–11 percent) and in mathematics (17–20 percent).

Table 3.2 Multilevel estimates of immigrant-native differentials in reading and mathematics skills: the role of family background and language spoken at home (2nd and 5th grades; Italy, INVALSI 2009-10)

**2nd Grade**
(N classes = 1,880; N schools = 1,306)

| | Reading (N = 31,608) | | Math (N = 31,305) | |
|---|---|---|---|---|
| | 1 | 2 | 1 | 2 |
| Ref. Natives | - | - | - | - |
| Mixed parentage | -.06 ** | -.07 ** | <.01 | <.01 |
| | (.03) | (.03) | (.02) | (.02) |
| Second generation | -.85 *** | -.67 *** | -.41 *** | -.28 *** |
| | (.03) | (.03) | (.02) | (.02) |
| First generation | -1.01 *** | -.83 *** | -.48 *** | -.35 *** |
| | (.04) | (.04) | (.03) | (.03) |
| Variance between-province | .03 | .02 | <.01 | <.01 |
| | (.01) | (.01) | (<.01) | (<.01) |
| Variance between schools | .10 | .08 | .13 | .13 |
| | (.02) | (.01) | (.02) | (.02) |
| Variance between classes | .16 | .14 | .20 | .19 |
| | (.01) | (.01) | (.02) | (.01) |
| Variance within classes | 1.47 | 1.39 | .84 | .81 |
| | (.01) | (.01) | (.01) | (.01) |
| Log-Likelihood | -52237.34 | -51322.71 | -43543.31 | -42934.67 |
| LR-test | 2986.11*** | 1829.27** | 6585.69*** | 1217.29*** |
| | (1 vs. lin.reg.) | (2 vs. 1) | (1 vs. lin.reg.) | (2 vs. 1) |

**5th Grade**
(N classes = 1,882; N schools = 1,310)

| | Reading (N = 31,730) | | | | Math (N = 31,361) | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 2.b | 2.c | 1 | 2 | 2.b | 2.c |
| Ref. Natives | - | - | - | - | - | - | - | - |
| Mixed parentage | -.06 *** | -.07 *** | -.05 ** | -.05 ** | -.02 | -.02 | -.01 | -.01 |
| | (.02) | (.02) | (.02) | (.02) | (.02) | (.02) | (.02) | (.02) |
| Second generation | -.51 *** | -.41 *** | -.30 *** | -.22 *** | -.36 *** | -.26 *** | -.18 *** | -.10 *** |
| | (.03) | (.03) | (.03) | (.03) | (.03) | (.03) | (.03) | (.03) |
| First generation | -.77 *** | -.67 *** | -.52 *** | -.45 *** | -.49 *** | -.39 *** | -.29 *** | -.21 *** |
| | (.03) | (.03) | (.03) | (.03) | (.03) | (.03) | (.03) | (.03) |
| Variance between-province | .03 | .02 | .02 | .01 | .01 | .01 | .01 | .01 |
| | (.01) | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) |
| Variance between schools | .03 | .02 | .02 | .02 | .08 | .08 | .08 | .07 |
| | (.01) | (.01) | (.01) | (.01) | (.02) | (.02) | (.01) | (.01) |
| Variance between classes | .12 | .11 | .11 | .10 | .20 | .20 | .20 | .19 |
| | (.01) | (.01) | (.01) | (.01) | (.02) | (.01) | (.01) | (.01) |
| Variance within classes | .88 | .83 | .82 | .75 | .77 | .73 | .73 | .66 |
| | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) |
| Log-Likelihood | -44275.6 | -43291.1 | -43157.4 | -41705.6 | -42212.76 | -41452.64 | -41334.9 | -39797.3 |
| LR-test | 3006.75*** | 1969.06*** | 267.44*** | 2903.49*** | 6461.41*** | 1520.24*** | 235.52*** | 3075.22*** |
| | (1 vs. lin.reg.) | (2 vs. 1) | (2b vs. 2) | (2c vs. 2b) | (1 vs. lin.reg.) | (2 vs. 1) | (2b vs. 2) | (2c vs. 2b) |

Note: All models control for gender and age. Model 2 also includes parental occupation and education. Model 2b controls for language spoken at home. Model 2c adds a set of indicators of home cultural resources and learning environment (namely: the number of books in the home, the availability of a computer and an Internet connection, time spent by children in doing homework and help received from parents, and the number of hours spent by children in watching TV, playing on the computer, playing with friends, and doing sport activities). Standard errors in parentheses. Significance levels: *p < 0.10; **p < 0.05; ***p < 0.01. Full models are in Appendix A3.

Significant differences persist between children of immigrants and natives, even after adjusting for socioeconomic background and even after allowing (in additional analysis, not shown here) for interactions between immigrant background and socioeconomic background, which revealed that no significant interactions exist. The remaining gap could be due to differences in home resources that are not captured by the two "traditional" indicators of socioeconomic resources used above. Hence, models 2b and 2c progressively incorporate other family-level variables— only for fifth graders though, because these additional items were not collected in second grades, as already mentioned above.

Model 2b incorporates the variable of language spoken at home. As predicted, this variable reduces substantially the gap between children of immigrants (both first- and second-generation) and natives. This finding holds true especially for reading skills, since the gap drops by almost one–fourth.

After including the set of variables for cognitively stimulating resources and students' use of after–school time described above, the gap shrinks slightly (Model 2c). In line with our expectations, this result suggests that parental occupation and education not fully adjust for the relative scarcity of resources within immigrant households which could enhance their children's educational outcomes and that more direct measures are needed.[48]

All in all, family background explains between 15 and 30 percent of the gap between children of immigrants and natives if only socio-economic background is accounted for (model 2), and between 50 and 70 percent if also language and the other family variables are included as well (model 2c).

*3.4.3    Does classroom immigrant concentration affect students' achievement?*

Table 3.3 reports the results of the models in regard to the association between the percentage of immigrants in class and student achievement. Compared to model 2, model 3 incorporates the variable of the percentage of first-generation pupils in the class for both second and fifth grade. Results indicate that class immigrant concentration is significantly and negatively associated with average student achievement in regard to reading skills in second grade, while the association is

---

[48] Among the most relevant variables included in Model 2c, the number of books at home is positively associated with test score, as well as the availability of a computer and an internet connection. Also practicing sport or reading in the free time are positively correlated with achievement. Surprisingly, however, watching TV was found to be positively associated with achievement, possibly because a number of other controls were also included in the models. Additional analyses (not shown) revealed that watching TV for more than two hours per day is negatively associated with test scores compared to watching TV for less than one hour.

weaker in fifth grade. However, even in second grade, the parameter of classroom composition is small: a 1-percentage point increase in the school immigrant concentration is associated with a .01-point decrease in test scores (the standard deviation is 1.00). Put differently, the model predicts that, if an average classroom increased its immigrant make-up by 1.7 students (10 percent), the class average achievement would decrease by roughly one-tenth of a standard deviation. Moreover, the gap between children of immigrants and natives remains unchanged after the percentage of first generations is included in the analysis.

To allow for this association to vary across groups, model 4 adds a cross-level interaction between classroom immigrant composition and migration background.[49] Mixed results across subjects and grades are found. Negative "effects" on natives and children of mixed parentage are found in the second grade only. At the same time, there is evidence that first- and second-generation pupils are more affected by immigrant concentration than are natives. Regarding reading scores, in the second grade the negative association is roughly twice as large for first-generation students as it is for natives; while in the fifth grade the second generation is more negatively affected by classroom composition. In sum, the hypothesis predicting that children of immigrants experience higher drawbacks from being in immigrant–concentrated classes is confirmed only with regard to reading skills.

All the results presented here are robust to several checks. First, results remain substantially unchanged, even after accounting for the percentage of highly educated parents among the students in each class (models not shown). Also, findings are consistent if second-generation pupils are included in the immigrant composition of classes, instead of only counting the first generation. Moreover, the existence of a non linear relationship was tested using a quadratic form of this variable. Also, the existence of several threshold effects was examined, leading to substantially similar conclusions. A weak threshold effect at 30 percent (as defined by the "30 percent" policy) was only found in the reading scores for the fifth grade.

---

[49] A cross-level interaction is an interaction which involves one term at the first level (student) and a second term at the second level (school).

Table 3.3 Multilevel estimates of immigrant-native differentials in reading and mathematics skills: the role of class immigrant composition (2nd and 5th grades; Italy, INVALSI 2009-10)

| | 2nd Grade (N classes = 1,880; N schools = 1,306) | | | | 5th Grade (N classes = 1,882; N schools = 1,310) | | | |
|---|---|---|---|---|---|---|---|---|
| | Reading (N = 31,608) | | Math (N = 31,305) | | Reading (N = 31,730) | | Math (N = 31,361) | |
| | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| Ref. Natives | - | - | - | - | - | - | - | - |
| Mixed parentage | -.04 ** | -.04 | <.01 | <.01 | -.07 *** | -.07 *** | -.02 | <-.01 |
| | (.03) | (.03) | (.02) | (.02) | (.02) | (.03) | (.02) | (.02) |
| Second generation | -.63 *** | -.63 *** | -.27 *** | -.27 *** | -.41 *** | -.35 *** | -.25 *** | -.22 *** |
| | (.03) | (.04) | (.02) | (.03) | (.03) | (.04) | (.03) | (.04) |
| First generation | -.66 *** | -.66 *** | -.34 *** | -.38 *** | -.66 *** | -.60 *** | -.38 *** | -.39 *** |
| | (.04) | (.08) | (.03) | (.03) | (.03) | (.05) | (.03) | (.05) |
| % First-generation immigrants | -.01 *** | -.01 * | -.01 *** | -.01 *** | <-.01 | <-.01 | <-.01 * | <-.01 |
| | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) |
| *Interactions* % immigrants | | | | | | | | |
| Mixed parentage | | -.01 * | | -.01 ** | | <.01 | | <-.01 |
| | | (<.01) | | (<.01) | | (<.01) | | (<.01) |
| Second generation | | -.01 | | <-.01 | | -.01 ** | | <-.01 |
| | | (<.01) | | (<.01) | | (<.01) | | (<.01) |
| First generation | | -.02 ** | | <.01 | | <-.01 | | <.01 |
| | | (<.01) | | (<.01) | | (<.01) | | (<.01) |
| Variance between-province | .02 | .02 | <.01 | <.01 | .02 | .02 | .01 | .01 |
| | (.01) | (.01) | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) | (<.01) |
| Variance between schools | .08 | .08 | .12 | .12 | .02 | .02 | .08 | .08 |
| | (.01) | (.01) | (.02) | (.02) | (.01) | (.01) | (.01) | (.01) |
| Variance between classes | .14 | .14 | .19 | .19 | .11 | .11 | .20 | .20 |
| | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) |
| Variance within classes | 1.39 | 1.39 | .81 | .81 | .83 | .83 | .73 | .73 |
| | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) | (.01) |
| Log-Likelihood | -51313.91 | -51313.91 | -42929.78 | -42926.51 | -43290.14 | -43260.56 | -41450.93 | -41449.78 |
| LR-test | 8.76*** | 8.83*** | 9.76*** | 6.56*** | 1.87 | 6.86*** | 3. 43* | 2.29 |
| | (3 vs. 2) | (4 vs. 3) | (3 vs. 2) | (4 vs. 3) | (3 vs. 2) | (4 vs. 3) | (3 vs. 2) | (4 vs. 3) |

Note: All models control for gender, age, parental occupation and education. Standard errors in parentheses. Significance levels: *p < 0.10; **p < 0.05; ***p < 0.01. Full models are in Appendix A3

To conclude, we should remember that, as already mentioned in section 3.2, the estimation of the effects of classroom immigrant concentration is potentially threatened by selection bias, given that children of immigrants tend to self-select into the most under–performing schools. Nonetheless, drawing on the research insights presented in chapter 1, it is arguable that the direction of the bias is known: the actual causal effect of classroom composition is likely to be smaller than the one estimated above. Moreover, selection bias does not represent a huge threat to the final conclusions of this study because the endogenous estimates are themselves rather small and inconsistent across grades. Taking into account endogeneity would most likely lead to a further reduction of the estimated association between percentage of immigrants and average

achievement scores, thus reinforcing the conclusion that classroom immigrant concentration exerts weak effects on student achievement in Italian primary education.

## 3.5 Conclusions

The empirical analyses presented in this chapter showed that children of immigrants, regardless of their generational status, lag significantly behind their native-Italian classmates, especially in reading skills and even after adjusting for a number of observable family characteristics. These findings are in line with international literature and add to existing research on Italy by establishing that the educational gaps between children of immigrants and natives exist also in the lowest level of the Italian education system. Moreover, the analyses showed that the gap is roughly the same in second and in fifth grade. A small reduction in the gap between the two grades is detected only with regard to reading, while for mathematics no reduction is found. Hence, although these results should be replicated with longitudinal data, it seems fairly reasonable to conclude that school exposure in it self hardly suffices for children of immigrants—including the second generation—to close the gap with natives.

Also, in line with most previous research, second-generation children are found to outperform their first-generation counterparts. However, as said above, second-generation pupils do not reach the level of natives either. Moreover, their relative advantage over the first generation is much more visible in reading than in mathematics, suggesting that most part of the differences between these two groups is driven by the higher Italian language proficiency of the second generation. This latter consideration somewhat reduces the optimistic view of an overall generational progress, because it is, to some extent, highly expected that second-generation pupils have higher language proficiency than first-generation immigrants. On the contrary, the fact that differences in mathematics (and thus cognitive and logical skills) are rather narrow between the two groups, suggests that second-generation pupils might not benefit greatly from living in Italy since they were born. A plausible explanation for this limited progress has to do with the socioeconomic endowments of the parental generation. Indeed, as shown in table 3.1, parents of both first- and second-generation pupils show rather poor occupational attainment. Because parents of second-generation children are likely to have spent more time in Italy compared with parents of first-generation children, this implies that adult immigrants hardly improve their socioeconomic conditions over time, and this is reflected to their children's educational outcomes, as this chapter showed. However, there might be also a "compositional explanation": this data do not distinguish pupils by country of origin while it is well-known that

among the second generation there is a larger presence of children of Northern African ancestry, who, as we are going to see in the next chapters and as also found in other European countries (chapter1), encounter particularly high scholastic difficulties.

Next, the analyses indicated that children of mixed parentage systematically outperform children with two foreign-born parents and also show similar achievement levels as natives. The good performance of children of mixed parentage suggests two considerations. First, it underlines the importance of having at least one native-born parent who possesses the country-specific human capital and social capital needed for supporting children's education. Second, it also confirms the importance of considering mixed-parentage children separately from children with two foreign-born parents in order to avoid muddying the outcomes of children with both foreign-born parents.

Besides assessing these generational achievement patterns, the goal of this chapter was also to quantify the extent to which family factors and classroom composition account for the achievement gap between children of immigrants and natives. Socioeconomic background accounts for up to one-third of the gap between children of immigrants and native students. Once other indicators of cognitively stimulating resources available in the home (including the language spoken) are taken into account, the explanatory power of family characteristics climbs to 70 percent. These results confirm that in Italy socioeconomic background is a relevant predictor of immigrant-native achievement gaps. At the same time, they also suggest that more direct measures of the availability of cognitively stimulating resources at home are required to better grasp the differences between immigrant and native families, at least in primary education.

The rapid growth of children of immigrants in Italian schools has been accompanied by mounting anxiety about their alleged negative effects on natives' educational performances. As a response to this sentiment, the Ministry of Education established a cap of 30 percent to the presence of immigrants in each class. The analyses presented in this chapter yield weak support for the existence of negative effects of classroom immigrant concentration on student achievement. Indeed, the association between class immigrant composition and learning achievement over and above individual and family characteristics is weak and inconsistent. The negligible role played by classroom immigrant concentration could be explained by the still relatively low presence of immigrants in Italian schools, but, before generalizing this result, the same analyses will be replicated also in upper secondary education (chapter 7).

Some policy implications could be derived from the empirical findings of this chapter. In the first place, this study rules out the urgency of school "de-segregation" policies in primary education, arguing that the "30 percent" policy missed the roots of the problem. This is because only a small fraction of classes exhibits a high percentage of first-generation students, and also

because the influence of class immigrant concentration on student achievement is modest—especially if compared to the contribution of individual and family factors. Policy should redress its focus to concentrate on the individual and family levels. First, educational policies should focus on one clearly identifiable, easily addressable obstacle faced by children of immigrants: language acquisition. Second, schools should seek to promote cognitively stimulating extracurricular activities for children of immigrants and encourage immigrant parents' involvement in their children's schooling. A further increase in children of immigrants' presence is expected in the forthcoming years, which will most likely increase the number of classes with high percentages of immigrants. Still, this forecast does not affect the validity of the present conclusions: policies targeting the individual and family levels—which today are unfortunately missing in Italy—would enhance the performances of disadvantaged students with immigrant origins and, consequently, also reduce the alleged negative effects of these students on average classroom achievement.

## Appendix A3

*Table A3.1 Multilevel estimates of immigrant-natives differentials in reading skills (2nd grade; Italy, INVALSI 2009-10) (N = 31,608)*

|  | M1 | | M2 | | M3 | | M4 | |
|---|---|---|---|---|---|---|---|---|
|  | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
| Natives (ref.) | | | | | | | | |
| First-generation | -1.01 | .04 | -.83 | .04 | -.82 | .04 | -.66 | .08 |
| Second-generation | -.85 | .03 | -.67 | .03 | -.66 | .03 | -.63 | .04 |
| Mixed-parentage | -.06 | .03 | -.07 | .03 | -.07 | .03 | -.04 | .03 |
| Primary (ref.) | | | | | | | | |
| Middle School | | | .44 | .07 | .44 | .07 | .44 | .07 |
| Secondary Education | | | .82 | .07 | .82 | .07 | .82 | .07 |
| Tertiary Education | | | 1.18 | .07 | 1.18 | .07 | 1.18 | .07 |
| Missing | | | .66 | .08 | .66 | .08 | .66 | .08 |
| Manager, professionals (ref.) | | | | | | | | |
| High qualified workers | | | .03 | .02 | .03 | .02 | .03 | .02 |
| Small employer | | | -.17 | .02 | -.17 | .02 | -.17 | .02 |
| Routine worker | | | -.25 | .02 | -.25 | .02 | -.25 | .02 |
| Not working | | | -.36 | .04 | -.36 | .04 | -.36 | .04 |
| Missing | | | -.20 | .04 | -.20 | .04 | -.20 | .04 |

| | M1 Coef. | Std. Err. | M2 Coef. | Std. Err. | M3 Coef. | Std. Err. | M4 Coef. | Std. Err. |
|---|---|---|---|---|---|---|---|---|
| % first-generation students | | | | | -.01 | .00 | -.01 | .00 |
| *Interactions* *% immigrants* | | | | | | | | |
| Mixed parentage | | | | | | | -.01 | .01 |
| Second generation | | | | | | | -.01 | .01 |
| First generation | | | | | | | -.02 | .01 |
| Female | .17 | .01 | .17 | .01 | .17 | .01 | .17 | .01 |
| Age | .01 | .02 | .08 | .02 | .08 | .02 | .08 | .02 |
| Constant | .46 | .18 | -.77 | .19 | -.75 | .19 | -.75 | .19 |
| **Random-effects Parameters** | | | | | | | | |
| Variance between-province | .03 | .01 | .02 | .01 | .02 | .01 | .02 | .01 |
| Variance between schools | .10 | .02 | .08 | .01 | .08 | .01 | .08 | .01 |
| Variance between classes | .16 | .01 | .14 | .01 | .14 | .01 | .14 | .01 |
| Variance within classes | 1.47 | .01 | 1.39 | .01 | 1.39 | .01 | 1.39 | .01 |
| Log-Likelihood | -52237.34 | | -51322.71 | | -51313.91 | | -51313.91 | |
| LR-test | 2986.11*** (1 vs. lin.reg.) | | 1829.27*** (2 vs. 1) | | 8.76*** (3 vs. 2) | | 8.83*** (4 vs. 3) | |

*Table A3.2 Multilevel estimates of immigrant-natives differentials in mathematics skills (2nd grade; Italy, INVALSI 2009-10) (N = 31,305)*

| | M1 Coef. | Std. Err. | M2 Coef. | Std. Err. | M3 Coef. | Std. Err. | M4 Coef. | Std. Err. |
|---|---|---|---|---|---|---|---|---|
| Natives (ref.) | | | | | | | | |
| First-generation | -.48 | .03 | -.35 | .03 | -.34 | .03 | -.38 | .06 |
| Second-generation | -.41 | .02 | -.28 | .02 | -.28 | .02 | -.27 | .03 |
| Mixed-parentage | .01 | .02 | .00 | .02 | .00 | .02 | .03 | .02 |
| Primary (ref.) | | | | | | | | |
| Middle School | | | .28 | .05 | .28 | .05 | .28 | .05 |
| Secondary Education | | | .49 | .05 | .50 | .05 | .49 | .05 |
| Tertiary Education | | | .71 | .06 | .71 | .06 | .71 | .06 |
| Missing | | | .36 | .06 | .36 | .06 | .36 | .06 |
| Manager, professionals (ref.) | | | | | | | | |
| High qualified workers | | | .03 | .02 | .03 | .02 | .03 | .02 |
| Small employer | | | -.09 | .02 | -.09 | .02 | -.09 | .02 |
| Routine worker | | | -.18 | .02 | -.18 | .02 | -.18 | .02 |

| | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
|---|---|---|---|---|---|---|---|---|
| Not working | | | -.25 | .03 | -.25 | .03 | -.25 | .03 |
| Missing | | | -.17 | .03 | -.17 | .03 | -.17 | .03 |
| | | | | | | | | |
| % first-generation students | | | | | -.01 | .00 | -.01 | .00 |
| | | | | | | | | |
| *Interactions* | | | | | | | | |
| *% immigrants* | | | | | | | | |
| Mixed parentage | | | | | | | -.01 | .00 |
| Second generation | | | | | | | .00 | .00 |
| First generation | | | | | | | .00 | .00 |
| | | | | | | | | |
| Female | -.08 | .01 | -.08 | .01 | -.08 | .01 | -.08 | .01 |
| | | | | | | | | |
| Age | .04 | .02 | .08 | .02 | .08 | .02 | .08 | .02 |
| | | | | | | | | |
| Constant | .32 | .14 | -.40 | .15 | -.38 | .15 | -.38 | .15 |
| **Random-effects Parameters** | | | | | | | | |
| | | | | | | | | |
| Variance between-province | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Variance between schools | .13 | .02 | .13 | .02 | .13 | .02 | .13 | .02 |
| Variance between classes | .20 | .02 | .19 | .01 | .19 | .01 | .19 | .01 |
| Variance within classes | .84 | .01 | .81 | .01 | .81 | .01 | .81 | .01 |
| | | | | | | | | |
| Log-Likelihood | -43543.31 | | -42934.67 | | -42929.78 | | -42926.51 | |
| LR-test | 6585.69*** (1 vs. lin.reg.) | | 1217.29*** (2 vs. 1) | | 9.76*** (3 vs. 2) | | 6.56*** (4 vs. 3) | |

*Table A3.3 Multilevel estimates of immigrant-natives differentials in reading skills (5th grade; Italy, INVALSI 2009-10) (N = 31,730)*

| | M1 | | M2 | | M2b | | M2c | | M3 | | M4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
| | | | | | | | | | | | | |
| Natives (ref.) | | | | | | | | | | | | |
| First-generation | -.77 | .03 | -.67 | .03 | -.52 | .03 | -.45 | .03 | -.66 | .03 | -.60 | .05 |
| Second-generation | -.51 | .03 | -.41 | .03 | -.30 | .03 | -.22 | .03 | -.41 | .03 | -.35 | .04 |
| Mixed-parentage | -.06 | .02 | -.07 | .02 | -.05 | .02 | -.05 | .02 | -.07 | .02 | -.07 | .03 |
| | | | | | | | | | | | | |
| Primary (ref.) | | | | | | | | | | | | |
| Middle School | | | .31 | .05 | .30 | .05 | .24 | .05 | .31 | .05 | .31 | .05 |
| Secondary Education | | | .60 | .05 | .57 | .05 | .43 | .05 | .59 | .05 | .59 | .05 |
| Tertiary Education | | | .92 | .05 | .89 | .05 | .66 | .05 | .92 | .05 | .92 | .05 |
| Missing | | | .46 | .05 | .45 | .05 | .34 | .05 | .46 | .05 | .46 | .05 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Manager, professionals (ref.) | | | | | | | | | | |
| High qualified workers | .01 | .02 | .01 | .02 | .00 | .02 | .01 | .02 | .01 | .02 |
| Small employer | -.10 | .02 | -.09 | .02 | -.06 | .02 | -.10 | .02 | -.10 | .02 |
| Routine worker | -.19 | .02 | -.18 | .02 | -.12 | .02 | -.19 | .02 | -.19 | .02 |
| Not working | -.28 | .03 | -.27 | .03 | -.19 | .03 | -.28 | .03 | -.28 | .03 |
| Missing | -.14 | .03 | -.13 | .03 | -.10 | .03 | -.14 | .03 | -.14 | .03 |
| | | | | | | | | | | |
| Italian (ref.) | | | | | | | | | | |
| Dialect | | | -.12 | .02 | -.04 | .02 | | | | |
| Foreign Language | | | -.24 | .03 | -.20 | .03 | | | | |
| Missing | | | -.30 | .02 | -.17 | .03 | | | | |
| | | | | | | | | | | |
| 0-10 books at home (ref.) | | | | | | | | | | |
| 11—25 | | | | | .14 | .02 | | | | |
| 26-100 | | | | | .29 | .02 | | | | |
| 101-200 | | | | | .41 | .02 | | | | |
| > 200 | | | | | .47 | .02 | | | | |
| Missing | | | | | -.05 | .04 | | | | |
| | | | | | | | | | | |
| At least one computer | | | | | .04 | .01 | | | | |
| Missing | | | | | .00 | .07 | | | | |
| | | | | | | | | | | |
| Internet connection | | | | | .05 | .01 | | | | |
| Missing | | | | | .01 | .07 | | | | |
| | | | | | | | | | | |
| Homework: never (ref.) | | | | | | | | | | |
| 1 or 2 times a week | | | | | .09 | .04 | | | | |
| 3 or 4 times a week | | | | | .24 | .04 | | | | |
| 5 or > times a week | | | | | .24 | .04 | | | | |
| Missing | | | | | .23 | .06 | | | | |
| | | | | | | | | | | |
| Does not need help in homework (ref.) | | | | | | | | | | |
| Helped by parents | | | | | -.12 | .01 | | | | |
| Helped by someone else | | | | | -.44 | .02 | | | | |
| Helped by nobody | | | | | -.15 | .02 | | | | |
| Missing | | | | | -.41 | .02 | | | | |
| | | | | | | | | | | |
| Never watches TV (ref.) | | | | | | | | | | |
| Less than one hour | | | | | .18 | .02 | | | | |
| One/two hours | | | | | .33 | .02 | | | | |
| More than two hours | | | | | .27 | .03 | | | | |
| Missing | | | | | .28 | .07 | | | | |
| | | | | | | | | | | |
| Never plays video games (ref.) | | | | | | | | | | |
| Less than one hour | | | | | .02 | .02 | | | | |

| | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| One/two hours | | | | | | | .02 | .02 | | | | |
| More than two hours | | | | | | | -.16 | .02 | | | | |
| Missing | | | | | | | -.07 | .07 | | | | |
| | | | | | | | | | | | | |
| Never plays with friends (ref.) | | | | | | | | | | | | |
| Less than one hour | | | | | | | -.10 | .02 | | | | |
| One/two hours | | | | | | | -.10 | .02 | | | | |
| More than two hours | | | | | | | -.18 | .02 | | | | |
| Missing | | | | | | | .02 | .06 | | | | |
| | | | | | | | | | | | | |
| Never reads books (ref.) | | | | | | | | | | | | |
| Less than one hour | | | | | | | .11 | .01 | | | | |
| Between one and two hours | | | | | | | .24 | .02 | | | | |
| More than two hours | | | | | | | .35 | .02 | | | | |
| Missing | | | | | | | .40 | .08 | | | | |
| | | | | | | | | | | | | |
| Never practices sport (ref.) | | | | | | | | | | | | |
| Once or twice a week | | | | | | | .05 | .01 | | | | |
| Three or four times a week | | | | | | | .11 | .02 | | | | |
| Five or more times a week | | | | | | | -.04 | .02 | | | | |
| Missing | | | | | | | .18 | .05 | | | | |
| | | | | | | | | | | | | |
| % first-generation students | | | | | | | | | .00 | .00 | .00 | .00 |
| | | | | | | | | | | | | |
| *Interactions* | | | | | | | | | | | | |
| *% immigrants* | | | | | | | | | | | | |
| Mixed parentage | | | | | | | | | | | .00 | .00 |
| Second generation | | | | | | | | | | | -.01 | .00 |
| First generation | | | | | | | | | | | .00 | .00 |
| | | | | | | | | | | | | |
| Female | .00 | .01 | .00 | .01 | -.01 | .01 | -.06 | .01 | .00 | .01 | .00 | .01 |
| | | | | | | | | | | | | |
| Age | -.06 | .02 | -.01 | .02 | .00 | .02 | .01 | .02 | -.01 | .02 | -.01 | .02 |
| | | | | | | | | | | | | |
| Constant | 1.33 | .18 | .29 | .19 | .29 | .19 | -.38 | .19 | .30 | .19 | .30 | .19 |

| Random-effects Parameters | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variance between-province | .03 | .01 | .02 | .00 | .02 | .00 | .01 | .00 | .02 | .00 | .02 | .00 |
| Variance between schools | .03 | .01 | .02 | .01 | .02 | .01 | .02 | .01 | .02 | .01 | .02 | .01 |
| Variance between classes | .12 | .01 | .11 | .01 | .11 | .01 | .10 | .01 | .11 | .01 | .11 | .01 |
| Variance within classes | .88 | .01 | .83 | .01 | .82 | .01 | .75 | .01 | .83 | .01 | .83 | .01 |

| | Coef. | Std. Err. |
|---|---|---|
| Log-Likelihood | -44275.60 | -43291.10 | -43157.40 | -41705.60 | -4329.14 | -4326.56 |
| LR-test | 3006.75*** (1 vs. lin.reg.) | 1969.06*** (2 vs. 1) | 267.44*** (2b vs. 2) | 2903.49*** (2c vs. 2b) | 1.87 (3 vs. 2) | 6.86*** (4 vs. 3) |

*Table A3.4 Multilevel estimates of immigrant-natives differentials in mathematics skills (5th grade; Italy, INVALSI 2009-10) (N = 31,361)*

| | M1 | | M2 | | M2b | | M2c | | M3 | | M4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
| Natives (ref.) | | | | | | | | | | | | |
| First-generation | -.49 | .03 | -.39 | .03 | -.29 | .03 | -.21 | .03 | -.38 | .03 | -.39 | .05 |
| Second-generation | -.36 | .03 | -.26 | .03 | -.18 | .03 | -.10 | .03 | -.25 | .03 | -.23 | .04 |
| Mixed-parentage | -.02 | .02 | -.02 | .02 | -.01 | .02 | -.01 | .02 | -.02 | .02 | -.01 | .02 |
| | | | | | | | | | | | | |
| Primary (ref.) | | | | | | | | | | | | |
| Middle School | | | .27 | .05 | .26 | .05 | .19 | .04 | .27 | .05 | .27 | .05 |
| Secondary Education | | | .51 | .05 | .50 | .05 | .33 | .04 | .51 | .05 | .51 | .05 |
| Tertiary Education | | | .74 | .05 | .73 | .05 | .48 | .05 | .74 | .05 | .74 | .05 |
| Missing | | | .31 | .05 | .30 | .05 | .19 | .05 | .31 | .05 | .31 | .05 |
| | | | | | | | | | | | | |
| Manager, professionals (ref.) | | | | | | | | | | | | |
| High qualified workers | | | .00 | .02 | .00 | .02 | .00 | .01 | .00 | .02 | .00 | .02 |
| Small employer | | | -.07 | .02 | -.07 | .02 | -.04 | .02 | -.07 | .02 | -.07 | .02 |
| Routine worker | | | -.18 | .02 | -.17 | .02 | -.11 | .02 | -.18 | .02 | -.18 | .02 |
| Not working | | | -.27 | .03 | -.26 | .03 | -.17 | .03 | -.27 | .03 | -.27 | .03 |
| Missing | | | -.12 | .03 | -.11 | .03 | -.09 | .03 | -.12 | .03 | -.12 | .03 |
| | | | | | | | | | | | | |
| Italian (ref.) | | | | | | | | | | | | |
| Dialect | | | | | -.11 | .01 | -.05 | .01 | | | | |
| Foreign Language | | | | | -.16 | .03 | -.12 | .03 | | | | |
| Missing | | | | | -.40 | .03 | -.17 | .03 | | | | |
| | | | | | | | | | | | | |
| 0-10 books at home (ref.) | | | | | | | | | | | | |
| 11—25 | | | | | | | .12 | .02 | | | | |
| 26-100 | | | | | | | .26 | .02 | | | | |
| 101-200 | | | | | | | .36 | .02 | | | | |
| > 200 | | | | | | | .41 | .02 | | | | |
| Missing | | | | | | | -.14 | .04 | | | | |
| | | | | | | | | | | | | |
| At least one computer | | | | | | | .02 | .01 | | | | |
| Missing | | | | | | | .03 | .06 | | | | |
| | | | | | | | | | | | | |
| Internet connection | | | | | | | .07 | .01 | | | | |
| Missing | | | | | | | -.16 | .06 | | | | |

Homework: never (ref.)

| | | |
|---|---|---|
| 1 or 2 times a week | .14 | .03 |
| 3 or 4 times a week | .33 | .03 |
| 5 or > times a week | .35 | .03 |
| Missing | .19 | .06 |

Does not need help in homework (ref.)

| | | |
|---|---|---|
| Helped by parents | -.19 | .01 |
| Helped by someone else | -.47 | .02 |
| Helped by nobody | -.17 | .02 |
| Missing | -.40 | .02 |

Never watches TV (ref.)

| | | |
|---|---|---|
| Less than one hour | .17 | .02 |
| One/two hours | .30 | .02 |
| More than two hours | .21 | .02 |
| Missing | .16 | .07 |

Never plays video games (ref.)

| | | |
|---|---|---|
| Less than one hour | .04 | .02 |
| One/two hours | .03 | .02 |
| More than two hours | -.16 | .02 |
| Missing | -.08 | .07 |

Never plays with friends (ref.)

| | | |
|---|---|---|
| Less than one hour | .00 | .02 |
| One/two hours | -.01 | .02 |
| More than two hours | -.13 | .02 |
| Missing | .03 | .06 |

Never reads books (ref.)

| | | |
|---|---|---|
| Less than one hour | .06 | .01 |
| Between one and two hours | .09 | .01 |
| More than two hours | .07 | .02 |
| Missing | .13 | .08 |

Never practices sport (ref.)

| | | |
|---|---|---|
| Once or twice a week | .05 | .01 |
| Three or four times a week | .22 | .01 |
| Five or more times a week | .07 | .02 |
| Missing | .10 | .05 |

| | | | | |
|---|---|---|---|---|
| % first-generation students | .00 | .00 | .00 | .00 |

*Interactions*
*% immigrants*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mixed parentage | | | | | | | | | | | .00 | .00 |
| Second generation | | | | | | | | | | | .00 | .00 |
| First generation | | | | | | | | | | | .00 | .00 |
| | | | | | | | | | | | | |
| Female | -.18 | .01 | -.18 | .01 | -.20 | .01 | -.22 | .01 | -.18 | .01 | -.18 | .01 |
| Age | -.06 | .02 | -.03 | .02 | -.02 | .02 | .00 | .01 | -.03 | .02 | -.03 | .02 |
| Constant | 1.67 | .17 | .85 | .18 | .86 | .18 | .10 | .18 | .87 | .18 | .87 | .18 |

| Random-effects Parameters | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variance between-province | .01 | .00 | .01 | .00 | .01 | .00 | .01 | .00 | .01 | .00 | .01 | .00 |
| Variance between schools | .09 | .02 | .08 | .01 | .08 | .01 | .07 | .01 | .08 | .01 | .08 | .01 |
| Variance between classes | .20 | .02 | .20 | .01 | .20 | .01 | .19 | .01 | .20 | .01 | .20 | .01 |
| Variance within classes | .77 | .01 | .73 | .01 | .73 | .01 | .66 | .01 | .73 | .01 | .73 | .01 |

| | | | | | |
|---|---|---|---|---|---|
| Log-Likelihood | -42212.76 | -41452.64 | -41334.90 | -39797.30 | -4145.93 | -41449.78 |
| LR-test | 6461.41*** (1 vs. lin.reg.) | 152.24*** (2 vs. 1) | 235.52*** (2b vs. 2) | 3075.22*** (2c vs. 2b) | 3. (3 vs. 2) | 43* 2.29 (4 vs. 3) |

86

# 4    To the next level: How do children of immigrants compare to natives on the lower secondary school exit exam?

## 4.1 Introduction

In the previous chapter it has been established that children of immigrants face a systematic achievement gap relative to natives in both reading and mathematics domains. The gap was found to be similar in second and fifth grade, suggesting that it is rather stable throughout all primary education. Also, it has been shown that the educational disadvantage of children of immigrants is in large part accounted for by individual and family characteristics. Nevertheless, it persists significantly, even after controlling for these factors, suggesting that some peculiar—but unobservable—factors specifically related to students' immigrant background play a significant role. By focusing on students' performances in lower secondary education, this chapter aims to extend the findings of the previous chapter in several directions.

First, I aim to establish whether similar patterns as those observed in primary schools take place in lower secondary education by considering the outcome of the final state exam. As described in chapter 2, this exam is a compulsory ministerial exam which is required to continue on to upper secondary education. More precisely, the final mark obtained on this exam is a result of both the outcome of the exam and of the previous marks obtained during the last grade of lower secondary education. Therefore, the exam outcome can be understood as an overall evaluation of students' performances during lower secondary education and not just as the outcome of a single test.

Second, compared to the previous chapter, the focus is now on marks rather than on standardized test scores. Marks (especially if self-reported) might not be a very accurate and precise measure of students' cognitive skills, as standardized test scores could be, because marks are affected by the varying role of teachers, the quality of schools, etc. Nonetheless, as already seen in chapter 1, marks are very important outcomes because students and parents regularly monitor student performances via marks. Also, they are positively correlated with achievement tests and—more important—they are more sensitive to student input, such as hours spent on homework (Kao and Thomson 2003). Put differently, they can be considered as a concrete measure of student orientation toward schooling—more so than abstract attitudes or educational aspirations. Moreover, marks signal to students, rightly or wrongly, their chances of success in school, which may affect their subsequent educational decisions (ibid.), therefore they represent

useful indicators for families' choices about their children education. Immigrant-native differentials in marks usually follow the same patterns as those observed on test scores (ibid.), however there is also some research which points out that children from poor social background (including immigrants) receive, on average, worse grades conditional to their actual skills as measured through standardized tests (Lüdemann and Schwerdt 2010). A possible explanation for this mismatch could be related to discrimination of teachers against children of immigrants if teachers underestimate immigrant pupils' skills because of their lower command of the language spoken in the host society. Although empirical evidence seems to exclude the existence of such a form of discrimination (Hoenig and Wenz 2010), we cannot completely exclude a slight overestimation of the immigrant-native gap when considering marks rather than standardized test scores.

Third, studying differences in marks is highly relevant also to understand immigrant-native differences at later stages of education. As already described in chapter 2, the final exam at the end of lower secondary education represents the last point before students are channeled into different types of schools (i.e., vocational, technical or general branches). The choice of school is typically taken by families during the last grade of lower secondary education. Teachers provide students and their families with non-binding indications, oftentimes relying on students marks achieved during the compulsory school (Checchi and Flabbi 2007). Hence, although teachers' guidelines are not binding for upper secondary school choice, the overall mark obtained on this final exam is a good predictor for the subsequent educational prospects of the students. For instance, students who perform poorly on this exam are more likely to be recommended, and then to attend, vocational oriented tracks, whereas students who get higher marks have higher propensity to enroll in general schools (Miur 2010). Since in the next chapter of this thesis the focus will be on upper secondary school participation, it is important to assess how children of immigrants perform relative to natives on this exam.

More precisely, in this chapter I document how marks vary according to two main factors of differentiation of the immigrant-origin student population: immigrant generational status and country of origin. Then, I also attempt to establish to what extent family socioeconomic background and Italian proficiency account for these variations. These sources of variation are of particular interest for the same two arguments mentioned above. First, it is important to have a detailed assessment of regularities and patterns in the outcomes of this exam, because this represents one of the most relevant indicators of students' achievement at the end of the first cycle of education. Second, raising a better understanding of the factors influencing the outcome of the final exam might help frame the analyses of the phenomenon in upper secondary education (presented in chapters 5 and 6).

To afford these goals, I use data from ITAGEN2 (Italian Second Generation Survey), which is a nationally representative survey carried out between 2006 and 2008 and whose richness offers the possibility to get an insight into a further and important factor of heterogeneity within the immigrant student population, country of origin, which was not available in the data on primary education employed in the previous chapter.

The chapter follows the same structure as the previous one. Next section describes the research questions and hypotheses. Section 4.3 describes the data used for the analyses, as well as variables and statistical methods employed. Section 4.4 presents the empirical results of both the descriptive and multivariate statistical analyses. Section 4.5 concludes by summarizing and discussing the main findings.

## 4.2 Research questions and hypotheses

The broad objective of this chapter is to establish patterns and explanations of the performance gaps between natives and children of immigrants on the final exam of lower secondary education. Given the above-described link between this exam and future scholastic careers, it is important to have a detailed examination of immigrant-native differentials on this outcome. Hence, I first assess existing differences between immigrant generational groups and countries of origin, and, second, I investigate how family background and language proficiency contribute to these gaps.

Drawing upon a vast amount of literature which points to a pronounced learning achievement disadvantage of children of immigrants compared with natives, I expect that students with an immigrant background underperform natives on the final exam of lower secondary education. Moreover, considering the theoretical argument which posits that children of immigrants exhibit an educational progress across generations, I expect that first-generation students underperform the second generation, and that, consequently, the gap is larger for the former. In line with the previous chapter, I also consider mixed-parentage children separately from children with both foreign-born parents. I predict that having at least one native-born parent represents a protective factor against low performance, because the native parent possesses the country specific human capital and the social capital needed to support the child's scholastic career.

As already mentioned in chapter 1, both theoretical and empirical literature points out that immigrants' educational outcomes show substantial variations along ethnic lines. Therefore, I ask whether national-origin groups perform differently on the final exam of lower secondary

education and whether country of origin intersects immigrant generational status. This question is linked to the theoretical debate about the adaptation of children of immigrants because it aims at establishing whether the generational patterns of educational achievement are stable across national groups or whether differentiated patterns are taking place.

Next, among scholars it has long become clear that educational achievement largely depends on family characteristics and resources possessed by the families. For the same argument advanced in the previous chapter (i.e., that immigrant families lack socioeconomic resources due their disadvantaged position in the labor market), I expect socioeconomic background to reduce the magnitude of the gap, and—knowing that the different national groups have different outcomes in the labor market (Ambrosini 1999, Fullin and Reyneri 2011)—I also expect to find ethnic heterogeneity in the contribution of socioeconomic background. We should also remember that lower secondary education in Italy is a compulsory and comprehensive school, hence the association between social (and immigrant) background and children's outcomes at school are fully interpretable as primary effects (see chapter 1).

As seen in the previous chapter on primary education, a good mastery of the language of the host society is an important resource for children of immigrants' educational success. However, language acquisition is also a process which develops across generations ("linguistic acculturation"), so that second-generation immigrants tend to show a much higher command of the host-country language than first-generation immigrants. Hence, I expect that fluency in the Italian language plays a bigger role for the first generation, because in many cases they enter the destination country after having learned another language in their country of origin and they need time to acquire the new language. Moreover, I expect that the contribution of language varies across national-origin groups because there exist different distances between different languages (Chiswick and Miller 2005, Adsera and Pytlikova 2012). For example, some languages (i.e., romance languages) are more likely to facilitate school integration in Italy compared with others like Asian or Arabic languages. The availability of detailed country of origin information allows to investigate such patterns.

## 4.3 Data and empirical strategy

### 4.3.1 ITAGEN2 data

The analyses presented in this chapter rely on nationally representative data from ITAGEN2. ITAGEN2 is the follow-up survey of ITAGEN, which was carried out in all of the three grades (sixth, seventh and eighth grade) of lower secondary during the 2005–2006 school year. The first

wave surveyed 6,368 foreigners and 10,537 natives living in 44 provinces and attending 228 lower secondary schools. In order to maximize the number of immigrants in the sample, the schools were randomly chosen among those with a foreign student body consisting of more than 10 percent of the total (in five of the Central and Northern regions: Lombardy, Veneto, Tuscany, Marches, and Lazio) and more than 3 percent of the total (in four of the Southern regions: Campania, Apulia, Calabria, and Sicily). To adjust for this complex design, the sample was post-stratified separately for immigrants and natives, and thus the final data are representative of the provinces and schools selected and listed above. The first wave interview focused primarily on the characteristics of the family and the migratory process, while information on scholastic achievement was not collected.

Data for the second wave (ITAGEN2) were collected two years after the first interview by means of a CATI interview among a subsample in five selected regions: Veneto, Marches, Apulia, Calabria, and Sicily. The follow-up questionnaire included a set of questions concerning scholastic attainment and achievement. The target population included 1,389 immigrants' children and 1,589 Italians who had passed the lower secondary school exam and were enrolled in any of the three branches of upper secondary education at the moment of the interview. To gain supplementary data on scholastic outcomes, an additional survey was performed in the schools of two provinces (Apulia and Veneto), where 364 students were interviewed. Almost two-thirds of the initial sample of the students had therefore completed lower secondary education.[50] For those who dropped out before the interview, information on the last secondary school attended was collected. Thus, the sample did not include those individuals who never enrolled in upper secondary school. This restriction to the sample implies that our analyses are valid only for the subsample of students who completed middle school. Hence, there might be some selection bias, because, as shown in the previous chapter, immigrants are less likely than natives to be admitted to the exam, and therefore children of immigrants included in the sample might be somewhat positively selected. Nevertheless, the number of these dropouts is limited, given that school is compulsory until students reach the age of 15.[51]

The response rate to the follow-up questionnaire was 70 percent among Italians and 47 percent among foreigners, therefore there is a problem of attrition affecting in particular immigrants. The great majority of the non-responses is attributable to discontinued telephonic contacts rather than to refusals: this might be explained by the higher geographical mobility of

---

[50] These students were essentially those who were enrolled in either the seventh or the eighth grade when the first survey was administered.

[51] At this age, only 3.5 percent of youths are not enrolled in upper secondary school after completing lower secondary education (Mocetti 2008).

immigrant families, especially during the first years after migration.[52] To compensate for the issues of high attrition, weights were elaborated as inverse probability weights, after examining the risks of non-response in the second wave (Dalla Zuanna, et al. 2009, Barban and White 2011).

*4.3.2 Variables*

*Final exam mark.* The dependent variable is the mark obtained by students on the lower secondary school final exam. As described in Chapter 2, this exam consists of four to five written tests (mathematics, reading, one or two foreign languages, a national standardized test in reading and mathematics) plus a horal examination. The final mark is the average of the marks obtained during eighth grade and the marks obtained in each of the tests of the final exam. When the wave of the survey was administered, the exam had five possible outcomes: Failure, Sufficient, Good, Very Good, and Excellent. In ITAGEN2 marks are self-reported by students, meaning that, as already mentioned above, there could be some measurement errors. Students who fail the exam must repeat the last grade, after which they may take the exam the following year. The data do not comprise students who failed the exam and were still attending lower secondary education when the second wave of the survey was administered. As mentioned in chapter 2, only a small fraction of native students fail this exam (4 percent) while among children of immigrants the risk of failure is sensibly higher, especially for the first generation (13 percent): this implying the existence of some positive selection of immigrants in the sample.

*Immigrant generational status.* In line with the definition adopted in the previous chapter, but contrary to Barban and White (2011),[53] I used a restrictive criterion for identifying children of immigrants. I defined as children of immigrants only those children with both parents born abroad and classified children of mixed-parentage as a separate category. I argue that this more restrictive definition is preferable in a context like Italy, because children of mixed-parentage are a significant group in numeric terms, and are often connected with the phenomenon of return migration (Istat 2005). More precisely, generational status was defined in four categories: natives

---

[52] If families more affected by geographical mobility were also the economically weaker families, then these non-responses would imply an over-estimation of foreigners' educational performances. I do not have empirical evidence to show this, but it is plausible to assume that there is such a link between geographical mobility and economic wellbeing among immigrants in Italy (Ambrosini 2001).

[53] The authors used the same data employed in this chapter but adopted a different definition of immigrant generation. They identified second-generation immigrants as those youth born in Italy to at least one foreign-born parent and they separated "recent immigrants" (in Italy for less than five years at the time of the baseline survey) from "pre-school immigrants" (in Italy for at least five years).

(defined as native-born children whose parents are both native-born); second generations (native-born children whose parents are both foreign-born); first generations (foreign-born children with both parents born abroad); and children of mixed parentage (children either born in Italy or abroad with only one foreign-born parent). As shown in table 4.1, first-generation immigrants account for 4.8 percent of the sample, while the second generation accounts for only 1.1 percent. Compared with primary education, it is evident that the relative incidence of the second generation is slightly reduced, confirming that, as a consequence of the novelty of migration to Italy, the large part of the second generation is still enrolled in the lowest educational levels. The presence of mixed-parentage is sizeable (3.1 percent) and three-fourths of them were born in Italy.

*Country of Origin.* Both bivariate and multivariate analyses included country of origin to investigate whether this factor, and not migration status *per se*, results in differentiated academic achievement. The country of origin was recorded for both first- and second-generation immigrants as the mother's birthplace. When mother's birthplace was not available, the birthplace of the father was used. Due to small sample size, I used two different specifications of this variable: a long version for descriptive analyses and a collapsed version for the multivariate models. In both cases, the rationale for the group formation has been twofold: first, countries were grouped according to geographical and socio-cultural proximity; second, groups were also formed conditional on the availability of sufficient numbers in the sample. I identified respondents as belonging to 11 largest groups present in the sample: Sub-Saharan Africa (mainly Ghana, Senegal), Albania, Former Yugoslavia (mainly Serbia, Montenegro, Bosnia Herzegovina and Macedonia), Romania, China, Northern Africa and Middle-East (predominantly Morocco and Tunisia), Western Countries (essentially, Switzerland, Germany and France), Latin America (mainly Argentina and Brazil), Eastern Europe (former communist countries, mainly Moldova, Poland and Ucraine), Rest of Asia (almost only individuals from Indian Sub-continent). Among first-generation immigrants the most represented groups are Albanians and former Yugoslavs, while among the second generation the largest group is Northern Africans (see Table 4.1). The collapsed version used in the multivariate analysis was obtained by combining Albania, former Yugoslavia and Romania into "South-Eastern Europe" and by merging the Chinese with Eastern Asia. Finally, Western countries, Eastern Europe and Latin America are dropped from this collapsed version because of insufficient number of cases for the multivariate analysis.

Table 4.1 Descriptive statistics by immigrant generational status (Italy, ITAGEN2 2008)

| | Natives | First Generation | Second Generation | Mixed-Parentage |
|---|---|---|---|---|
| Italy | 1.00 | - | - | - |
| Africa | - | .06 | .14 | .03 |
| Albania | - | .19 | .04 | .01 |
| Former Yugoslavia | - | .23 | .12 | .01 |
| Romania | - | .07 | .01 | .01 |
| China | - | .07 | .07 | .00 |
| North Africa & Middle-East | - | .17 | .47 | .07 |
| Western countries | - | .01 | .01 | .46 |
| Latin America | - | .03 | .01 | .15 |
| Eastern Europe | - | .07 | .01 | .22 |
| Eastern Asia | - | .10 | .12 | .04 |
| Female | .51 | .5 | .57 | .52 |
| | (.02) | (.02) | (.05) | (.04) |
| Age | 12.61 | 13.47 | 12.59 | 12.74 |
| | (.02) | (.05) | (.08) | (.06) |
| Highest ISEI | 42.71 | 31.74 | 33.31 | 42.87 |
| | (.49) | (.55) | (.98) | (1.24) |
| Home ownership | .85 | .25 | .3 | .73 |
| | (.01) | (.02) | (.04) | (.03) |
| 1-2 siblings | .79 | .68 | .73 | .74 |
| | (.01) | (.02) | (.04) | (.03) |
| No siblings | .12 | .09 | .07 | .14 |
| | (.01) | (.01) | (.02) | (.03) |
| More than 2 siblings | .09 | .22 | .2 | .12 |
| | (.01) | (.02) | (.04) | (.02) |
| More than 50 books | .72 | .42 | .51 | .75 |
| | (.01) | (.02) | (.05) | (.03) |
| Language fluency index | .22 | -.55 | .1 | .08 |
| | (.02) | (.06) | (.07) | (.07) |
| % | 91.0 | 4.8 | 1.1 | 3.1 |
| N | 1,108 | 476 | 115 | 169 |

*Note*: Estimates are weighted. Mixed-parentage's countries of origin are defined considering the mother's place of birth.

*Family socioeconomic background.*   To account for group differences in family socioeconomic background, I use the highest occupational status of parents as measured through the international socioeconomic index (ISEI) (Ganzeboom, et al. 1992). This variable was obtained after converting information on parents' occupation contained in the survey into an Isco-88 classification of occupations and then into the ISEI index using the Stata routine *iskoisei* (Hendrickx 2002). The original variable available in the survey was collected as an open question to the students and not to their parents directly. Hence, such information might be inaccurate. To partially compensate the possible inaccuracy in the measurement of parental occupation, I also consider additional variables as proxies for family socioeconomic background. First, following Barban and White (2011), I include a dummy indicating whether the family owns or rents the house where they were currently living at the moment of the interview. This is an important variable when studying immigrants' wellbeing in Italy, since whereas almost all Italians own their house, this does not occur so frequently among immigrants (see Table 4.1). Indeed, housing represents a well-known problem for immigrants living in Italy (Ambrosini 1999, 2001, Barban and Dalla-Zuanna 2010). Next, because empirical research (Blake 1981) suggests that the number of siblings in the family may substantially increase how burdensome educational investments are perceived by the parents, I also include in the models a categorical variable indicating the number of siblings of the student. I centered this variable to its modal category so that it takes on the value 0 if the student has one or two siblings, on the value 1 if the student has no siblings, and on the value 2 if the student has more than two siblings. Given the comparability issues mentioned in chapter 1, I decided not to include parental education. Instead, I include another widely used indicator in educational research, number of books at home (Schnepf 2004).[54] This variable, as provided in the dataset, takes on the value 1 if more than 50 books (excluded school books) are possessed by the family and on the value 0 otherwise. Overall, as shown in Table 4.1, households of first- and second-generation students have very similar distributions on these variables whereas native and mixed-parentage households possess significantly higher resources.

*Language*: As a measure for fluency in the Italian language, I employed factor analysis to construct an index using four items collected in the first wave of ITAGEN, which indicates students' self-assessment of their knowledge of the Italian language (understanding, reading, speaking and writing). Each of these items takes on the value 1 if the respondents declare to have a good knowledge of the Italian language, and on the value 0 otherwise (that is to say, "pretty well", "not very well", "no"). The scale reliability coefficient was assessed by Cronbach's alpha,

---

[54] As robustness check, I ran models with parental education and did not find substantial differences compared to the estimates presented here.

which yielded a very high value (0.893). Also the unidimensionality of the scale was tested with factor analysis. Table 4.1 shows that—in line with the expectations—it is particularly first-generation immigrants who declare a low Italian proficiency, while the second generation and children of mixed-parentage show not significantly lower values than natives.

*Other controls.* All of the multivariate analyses also control for province fixed effects, age and gender. Age is particularly relevant because first-generation students have higher risks of sitting on or more years back compared to their cohorts because they often enter school when it is already started and therefore cannot catch up and need to repeat the grade (Mantovani 2008b, Dalla Zuanna, et al. 2009). Moreover, as seen in chapter 2, in Italy also the praxis of "lower class enrolment" might play a role. This praxis affects mainly first-generation immigrants, especially those arrived recently (Mantovani 2008b). Indeed, in Table 4.1 it is evident that first-generation students are, on average, older than all other groups.

*4.3.3 Analytical strategy*

To investigate immigrant-native differentials on the lower secondary education exam, I run two sequences of regression models. The dependent variable is the mark obtained on the exam, which is an ordinal variable, coded in the following four categories: "Sufficient", "Good", "Very Good", "Excellent". Because marks can be ranked but distances between marks are unknown (e.g., the difference between "Sufficient" and "Good" is not necessarily the same as the one between "Good" and "Very Good") it is preferable to use ordinal regression over Ordinary Least Squares regression, because it relaxes the assumption that the distances between categories are equal.

The two sets of regressions (presented in the next sections) are aimed at investigating variations in marks by generational status and country of origin. In both cases, I progressively add new variables in order to investigate the contribution of family background and fluency in Italian. In the next sections, only the parameters of the models relative to the immigrant-native gaps will be presented, whereas full models are included in Appendix A4.

Ordinal regression models rely on the so called parallel regression assumption (or the proportional odds assumption) for ordinal logit models. The assumption requires that the coefficients of the covariates are the same across the categories of the dependent variable (Scott Long 2006). I test this assumption using two different approaches. First, I run an approximate Likelihood-Ratio test (using the Stata users' written command *omodel* (Wolfe and Gould 1998), on a model which incorporates all of the covariates included in the multivariate analyses shown

below. This analysis reports an approximate likelihood-ratio test of whether all the coefficients are equal across categories. However, the test indicates that the null hypothesis that the coefficients are equal across categories can be rejected. This test is an omnibus test that the coefficients for all variables are simultaneously equal, hence it does not allow to test whether the coefficients for some variables are identical across the binary equations while coefficients for other variables differ. Hence, I also ran a Wald test (Scott Long 2006) to test the parallel regression assumption for each variable individually. This test provides evidence that the parallel regression assumption is not systematically violated (the only substantial exceptions are two provinces and age).

Next, the comparison of logit parameters across models and groups is affected by a potential problem of unobserved heterogeneity (Allison 1999, Wooldridge 2002, Mood 2009), therefore I will also compute average marginal effects.[55] Compared with logit parameters or odds ratios, average marginal effects take into account the marginal distributions of the dependent variable—in our case marks—therefore they allow to compare groups in regards of absolute probability and not relative risks. I decided to show also logit parameters to increase the comparability of my results with those obtained by Barban and White (2011) on the same data.

All multivariate models are weighted using the sampling weights provided in the dataset. The use of weights is necessary in order to adjust for the complex sample design of the survey and for attrition, as already described in section 4.3.1 (ibid.).

## 4.4 **Results**

*4.4.1 What marks do natives and children of immigrants obtain?*

Figures 4.1 and 4.2 show the distributions marks obtained on the exam for the different segments of the sampled student population identified by immigrant generational status and country of origin. Starting from figure 4.1, pronounced differences between natives and children of immigrants are observable. Children of immigrants, especially the first generation, exhibit

---

[55] Logistic regression estimates do not behave like linear regression estimates in one important respect: They are affected by omitted variables, even when these variables are unrelated to the independent variables in the model (Mood 2009, p.67). In logistic regressions, the size of the parameters reflects not only the effect of the independent variable on the dependent one but also the degree of unobserved heterogeneity in the model (ibid, p. 69). Hence, it is problematic to compare logistic parameter across models and across groups because the unobserved heterogeneity can vary across models and across groups.

much higher probability of getting "Sufficient" (the lowest mark). Roughly one out of two first-generation immigrants gets the lowest mark and a similar incidence is found for the second generation, while among natives it occurs for one out of four students. Conversely, children of immigrants have much lower chances of getting higher marks ("Excellent" or "Very Good"). Less than one out of ten first-generation students gets "Excellent" compared with one out of four natives. Also mixed-parentage children have sensibly higher risks than natives of obtaining "Sufficient" but they also achieve "Excellent" with the same frequency as natives do. Analogous patterns are observable for "Very Good", while, regarding the intermediate mark (Good), there appears to be no substantially relevant differences between the groups.
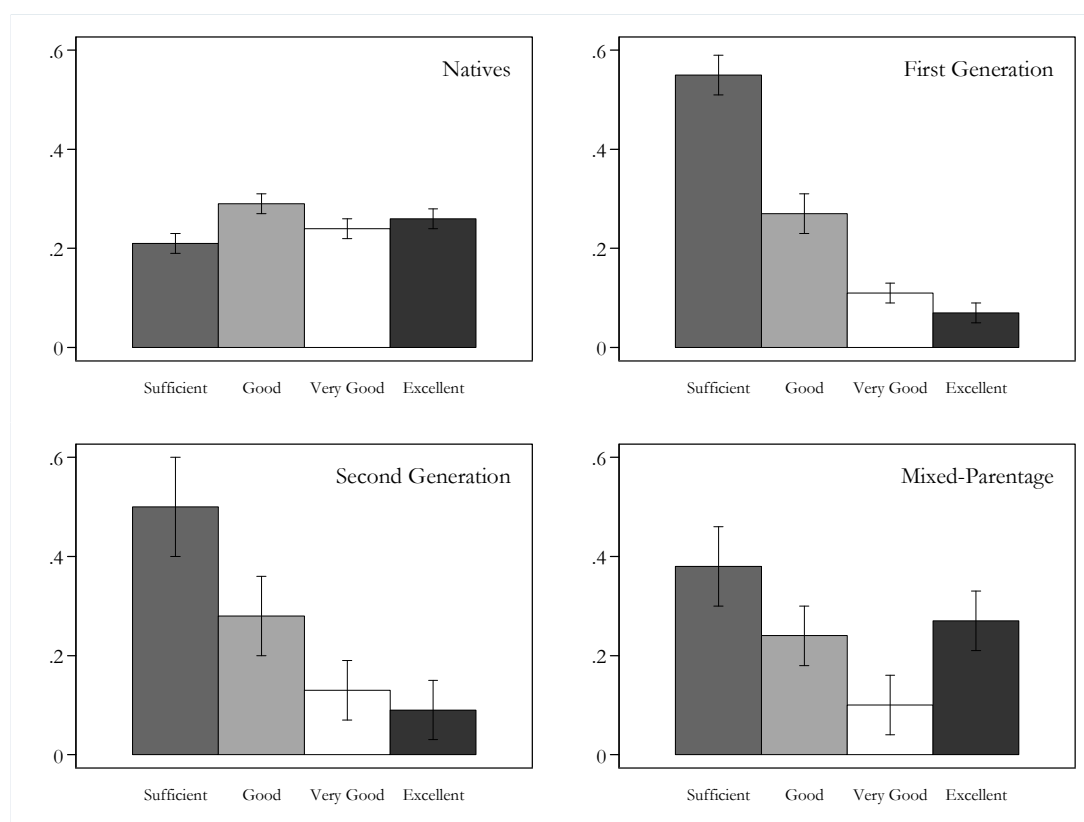


Figure 4.1 Outcomes of the lower secondary school final exam, by immigrant generational status (Italy, ITAGEN2 2008). All estimates are weighted; lines are 95 percent confidence intervals.

Figure 4.2 shows that the distribution of marks is also affected by national origins. Seven out of ten students of African and former Yugoslavian ancestries get "Sufficient", while among native-Italians only two out of ten get the lowest mark. Also Latin Americans, Northern Africans and Asians exhibit high risks of getting the lowest mark (about one student out of two). Moreover, all of the remaining groups display significant higher risks than natives of getting low marks. Regarding the highest mark ("Excellent"), the distance from natives is particularly pronounced

for Sub-Saharan Africans, Albanians, former Yugoslavians, Romanians, and Northern Africans. Finally, the Chinese, Westerners and Eastern Europeans perform similarly to natives, although they tend to get "Sufficient" more frequently than natives.
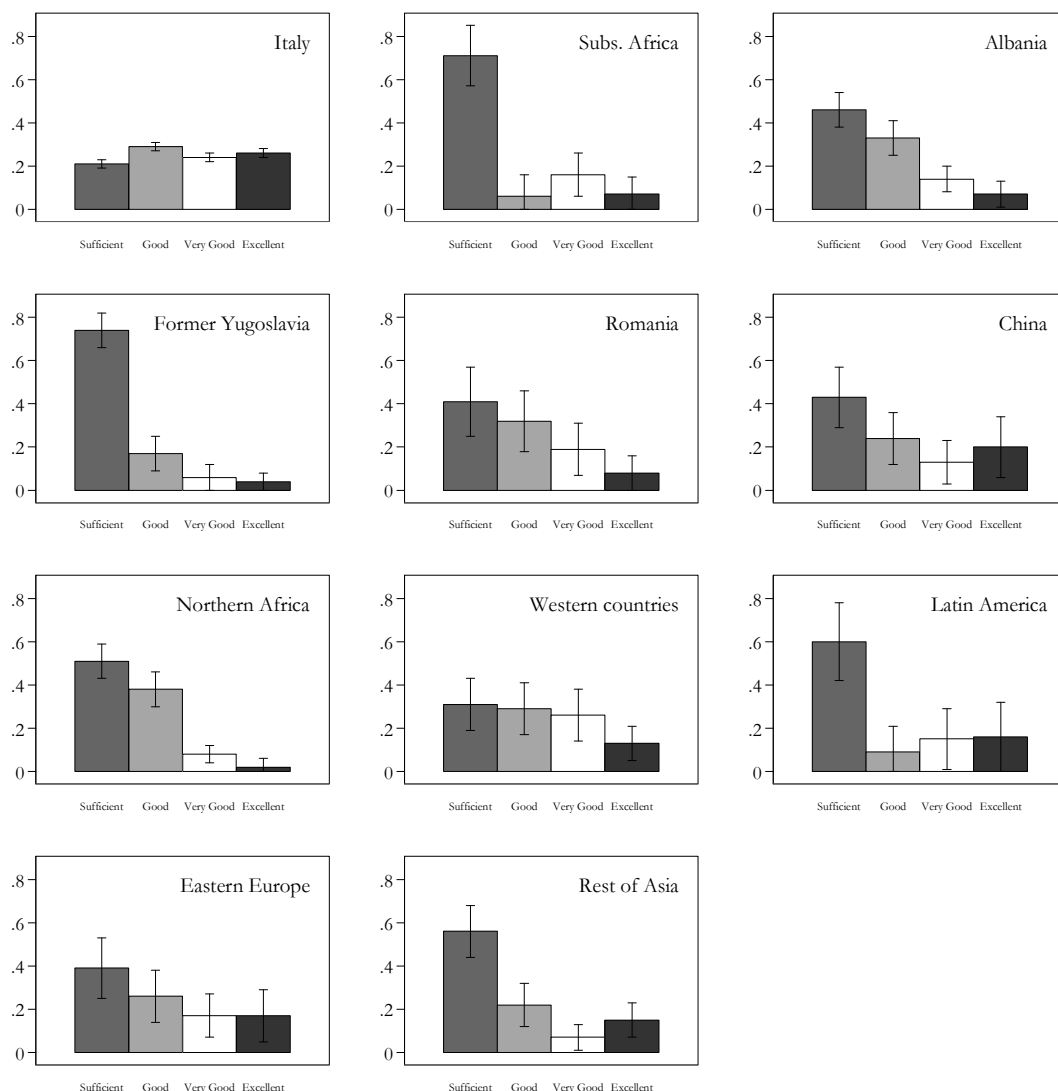


Figure 4.2 Outcomes of the lower secondary school final exam, by country of origin (Italy, ITAGEN2 2008). All estimates are weighted; lines are 95 percent confidence intervals.

*4.4.2 Do final marks depend on immigrant generational status? And what is the contribution of family background and language proficiency?*

To further test the existence of variation in the outcomes of the final exam across immigrant generational groups, I ran a sequence of three ordinal logit models. The logit parameter estimates

for first-generation immigrants, the second generation and children of mixed-parentage are plotted in Figure 4.3. Natives are the reference category. As already stated above (section 4.3), the comparability of logit parameters across models and groups is threatened by unobserved heterogeneity, hence in additional analyses (not shown) average marginal effects were also computed. These additional analyses corroborated the conclusions drawn by the scrutiny of the logit parameters, hence I decided to show the latter to increase the comparability of my results with those of Barban and White (2011).
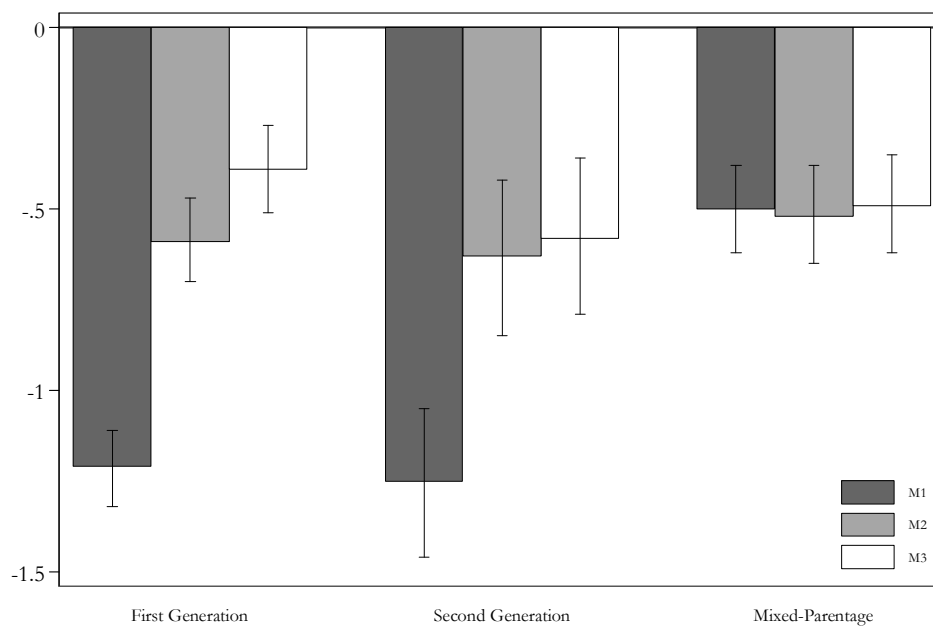


Figure 4.3 Ordered logistic regression estimates of the immigrant-native gaps on the lower secondary school final exam by immigrant generational status: logit parameters and 95 percent confidence intervals (Italy, ITAGEN2 2008). Model 1 includes immigrant generational status, province of residence, age and gender. Model 2 adds highest parental ISEI, number of books at home, homeownership and number of siblings. Model 3 incorporates the index for Italian proficiency. All models use sampling weights. Natives are the reference category. Full models are available in Table A4.1 in Appendix A4.

Model 1 estimates (dark-grey bars) show that a sizeable disadvantage for both first- and second-generation immigrants exists. More precisely, first- and second-generation students have a value of approximately -1.2, while the reference category (natives) is set to zero by definition. Surprisingly, the second generation performs as bad as the first generation: between the two groups no significant differences are found. Also children of mixed-parentage get significantly lower marks than natives, but they also do significantly better than both first- and second-generation immigrants. Thus, having only one instead of two foreign-born parents reduces by half the educational disadvantage. Moreover, in line with our expectations, the gap estimates

obtained here are larger than those of Barban and White (2011), because these authors considered mixed-parentage children together with children with two foreign-born parents. The other covariates included in the first model (see Appendix A4) also show expected parameters: age is negatively associated with marks, because a higher age is a proxy for school delay; females significantly outperform males, and students livening in Southern provinces underperform those living in the North.

Model 2 (light-grey bars) includes the set of indicators of family background described above. This model specification indicates that half of the disadvantage of both first- and second-generation children is accounted for by family background (48 and 46 percent respectively).[56] However, a largely significant gap persists. This is an expected result, which is substantially in line with most international research (see chapter 1) and with findings presented in chapter 3. Among the variables included to proxy socioeconomic resources, the highest parental ISEI and home ownership as well as number of books possessed were found to exert positive and highly significant effects. Also, in line with the theory of resources dilution within the family, having no siblings is associated with higher marks, while having more than two siblings is associated with negative marks, compared to having only one brother or sister (see Table A4.1 in Appendix A4).

The reduction in the gap estimates may arise from differences between immigrants and natives in how family resources are concretely transmitted from parents to children. To check for this, I ran additional models (not shown) allowing for interactions between immigrant background and each socioeconomic status variable. These additional analyses did not indicate the existence of systematic and significant interactions, which lead to the conclusion that socioeconomic resources play a similar role across immigrant generational groups.[57]

Model 3 incorporates the index for Italian language proficiency described above. As expected, this key resource is positively and significantly associated with the final outcome on the exam (see Table A4.1 in Appendix A4). As shown in Figure 4.3, language also reduces the immigrant-native gap, but only for the first generation. This reduction is not significant at the 5 percent level, but it is substantively relevant: the disadvantage of first-generation children further drops by one-third when language is modeled. The gap parameters for the second generation and children of mixed-parentage are left substantially unchanged. These are expected results, because

---

[56] Logit parameters are based on a logistic cumulative density function, therefore they represent non-linear associations between the dependent and the independent variables. This implies that an interpretation in terms of percentage of reduction of the association between models might not be correct. In order to corroborate such an interpretation, I computed average marginal effects for each model and for each of the four outcomes of the dependent variable. These additional analyses confirmed that the immigrant-native gaps drops by roughly half when socioeconomic background is modeled.

[57] There are some exceptions for homeownership and books at home, but these interactions are not unidirectional, thus they are hardly interpretable.

both groups declare much higher linguistic skills compared with their first-generation classmates: second-generation children have lived in Italy since they were born, and children of mixed-parentage benefit from having one native-speaker parent.

All in all, the analyses show that the immigrant-native gap is sizeable and persists even after controlling for both family background and language proficiency. At the same time, these two factors taken together account for about two-thirds of the gap for the first generation and half of the gap for the second generation. Contrary to what we had observed in primary education (chapter 3), these factors also help explain the good performances of children of mixed-parentage relative to first- and second-generation immigrants: after controlling for family background and language proficiency no differences are found between the three groups.

Finally, the most striking result is that the outcomes of first- and second-generation children are undistinguishable from one another, also before controlling for any other covariate. This result is line with the official scholastic figures briefly commented in Chapter 2, which indicated that no substantial differences in the outcomes on the lower secondary education final exam exist between foreign-born and native-born foreigners. Moreover, similar results were also found by Mantovani (2008b)—as mentioned in chapter 2. However, before speculating about the substantive relevance of this result, two compositional explanations should be considered. The first is related to the heterogeneity of the first generation in terms of length of residence (and, conversely, age at migration): some might have arrived before starting compulsory school while some others entered the educational system as lateral entrants. Indeed, Barban and White (2011) demonstrated that recent immigrants perform significantly lower than pre-school immigrants and second-generation children. Unfortunately, the data do not contain information on age at migration in a continuous form and the categories are too broad in order to properly sort out the effects of age at migration on marks. A second explanation might be related to variations in the ethnic composition of the two generational groups, as I am going to test in the next section.

*4.4.3 Are there country-of-origin variations in final exam performance?*

Large part of the gaps documented in the previous section could be due to country-of-origin differences in the composition of each immigrant generational group rather than to immigrant generational status *per se*, because, as seen above, the national composition of the second generation is quite different from that of the first generation. Moreover, as shown in Figure 4.2, the different ethnic groups exhibit rather different outcomes. In this section, I ask whether national-origin variations are stable across generations, and, conversely, whether the small

differences found in the previous section between first- and second-generation children are "masking" differences across countries of origin. As in the previous chapter, I assess the role played by family background and students' fluency in Italian.

Figure 4.4 presents the parameter estimates obtained with ordinal logit regression models, which analyze the association between country of origin and marks, conditional on immigrant generational status (full models are in Table A4.2 in Appendix A4). I considered only first- and second-generation pupils and set natives as the reference category.[58] I followed an identical three-step analysis as before, with the addition of country of origin. As already explained above (section 4.3), I use a reduced version of the nationality variable and thus consider the following groups: Sub-Saharan Africa, South-Eastern Europe, Asia, Northern Africa and Middle East. Students from Latin America, Western countries and Eastern Europe are not analyzed because of small sample sizes.

---

[58] Children of mixed-parentage are not considered here because their outcomes do not vary depending on the specific country of origin of the foreign-born parent.
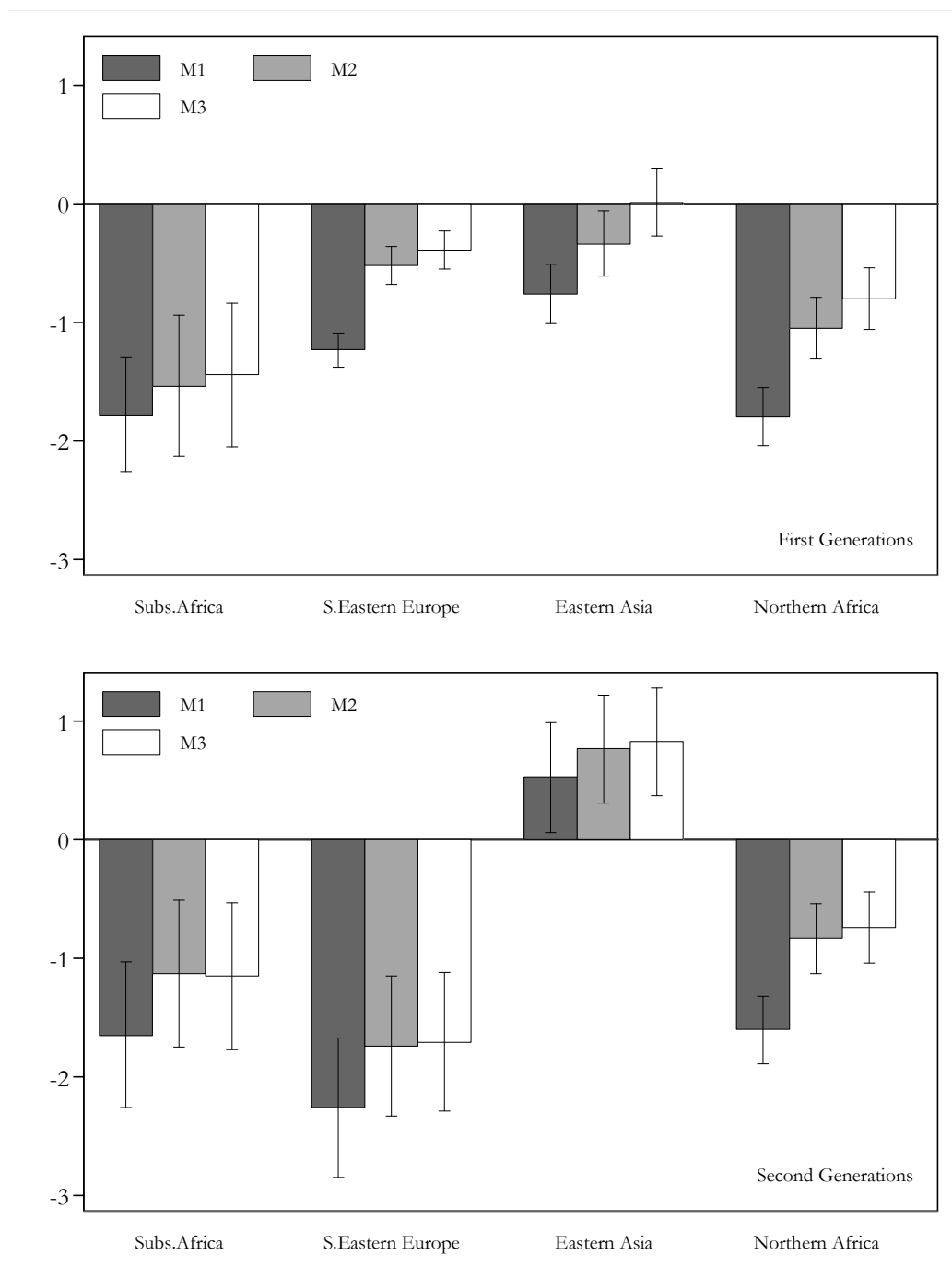
Figure 4.4 Ordered logistic regression estimates of the immigrant-native gaps on the lower secondary school final exam by country of origin and immigrant generational status: logit parameters and 95 percent confidence intervals (Italy, ITAGEN2 2008). Model 1 includes country of origin, province of residence, age and gender. Model 2 adds highest parental ISEI, number of books at home, homeownership and number of siblings. Model 3 incorporates the index for Italian proficiency. Sampling weights are used. Natives are the reference category.

Model 1 (dark-grey bars) confirms that first-generation students systematically underperform natives. The most disadvantaged groups are sub-Saharan and Northern Africans, whose gaps also seem to be stable across generations. In turn, students of Asian ancestry (mainly Chinese and Indians) exhibit a much smaller gap, which turns positive when looking at the second generation. A reversed pattern happens to be in place for Eastern European students, since their marks are significantly lower if they were born in Italy. This is a striking result which might be explained by compositional effects in terms of specific countries of origin. Unfortunately, this hypothesis is not testable with our data because of the small number of cases. As we are going to see below, these heterogeneous generational patterns are only marginally explained by economic resources available within the family and by students' language proficiency.

Model 2 (light-grey bars), which includes family background, largely explains the gap between natives and first-generation immigrants of South-Eastern Europe and Asian ancestries (accounting for 58 and 57 percent respectively).[59] The contribution of family background is strong for Northern Africans as well (40 percent). On the contrary, it is much lower for Sub-Saharan Africans (13 percent): this might be explained by the fact that Sub-Saharan children encounter particularly high problems in adapting to the Italian education system. Regarding second-generation children, family background seems to be much of a relevant factor for Northern Africans (48 percent), Asians (46 percent), and sub-Saharan African students (31 percent), while it seems to play a minor role for second-generation South-Eastern Europeans.

Model 3 (white bars) incorporates the language proficiency index. In general, language seems to play a smaller role compared with primary education, but, in any case, it clearly constitutes a hindrance mainly for first-generation immigrants. This holds true especially for first-generation Asian students, whose gap relative to natives loses significance once language is modeled. Therefore, this group performs as good as natives, net of family background and language proficiency. Language seems to be part of the problem also for first-generation South-Eastern Europeans and for both first- and second-generation Northern Africans, while it plays a negligible role for sub-Saharan Africans.

Finally, to better assess the actual differences between groups, I estimated discrete changes in predicted probabilities.[60] These additional analyses also provide some robustness checks considering the already mentioned problems of unobserved heterogeneity when comparing logit parameters across groups and models. The bars in Figure 4.5 represent these changes in predicted probabilities of achieving the lowest (upper panel) and the highest mark (bottom

---

[59]  As before, results are corroborated by additional analyses with average marginal effects.

[60] Discrete changes in predicted probabilities are average marginal effects when the independent variable is categorical. They were estimated by letting the other covariates at their values and then averaging each marginal effect obtained.

panel) for each of the immigrant groups (defined by immigrant generational status and country of origin) as compared with natives, who are once again the reference category. Estimates are produced after a fully specified model (Model 3, previously described in this section).
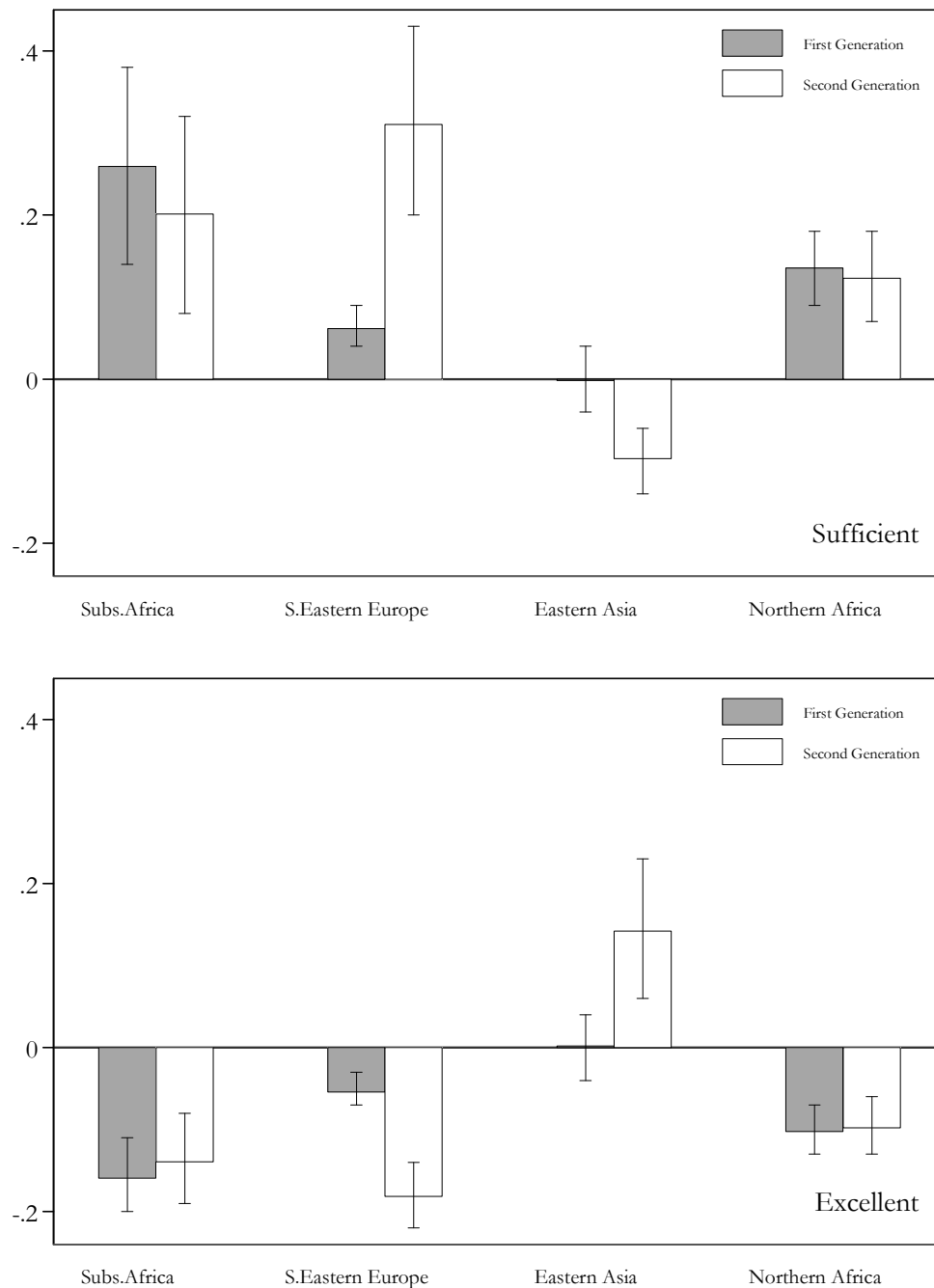


Figure 4.5 Average marginal effects of immigrant background on the outcome of the final exam of lower secondary education: discrete changes in predicted probabilities between different immigrant groups and natives (reference category) and 95 percent confidence intervals (Italy, ITAGEN2 2008). Parameters estimated from fully specified ordinal logistic regression models (see Model 3 in table A4.2 in Appendix A4).

Discrete changes in predicted probabilities confirm the existence of highly differentiated learning achievement patterns across generations and national groups. Sub-Saharan and Northern African students are among the lowest-achieving groups and also exhibit stable performances across generations. Second-generation South-Eastern Europeans display significantly higher risks of getting "Sufficient" and lower probability of getting "Excellent" than their first-generation co-ethnics. Finally, Figure 4.5 confirms that Asian students are the best-performing immigrant group. Once controlled for family background and language proficiency, first-generation Asian students are undistinguishable from natives, while their second-generation co-ethnics exhibit even higher probability of getting "Excellent" and lower probability of getting "Sufficient" than natives. Therefore, Asian students clearly represent a successful group which displays a significant progress across generations. All these patterns are discussed in greater detail in the next section.

## 4.5 **Conclusions**

Examining immigrant-native differentials on the final exam of lower secondary education is very important, because this exam does not represent only an official assessment of students' skills but also a strong predictor of their subsequent attainment in upper secondary education. The analyses presented in this chapter provide some interesting insights about how marks are influenced by individual and family characteristics.

First, in line with my expectations, children of immigrants systematically underperform natives: they have higher risk of getting the lowest mark ("Sufficient") and, conversely, much lower probability of achieving the highest ("Excellent"). However, the hypothesis that second-generation students would outperform the first generation is in general not confirmed. On average, the second generation is found to perform at the same level as the first generation, even before controlling for socioeconomic background and language proficiency. This result adds to the findings of the previous chapter, in which we saw that second-generation children significantly outperformed the first generation only with regard to reading skills. Therefore, it seems that there is no clear generational progress in children's educational achievement, at least not at the lowest educational levels. This is a striking result, which challenges one of the most widely accepted "truths" in the assimilation debate—that immigrants' children progressively improve their education in the host society the longer time they spend in this society, and particularly if they were born there.

On the contrary, the results presented in this chapter seem to suggest that it is not the acculturation process of the children, but the immigrant status of the two parents, that matters most. Further support for this latter statement is found when looking at children of mixed-parentage. These students outperform both first- and second-generation students, because having at least one native parent ensure them higher economic resources and lower barriers to host-country language acquisition. Indeed, once adjusted for these two factors (family background and language proficiency), no differences are found between children of mixed-parentage and first- and second-generation immigrants.

Thus, can we conclude that no educational progress takes place across generations? In fact, more fine-grained analyses, which include information on countries of origin, reveal that highly differentiated patterns of educational achievement exist across ethnic groups. In the first place, in line with a quite well-established regularity found in several other countries (Hirschman and Wong 1986, Heath, et. al 2008), students of Asian ancestry (predominantly, the Chinese and Indians) are the best performing immigrant group. They obtain similar results as natives if they are first-generation immigrants and even higher marks if we consider the second generation. The school experience of Asian students seems to be in line with the "assimilation hypothesis" which predicts that, across generations, children of immigrants adapt to the society and experience an educational progress. However, a reversed pattern is observable for South-Eastern Europeans, whose gap relative to natives surprisingly increases when considering the second generation. More research is needed to disentangle the mechanisms which lead to this result. In fact, this result might be a consequence of the fact that the specific national-composition varies between the first- and second-generation members of this group. Unfortunately, with the available data it was not possible to further break down this group. Finally, the disadvantage of Northern Africans and sub-Saharan Africans proved to be stable across generations, suggesting that members of these two groups hardly make any progress across generations, at least not with regard to educational achievement. As in the previous cases, more research is required to confirm this result. To conclude, rather than a clear and overall generational pattern of either decline or progress, highly differentiated patterns of learning achievement are found to take place, underscoring that children of immigrants' educational achievement is to a great extent dependent on country of origin.

These nationally differentiated paths of achievement persist even after accounting for group differences in family socioeconomic endowments and language proficiency. Nonetheless, the multivariate analyses presented in this chapter yielded some interesting insights about how socioeconomic and linguistic resources contribute to the educational achievement of children of immigrants. Taken together, these two factors explain about two-thirds of the gap of both first-

and second-generation children. More precisely, only socioeconomic resources explain, on average, nearly half of the disadvantage of children of immigrants, regardless of their generational status. The contribution of family background happens to be particularly pronounced for South-Eastern Europeans and Northern Africans, suggesting that the occupational attainment and socioeconomic integration of adult individuals belonging to these groups are particularly worrying, as already found elsewhere (Fullin and Reyneri 2011). The role of language is found to be stronger for first-generation students, as predicted, and especially for those of Asian ancestry—whose origin language might be more "distant" from Italian, as compared to many others.

Drawing on these results on the final exam of lower secondary education, in the following two chapters I am going to investigate whether the patterns and explanations established in this chapter also hold in upper secondary education, keeping in mind that in this subsequent educational level students are no longer enrolled in a comprehensive school, but they are sorted into three main branches (vocational, technical, and general schools). The allocation of students between these differentiated school branches is one of the main objects of investigation of the next chapter.

## Appendix A4

*Table A4.1 Ordered logistic regression estimates of the performance gaps in lower secondary school final exam by immigrant generational status: logit parameters and standard errors (Itagen 2, Italy, N = 1,868)*

|  | M1 | | M2 | | M3 | |
|---|---|---|---|---|---|---|
|  | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
| Natives (ref.) |  |  |  |  |  |  |
| First-generation | -1.21 | .05 | -.59 | .06 | -.39 | .06 |
| Second-generation | -1.25 | .11 | -.63 | .11 | -.58 | .11 |
| Mixed-parentage | -.5 | .06 | -.52 | .07 | -.49 | .07 |
| <50 books (ref.) |  |  |  |  |  |  |
| >= 50 books |  |  | .27 | .02 | .27 | .02 |
| Highest ISEI |  |  | .03 | 0 | .03 | 0 |
| Rented house (ref.) |  |  |  |  |  |  |
| Owned house |  |  | .55 | .03 | .53 | .03 |
| 1-2 siblings (ref) |  |  |  |  |  |  |

| | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
|---|---|---|---|---|---|---|
| 0 siblings | | | .28 | .04 | .29 | .04 |
| >3 siblings | | | -.32 | .03 | -.35 | .03 |
| Language skills | | | | | .25 | .02 |
| Male (ref.) | | | | | | |
| Female | .66 | .02 | .71 | .02 | .69 | .02 |
| Age | -.17 | .02 | -.1 | .02 | -.08 | .02 |
| Province fixed effects | YES | | YES | | YES | |
| /cut1 | -2.06 | .2 | .56 | .22 | .82 | .22 |
| /cut2 | -.58 | .2 | 2.1 | .22 | 2.38 | .22 |
| /cut3 | .67 | .2 | 3.43 | .22 | 3.72 | .22 |
| Log-Likelihood | -39554.85 | | -37425.06 | | -37307.73 | |

*Table A4.2 Ordered logistic regression estimates of the performance gaps in lower secondary school final exam by country of origin and immigrant generational status: logit parameters and standard errors (Itagen 2, Italy)*

| | 1G (N= 1,868) | | | | | | 2G (N=1,223) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M3 | | M1 | | M2 | | M3 | |
| | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
| Italy (ref.) | | | | | | | | | | | | |
| Sub. Africa | -1.78 | .25 | -1.54 | .3 | -1.44 | .31 | -1.65 | .31 | -1.13 | .31 | -1.15 | .32 |
| S.Eeastern Europe | -1.23 | .07 | -.52 | .08 | -.39 | .08 | -2.26 | .3 | -1.74 | .3 | -1.71 | .3 |
| China | -.76 | .13 | -.34 | .14 | .01 | .14 | .53 | .24 | .77 | .23 | .83 | .23 |
| N.Africa & Mid. East | -1.8 | .12 | -1.05 | .13 | -.8 | .13 | -1.6 | .14 | -.83 | .15 | -.74 | .15 |
| Others | -.99 | .15 | -.42 | .15 | -.22 | .16 | 1.38 | .8 | 2.1 | .78 | 2.07 | .78 |
| <50 books (ref.) | | | | | | | | | | | | |
| >= 50 books | | | .28 | .03 | .28 | .03 | .7 | .02 | .29 | .03 | .29 | .03 |
| Highest ISEI | | | .03 | 0 | .03 | 0 | | | .03 | 0 | .03 | 0 |
| Rented house (ref.) | | | | | | | | | | | | |
| Owned house | | | .55 | .03 | .52 | .03 | | | .56 | .03 | .54 | .03 |
| 1-2 siblings (ref) | | | | | | | | | | | | |
| 0 siblings | | | .34 | .04 | .34 | .04 | | | .3 | .04 | .3 | .04 |
| >3 siblings | | | -.31 | .04 | -.34 | .04 | | | -.3 | .04 | -.33 | .04 |

| | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Language skills | | | | | .24 | .02 | | | .74 | .02 | .23 | .02 |
| Male (ref.) | | | | | | | | | | | | |
| Female | .69 | .02 | .73 | .02 | .7 | .02 | | | | | .71 | .02 |
| Age | -.13 | .02 | -.08 | .02 | -.06 | .02 | -.13 | .02 | -.09 | .02 | -.07 | .02 |
| Province fixed effects | YES | | YES | | YES | | YES | | YES | | YES | |
| /cut1 | -1.49 | .21 | .84 | .22 | 1.09 | .22 | -1.48 | .22 | .75 | .23 | .98 | .23 |
| /cut2 | .0 | .21 | 2.39 | .22 | 2.65 | .22 | .01 | .22 | 2.3 | .23 | 2.54 | .23 |
| /cut3 | 1.26 | .21 | 3.73 | .22 | 4.0 | .22 | 1.27 | .22 | 3.65 | .23 | 3.89 | .24 |
| Log-Likelihood | -38009.56 | | -36137.33 | | -3603.56 | | -36791.23 | | -35037.06 | | -3495.89 | |

# 5 A jump into the void? Immigrants' school choice and dropout risks in upper secondary education

## 5.1 Introduction

In the previous two chapters it has been established that children of immigrants substantially underperform their native classmates on both standardized tests and marks and in both primary and lower secondary education, suggesting that immigrant-native gaps persist at different stages of the education system. More precisely, three clear patterns were established. First, children of immigrants make small progress across generations: performance differences between first- and second-generation pupils are rather weak and essentially limited to linguistic skills. Second, educational achievement varies pronouncedly across country-of-origin groups with Eastern Asians performing very well and Sub-Saharan and Northern Africans performing poorly. Third, family socioeconomic background plays a central role in accounting for these variations but also the usage of language spoken at home is an important predictor of migrant students' performance.

In this chapter, I turn the attention to upper secondary education. More precisely, I focus on immigrant-native differentials on a key transition point which takes place at the age of 14, upon completion of lower secondary education. At this point students have to choose which school branch to attend in upper secondary education, and their choice is between vocational, technical, and general schools. As described in chapter 2, this is a very important decision, because it is highly consequential for students' opportunities to enroll in higher education and to complete it. Moreover, since compulsory education lasts until the age of 15 (thus until the first year of upper secondary education), students can drop out of school without obtaining any qualification. Hence, this chapter considers both the horizontal and vertical dimension of educational attainment—i.e., the choice of school and the risk of dropout, respectively. I attempt to answer this question by analyzing the most recent and largest data set available on Italian and foreign youths in the age range of 15 to 19 (i.e., Italian Labor Force Survey). The richness of this data source, as described below, allows for a significant improvement of the knowledge of the phenomenon in Italy. Similar to the previous chapters, I attempt to establish some empirical regularities and accurately test some hypotheses concerning the observed immigrant-native gaps. More precisely, I explore generational and country-of-origin variations and investigate the contribution of social class.

In the effort to answer the above research questions, this chapter is organized as follows. After a short review of the literature (section 5.2), I describe the data, variables, and analytical strategy in section 5.3. Then I present the empirical findings (section 5.4) and discuss the results in the final section.

## 5.2 Research questions and hypothesis

This chapter is focused on school participation in upper secondary education and investigates whether and how children of immigrants differ from natives. Compared to the previous two chapters, the attention is turned from achievement outcomes to educational decisions and attainment, which have important implications for individuals' further education and future life chances. As already mentioned, I focus on both the vertical and the horizontal dimensions of educational attainment. It seems clear that leaving school without a qualification (vertical dimension) has, all else equal, negative impacts on mid- and long-term individuals' economic outcomes. However, also the type of qualification attained (horizontal dimension) has important consequences: completing a general rather than a vocational school results in differential access to tertiary education and occupation (Barone 2012). Moreover, because foreign youths display higher enrollment rates in vocational schools (chapter 2), a special focus will be addressed to the educational careers of youths who completed this school branch.

In this chapter, I explore how immigrant generational status and country of origin interplay in shaping youths' educational attainment. We have seen that at lower educational levels there are some achievement differences between first- and second-generation children but they are rather weak. Do comparable patterns take place in upper secondary education as well? And do the different national groups display similar or different educational attainment patterns? The availability of detailed information on individuals' country of birth, allows me to test whether the national-origin variations found on the final exam of lower secondary education are also reflected in comparable variations in upper secondary school participation and thus to highlight similarities and differences between the two educational outcomes.

Variation in educational attainment by generational status and nationality may reflect variation in family socioeconomic status. Because it has been extensively documented that class of origin affects educational attainment, and because different immigrant generations and nationalities are in a more or less advantaged labor market position, it is possible that a significant portion of the observed differences between generations and between country-of-origin groups is explained by social class (Heath and Brinbaum 2007). Indeed, recent evidence from different European countries indicates that social class accounts for at least half of the gaps

between second-generation youths and natives (Heath, et al. 2008). However, it has also been demonstrated that this result varies substantially across immigrant generations and nationalities. For instance, in Germany the disadvantage of second-generation groups of European ancestry is almost entirely explained by social class (Kristen and Granato 2007), while for children from less developed countries a significant gap relative to natives persists even after holding social class equal (Heath, et al. 2008). In some other cases a reversed pattern has been found: it is the case of Chinese and Indian students in the UK, where their "advantaged" position relative to natives further increases after controlling for social class (Rothon 2007).

Another recurrent finding in traditional receiving countries refers to the weak interactions between social class and immigrant background, this suggesting that the former operates in much the same way for natives and children of immigrants (Heath and Brinbaum 2007). Nonetheless, in some cases social class seems to play a smaller role for immigrants than for natives, because immigrant parents may have to take low-level jobs that may not give a true indication of their educationally relevant resources (Fekjær 2007, Kogan 2011). Hence, when considering whether class inequalities account for immigrant inequalities, it is important to allow for the possibility that they also interact.

This issue is even more critical when family background is indexed by parental education. The over-qualification of immigrant parents may translate also in a devaluation of the educational qualifications and cultural resources they have acquired abroad (Friedberg 2000). This may explain why parental education has often weaker effects on immigrants' children's educational attainment than it does for natives (Heath, et al. 2008). However, this result may reflect also the larger measurement error affecting information on foreign educational qualifications. For instance, it is often difficult to collect information on educational titles attained in origin countries and to compare it with information on credentials of the destination countries. Because of these methodological problems, the employment of a detailed measure of social class might be a preferable choice.[61]

## 5.3 Data and empirical strategy

To answer the above stated research questions I use two different data sources: the Italian Labor Force Survey and ISFOL.

---

[61] I will follow this practice in this chapter, also considering that the data allow for a very detailed measurement of parental occupational position and thus for a very precise measurement of social class (see section 5.3 for details). Nonetheless, additional analyses reveal that the immigrant-native gap slightly increases for some groups (i.e., Eastern Europeans) when parental education is included (results are available upon request).

*5.3.1 Labor Force Survey: data and variables description*

The Labor Force Survey has four important advantages. First, it is very recent: because of the novelty of immigration to the country, this is of crucial importance when it comes to analyzing immigrant educational attainment in Italian education. Second, it is a survey of excellent quality maintained by the Italian National Statistical Office. Response rates are very high and, although they are slightly lower among immigrant as among native households (around 80 and 90 percent, respectively), rules for substitution have been explicitly designed to maximize the representativeness of the immigrant population. Moreover, I have validated the data with external data from administrative sources and I have found that the descriptive estimates for all main socio-demographic variables are highly reliable (results are available upon request). Finally, the data contain very detailed information on key variables, namely occupation (e.g., detailed 3-digit Isco codes), immigrant background and educational attainment of all family members. Despite these advantages, a limitation of the data source is that it does not contain information on individuals' ability, this impeding an empirical distinction between primary and secondary effects (Heath and Brinbaum 2007, Kristen, et al. 2011).

*Variables description*

*Dependent variable.* The dependent variable refers to the upper secondary school participation of youths aged 15 to 19 and who lived with their parents at the moment of the interview.[62] More precisely, the dependent variable entails four categories: dropout, enrolled in vocational, technical or general schools. Because the data do not contain information on the exact birth year, I assign individuals to these four categories considering not only students who are enrolled at the time of the interview, but also those who have already left education. As a consequence, the category "dropout" defines those individuals who interrupted upper secondary school attendance without obtaining any qualification, while the other three categories refer to students who are attending, or who have successfully completed, one of the three school branches.[63] Table 5.1 presents

---

[62] The incidence rate of immigrants and natives living with parents is very similar among 15-to-19-year-old individuals, while it diverges dramatically for older cohorts, with foreigners being much more likely to live outside their origin family.

[63] Of course, because of these data limitations, we cannot exclude that some students drop out after the interview and that, therefore, our total dropout rate is somewhat underestimated. However, the distribution of our dependent variable is in line with figures from previous studies that were not affected by our data limitations (Mocetti 2008, Canino 2010).

weighted distribution of this variable and highlights differences by immigrant generational status that will be analyzed in the following section.

*Immigrant generational status.* I break down the analytical sample into the following categories: natives (defined as native-born children whose parents are both native-born); first-generation immigrants (foreign-born children with both parents born abroad); second-generation immigrants (native-born children whose parents are both foreign-born). In addition, children of mixed parentage (i.e., children with only one foreign-born parent) are considered as a distinct category.[64] The data confirm that among 15-19-year-olds, first-generation youths are a larger population than second-generation (5.2 percent and 1.3 percent respectively). Native-Italians make up the vast majority (88.6 percent), while children of mixed-parentage account for the remaining 4.9 percent (see Table 5.1, last row).

*Country of origin.* I break down the immigrant population into six groups of countries, using the country of birth of the head of household. Unsurprisingly, there is a very high association between fathers' and mothers' country of origin, hence using information of either of the parents makes little difference for the results. This classification has been formed on the basis of cultural and socio-economic criteria rather than simple geographical proximity (e.g., I included Pakistan among Middle-Eastern countries). However, because of small sample size, especially for the second generation, I was obliged to group together countries with very similar distributions on the dependent variable (e.g., Indians and Chinese, Former Yugoslavia and Romania, and also Western countries with East European countries). The six groups of countries comprise: a) South-Eastern Europe (including Former Yugoslavia, Albania and Romania); b) Asia (mainly China and India); c) Northern Africa and Middle East (the great majority is made up by youths of Moroccan ancestry); d) Sub-Saharan Africa (mostly Ghana, Senegal and Nigeria); e) Latin America (the largest groups are Argentina, Ecuador, Peru and Venezuela); f) Western countries and Eastern European countries (the largest nationalities in this group are Germany, Switzerland and France, suggesting the relevance of return migration; among former communist states the main groups are Poland, Moldova and Ukraine). As shown in Table 5.1, South-Eastern Europeans account for nearly half of first-generation youths, while the distribution by nationality of the second generation is more balanced and youths of Western and East-European are the largest group, but the size of students from Northern African is also quite large. These distributions are substantially in line whit those obtained with ITAGEN2 data in the previous chapter. Among mixed-parentage households there is an overwhelming majority of parents born in Western countries, suggesting that this group comprises in large part return migration. All in

---

[64] Mixed-parentage children are considered as one group independently from their place of birth, because those foreign-born are a very small fraction and overall results do not change.

all, the distribution by nationality varies substantially across generational status. This means that, in order to get accurate estimates of the effects of generational status, I need to control for country of origin.

Table 5.1 Selected statistics by immigrant generational status (15-19- year olds, Italy, Labor Force Survey 2005-2010)

|  | Natives | First Generation | Second Generation | Mixed-Parentage |
|---|---|---|---|---|
| *Dependent variable* |  |  |  |  |
| Dropout | 10.9 | 21.6 | 8.6 | 8.0 |
| Vocational | 18.7 | 32.3 | 25.8 | 17.8 |
| Technical | 27.4 | 26.4 | 27.9 | 28.4 |
| General | 43.0 | 19.7 | 37.6 | 45.8 |
| **Total** | 100.0 | 100.0 | 100.0 | 100.0 |
|  |  |  |  |  |
| *Parents' country of origin* |  |  |  |  |
| Italy | 100.0 | - | - | - |
| South-Eastern Europe | - | 47.1 | 9.4 | 4.6 |
| Eastern Asia | - | 11.1 | 16.8 | 1.3 |
| Northern Africa and Middle East | - | 11.5 | 22.2 | 6.3 |
| Sub-Saharan Africa | - | 5.0 | 11.8 | 4.1 |
| Latin America | - | 12.3 | 8.7 | 16.3 |
| Western Countries and Eastern European countries | - | 13.0 | 31.1 | 67.4 |
| **Total** | 100.0 | 100.0 | 100.0 | 100.0 |
| *Social class* |  |  |  |  |
| Salariat | 26.2 | 3.2 | 10.3 | 31.5 |
| Intermediate employees | 11.8 | 3.6 | 10.7 | 9.9 |
| Small employers and self-employed | 21.6 | 14.1 | 21.7 | 22.3 |
| Lower grade white collar workers | 6.3 | 7.9 | 5.0 | 5.5 |
| Lower technical and routine occupations | 26.3 | 65.6 | 45.2 | 25.2 |
| Unemployed | 3.6 | 3.1 | 4.6 | 2.7 |
| Inactive | 4.1 | 2.5 | 2.5 | 2.9 |
| **Total** | 100.0 | 100.0 | 100.0 | 100.0 |
| *Sample* |  |  |  |  |
| % | 88.6 | 5.2 | 1.3 | 4.9 |
| N | 46,828 | 1,895 | 514 | 2,361 |

Note: All estimates are weighted. Mixed-parentage children's country of origin is referred to the foreign-born parent.

*Social class*. Class of origin is defined according to the European Socioeconomic Classification (ESeC). This is an updated version of the EGP schema (Erikson and Goldthorpe 1992, Harrison and Rose 2009). The data source allows me to exploit a wide range of information on parental occupation: 3-digit Isco titles, their employment status (i.e., self-employed vs. employees), supervision of other workers, size of the firm. The ESeC variable comprises seven categories: a) Salariat (composed of large employers, professional, administrative and managerial occupations, higher grade technicians); b) intermediate employees (intermediate white collars, high-level supervisors and technicians); c) petty bourgeoisie (small employers and self-employed in non-professional occupations); d) lower grade white collars (lower services, sales and clerical occupations); e) lower technical and routine occupations (skilled, semi- and unskilled workers); f) unemployed, g) inactive. I use the criterion of dominance, that is to say I select the highest occupational class of the parents.[65] As expected, social class is distributed very differently across immigrant generational groups (Table 5.1). Whereas the salariat account for a quarter of the native and mixed-parentage households, it represents only one tenth among the second-generation and 3 percent among first-generation youths. Opposite results are observable with regard to lower technical and routine occupations, where almost seven out of ten first-generation households are found compared to one out of two second-generation families and one out of four natives and mixed-parentage.

*Other controls*. The multivariate models include the following controls: gender, region of residence (20 categories), the interaction between these two variables, and dummy variables identifying each wave of the Labor Force Survey to control for survey effects. Because there could be some relevant national-origin and generational variations in family structure, I have also specified additional models (not shown) including two family variables that refer to the number of siblings and to mono-nuclear families. These additional covariates do not add any explanatory power to the models.

### 5.3.2 ISFOL: data and variables description

To investigate youths' educational decisions upon completion of the 3-years vocational track, I use data from the survey "*Indagine sugli esiti formativi e occupazionali dei qualificati nei percorsi triennali di*

---

[65] Information on parental occupation is particularly accurate, since it has been directly collected from the parents. However, as robustness check, we specified additional models (not shown) that included other job-related variables (e.g., single-income families, type of employment contract, economic sector): results remain virtually unchanged, suggesting that our detailed class variable captures most of the variability in educational attainment attributable to the socioeconomic situation of the family.

*istruzione e formazione professionale*" (Survey on training and employment outcomes of youths after three-year vocational education and training courses) carried out by the *Istituto per lo Sviluppo della Formazione Professionale dei Lavoratori* (Institute for the development of vocational training of workers, ISFOL). The survey was administered between December 2010 and January 2011 to 3,608 youths who completed either a vocational school or a vocational training course in scholastic year 2006/07. The sample is representative for region of residence, type of institution (school vs. training center), sex, sector of vocational education (see below), and citizenship. The survey investigated the following main aspects: outcomes of lower secondary education; motivations of the choice of vocational education, experience during the three years of vocational education and training, decisions of further education upon completion of the vocational qualification, and access to the labor market.

*Variables description*

As a dependent variable I use a dummy variable identifying whether students have continued their education after obtaining the vocational qualification. This variable takes on the value 1 if the student has decided to continue on with his/her education (either in school or in another regional training course)[66] and on the value 0 otherwise.

Among the independent variables, I use students' place of birth as the main identifying criterion for immigrant background. The small numbers do not allow to investigate the existence of variation by country of origin, and it is not possible to explore differences by students' generational status either, because the place of birth of parents was not collected. However, to capture potential variations over time, I also consider students' length of residence in Italy.

Social class is coded as following: Salariat (composed of large employers, professional, administrative and managerial occupations, higher grade technicians); intermediate employees (intermediate white collars, lower supervisors and lower technicians), small employers and self-employed in non-professional occupations; lower grade white collars; skilled workers; and unskilled workers.

I also employ a dummy for type of vocational school attended (vocational training or vocational school), plus the specific sector of vocational education (grouped as electrotechnics, industry, business and industry services, social and care services, and tourism). Prior performance is captured by three variables: self-declared outcome of the lower secondary education final exam (Sufficient, Good, Very Good, and Excellent), regular vs. interrupted (whether he/she has

---

[66] Unfortunately, because of small sample size it is not possible to differentiate this choice in the analysis.

experienced grade retention) career in lower secondary education and in vocational training and education. As demographic controls, I include area of residence (North-West, North-East, Center, South) and sex.

*5.3.3 Analytical strategies*

I analyze the data by means of logit and multinomial logit models and present average marginal effects (or, more precisely, discrete changes in predicted probabilities).[67] Regarding multinomial logit models, as robustness checks, I have tested that the assumption of the independence of irrelevant alternatives is not rejected, according to the Hausman and the Small-Hsiao tests, and that probit models lead to identical results. Furthermore, in order to decompose the immigrant-native differentials, I use an adaptation for binary outcomes of the Oaxaca-Blinder technique developed by Fairlie (2003). All the multivariate analyses that I present are not weighted, but I have checked that the use of sampling weights does not affect the conclusions. All of these robustness checks are available upon request.

## 5.4 Results

*5.4.1 The role of immigrant generational status and social class in accounting for the gap between natives and children of immigrants*

The first results of the multivariate models are reported in Figure 5.1, which shows discrete changes in predicted probabilities (and the corresponding 95 percent confidence intervals, computed with the delta method) for each of the four outcomes under examination (see models in Table A5.1 in Appendix A5). The white bars refer to first-generation immigrants, the light-grey bars to the second generation, the darker grey bars to mixed-parentage children, while native students are the reference category. Every bar refers to the gross effect of immigrant generational status, while each black symbol (circles and triangles) refers to the corresponding effect net of social class. For instance, the first bar from the left indicates that first-generation youths have 14

---

[67] Discrete changes in predicted probabilities are average marginal effects when the independent variable is categorical. They were estimated by letting the other covariates at their values and then averaging each marginal effect obtained.

percentage-points higher risk of dropping out of school relative to natives and that, once controlled for social class, this gap drops to eight points. [68]
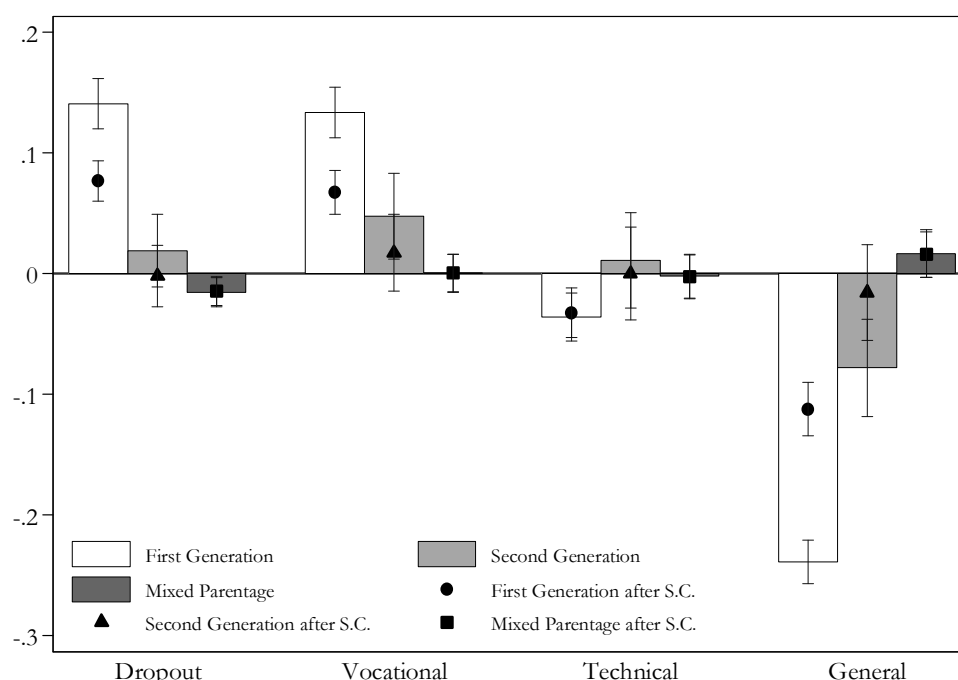


Figure 5.1 Dropout risks and track placement of first-, second-generation, and mixed-parentage children as compared to natives before (different bars) and after (different symbols) controlling for social class: discrete changes in predicted probabilities and 95 percent confidence intervals (15-19-year-olds, Italy, Labor Force Survey 2005-2010). Natives are the reference category. All models control for gender, region of residence, the interaction between these two variables, and wave dummy variables.

More generally, in Figure 5.1 it can be observed that first-generation students (white bars) display systematically higher risks to drop out and to enroll in vocational tracks, while they opt less often for longer and more academically demanding tracks, like technical schools and, especially, general schools. Furthermore, the gross gap between first-generation immigrants and natives is large, but also the gap net of social class looks remarkable. More precisely, social class reduces the immigrant-native differential in dropout risks by 45 percent. Likewise, first-generation youths' disadvantage in the chances of general school enrollment—which amounts to 24 percentage points before controlling for social class—is more than halved, once social class is modeled. However, in both cases a significant immigrant-native gap persists even after controlling for

---

[68] As robustness checks, I also rerun the analyses using citizenship instead of place of birth and found that results are largely unchanged. I also ran additional models separating vocational schools from vocational training courses finding that enrollment gaps are the same in the two branches.

social class. An analogous pattern occurs for vocational school enrollment, but less so for technical schools, for which very small, even though significant, differences are detected. Hence, the contribution of social class to the educational disadvantage of first-generation immigrants is strong and highly significant, although it does not suffice to explain out the observed differences between natives and first-generation immigrants—suggesting that other aspects of individuals' and their families' migration background might play a decisive role.

Moving on to second-generation youths, Figure 5.1 shows that their patterns of school attendance are hardly distinguishable from those of natives. A significant gross differential is detected only with regard to the propensity to enroll in general schools, with second-generation youths showing lower general school enrollment rates (-8 percentage points). However, this disadvantage disappears once social class is taken into account. What Figure 5.1 also tells us is that the second generation significantly outperforms the first generation with regard to dropout risks and general school enrollment. The relative advantage of the second generation shrinks by a substantial extent once social class is hold equal across the two groups, although it remains statistically significant. This means that part of these differences is due to the slightly better socioeconomic conditions of second-generations' families relative to first-generations' (as also seen in Table 5.1). Hence, the former enjoy more favorable educational prospects not only because a process of acculturation is going on, but also because their parents have lived longer in Italy and have conceivably improved their occupational attainment.[69]

Mixed-parentage children exhibit similar—if not even slightly higher—educational attainment as natives. This confirms the importance of considering this group separately, not the least to avoid biases in the estimates concerning the other immigrant groups. The introduction of social class does not change the parameter estimates for this group, because, as seen above, mixed parentage families display a very similar class distribution as natives.

The results presented so far provide an overall picture of immigrants' disadvantage in Italian upper secondary education. However, we know that national groups are differentially distributed across first-, second-generation and mixed–parentage families. Hence, these broad generational patterns may reflect variations in ethnic composition, rather than a "true effect" of generational status in itself. Similarly, country-of-origin differences may affect also our conclusions concerning the role of social class. Because of the ethnic stratification of the labor market (Reyneri 2004b), its influence could vary substantially across national groups. In the next two paragraphs, I first break down the immigrant-native differentials by country of origin, and

---

[69] This result slightly differs from those obtained in chapters 2 and 3, where I found that differences between first- and second-generation children with regard to family socioeconomic endowments were slightly smaller.

then I decompose these differentials in order to isolate the contribution of social class to the gap of each specific group.

*5.4.2 Country-of-origin variations in generational patterns of educational attainment*

Figure 5.2 reports discrete changes in predicted probabilities for each of the four outcomes under examination (see models in Table A5.2 in Appendix A5). In addition to Figure 5.1, I break down the estimates not only by immigrant generational status but also by country of origin. As before, the white bars refer to the first generation and the grey ones to the second generation; natives are again the reference category. All estimates in Figure 5.2 refer to models where social class is not included, thus to gross differences. Mixed-parentage children are not shown because their results do not vary depending on the nationality of the foreign-born parent, with the partial exception of children whose foreign-born parent is of Western or Eastern European ancestry, who display a slightly lower dropout risk.

At first glance, significant gaps in school participation are detected between natives and each of the first-generation groups (white bars). However, also sizeable variations are observable across national-origin groups. First-generation immigrants from Eastern Asia, Northern Africa and Middle East, and Sub-Saharan Africa display the highest dropout risks (around +22 percentage points). These groups also display the highest probability to enroll in vocational tracks (between 19 and 22 percentage points higher than natives) and the lowest general school enrollment rates (between 32 and 35 points lower than natives). On the other hand, students from South-Eastern Europe display a much smaller disadvantage, and students from Latin America and from Eastern Europe and Western countries are very close to natives.

These variations are in many instances in line with both the international and the Italian literature commented above, especially the disadvantage of Northern Africans and the positive prospects of students from Western countries and Eastern Europe (Heath, et al. 2008). However, result involving Asian students—who mainly come from China and India—are perhaps more surprising in a comparative perspective. As seen in chapter 1, these two nationalities display rather good performances in Anglo-Saxon and North-European countries, but this seems not to be the case in Italian upper secondary education. The relative novelty of Asian immigration to Italy, coupled with a particularly strong social and occupational segregation (mostly in independent occupations and self-employment) may account for this apparently "deviating" pattern, as compared to old immigration countries (Ceccagno 2004). However, also different immigrant selectivity mechanisms in both sending and receiving countries could explain

the educational disadvantage of Chinese and Indian students in Italy. I will come back to this point later on.
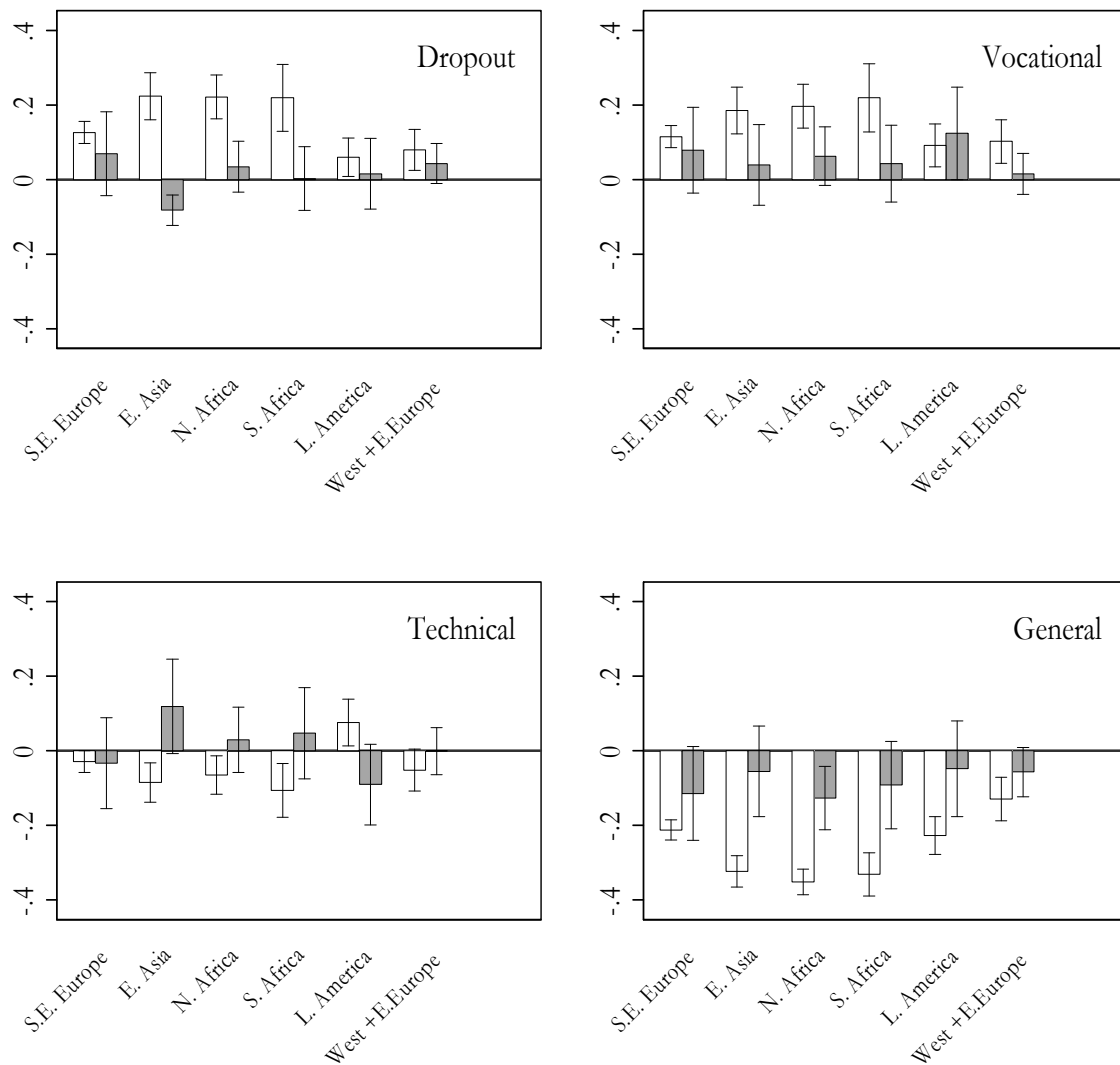


Figure 5.2 Dropout risks and track placement of first- (white bars) and second-generation immigrants (grey bars) by country of origin: discrete changes in predicted probabilities and 95 percent confidence intervals (15-19-year-olds, Italy, Labor Force Survey 2005-2010). Natives are the reference category. All models control for gender, region of residence, the interaction between these two variables, and wave dummy variables.

Figure 5.2 confirms that second-generation children (grey bars) display similar patterns of educational participation as natives. Although in some cases estimates' uncertainty is high, some differences between national-origin groups can be detected. However, these differences are

definitively smaller than those observed before among first-generation immigrants. This is an interesting finding because it suggests that large part of national-origin variations are attributable to the timing of immigration and to the ways of accommodation to the host society, rather than to specific national or cultural factors.

Regarding the question whether progress, stagnation or decline between first- and second-generation children exists, these additional analyses clearly confirm the general pattern of advancement outlined in the previous section. The largest "improvements" between first- and second-generation immigrants involves three national groups: Eastern Asia, Northern Africa and Middle-East and Sub-Saharan Africa. Within these groups the differences between first- and second-generation immigrants are sizeable. For instance, the disadvantage of Northern African youths in terms of dropout risk shrinks from 22 percentage points to only three points, becoming insignificant. The same holds for Sub-Saharan African youths. In the case of Eastern Asian students, I even find that second-generation Asians exhibit significant lower dropout risks than natives. Moreover, Eastern Asian students also display a substantively higher probability to enroll in technical schools (although this difference is not statistically significant at 5 percent). In other words, the negative outcomes of Eastern Asian students seem to be limited to first-generation immigrants only. However, the results on the second generations shall be treated with some caution, because of the small number of cases of the Eastern Asian second generation in the sample.

Also second-generation Latin Americans outperform their first-generation co-ethnics, while for youths of Western and East-European ancestry I do not detect any significant difference between first and second generations. This is quite unsurprising because the gap for these groups is already small also when considering the first generation.

On the whole, it could be argued that this optimistic picture of the educational attainment of the second generation in Italy lends support to the assimilation hypothesis. However, some noteworthy exceptions unveil the existence of differentiated paths of adaptation. Second-generation Northern Africans still display a sizeable and statistically significant lower propensity (-13 percent) to choose general schools compared with natives. A similar point can be made for Latin American students with regard to vocational school enrollment and for South-Eastern European students, who display a moderate gap relative to natives but who do not show any significant progress across generations. These differentiated paths of school participation across national groups may reflect some cultural factors, but they may relate also to the differential role of social class, as we are going to see in the next section.[70]

---

[70] Additional models (not shown) allowed for interactions between immigrant background and gender, without finding any significant interaction, pointing out that children of immigrants tend to adapt to the

*5.4.3 Nonlinear decomposition of immigrant-native differentials*

Figure 5.3 shows the results of a nonlinear decomposition of the differences between immigrants' children and natives in general school enrollment.[71] I use the Fairlie (2003) technique which allows me to decompose the observed differences between groups into two components: a first component which arises from the different distribution of social class across groups, and a second component which is attributable to unobservable factors.[72] The total length of the bars indicates the magnitude of the overall differentials between immigrants and natives, whereas the dark-grey parts of the bars express the share of the immigrant-native differentials attributable to social class, and the light-grey bars indicate the part of the gap that remains unexplained. The left panel in Figure 5.3 refers to first-generation and the right one to second-generation youths. In both cases, natives are the reference category.

The left panel in Figure 5.3 indicates that for first-generation immigrants, the relative contribution of social class varies substantially across countries of origin. On average, social class explains half of the observed gap for first-generation youths, but it plays a much stronger relative role for the least disadvantaged groups. In more detail, for immigrants of Western or Eastern-European ancestry, who enjoy rather good educational prospects, social class accounts for 80 percent of the observed differences relative to natives. Also for Southern-European youths, social class accounts for a large part of the gap (59 percent). In other words, the educational disadvantages of these groups seem to be largely a matter of socioeconomic deprivation.

Also for Latin American students the contribution of social class is remarkable, although somewhat smaller (47 percent), despite the relatively small overall educational gap of this national-origin group. The net educational disadvantage of Latin American students could be explained by the weak family structure of this group—as argued in some works on Italy

---

gender modes of educational participation found in the host society. A similar conclusion was reached with regard to the interaction between immigrant background and region of residence (Azzolini and Barone 2012).

[71] I focus on general school enrollment because the educational and labor market consequences of this educational path are particularly important. However, I have performed the same analyses focusing on each of the four outcomes under examination, reaching substantially identical results.

[72] I used natives as a reference group and 1,000 random samples of each comparison group of children of immigrants. I specified a logistic regression model and let randomly vary the order of the covariates. Finally, I checked that I obtained the same results when re-estimating the models using as a reference group a pooled sample of both natives and immigrants, or using probit instead of logit models. All these analyses are available upon request. For further details see also (Azzolini and Barone 2012).

(Casacchia, et al. 2008), which indicate that the absence of fathers is particularly frequent for Latin Americans—however Labor Force Survey data, as from additional analyses where I included family structure, do not support this explanation.
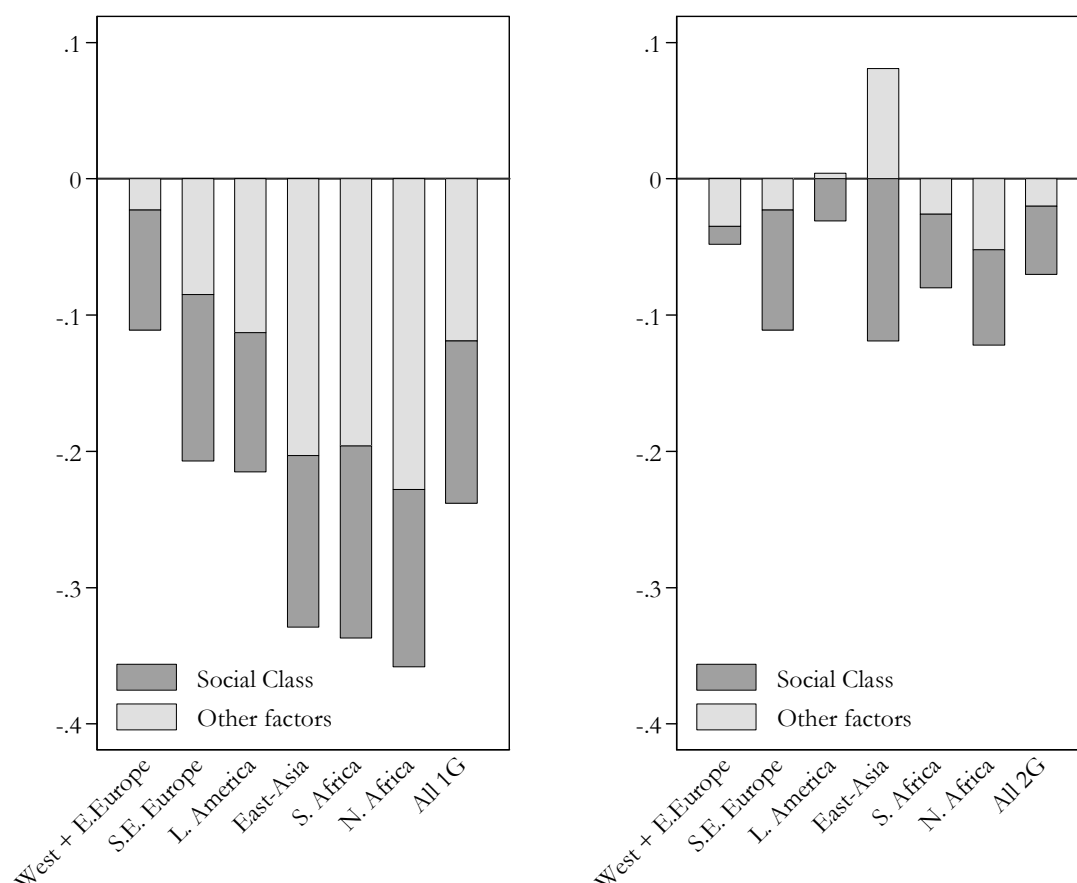


FIGURE 5.3 *Fairlie* decomposition of the differentials in general school enrollment between natives and children of immigrants, by immigrant generational status and country of origin (15-19-year-old youths, Italy, Labor Force Survey 2005-2010). All models control for gender, region of residence, the interaction between these two variables, and wave dummy variables.

Turning to the most disadvantaged groups, social class plays a smaller contribution: Northern Africans (36 percent), Asian (38 percent), Sub-Saharan Africans (42 percent). These are the groups where cultural factors may be more relevant: the higher linguistic and cultural distances could matter more, thus lowering the explanatory power of social class in relative terms. Regarding Asian students, especially the Chinese, this result implies that their particularly poor school results in upper secondary school are not entirely explained by their parents' high concentration in autonomous work. Instead, we could refer to recent empirical studies pointing

to the scarce adult involvement in children's education and to the strong ethnic ties which might lower the educational aspirations of Chinese students in Italy (Dalla Zuanna, et al. 2009, Minello and Barban 2012).

Moving on to the second generation (Figure 5.3, rightmost bar of the right panel), the explanatory power of social class climbs to 70 percent, as compared to 50 estimated for the first generation. This implies that the already small disadvantage of the second generation would completely disappear if these youths were distributed across social classes as natives are. Due to small sample sizes and high statistical uncertainty, it is difficult to interpret the estimates for each national-origin group, however it seems clear that the magnitude of the gap for the second generation is greatly reduced as compared to the first generation and that the role of social class is unequivocally predominant.

The above results do not consider the possibility that the measure of social class has a different meaning and importance for the immigrant families as it does for natives. As mentioned above, the literature tends to leave out the existence of systematic and substantial interactions between social class and immigrant background. I have checked whether such a pattern holds for Italy as well, and in general the results of these additional analyses reject the existence of systematic interactions. However there are some notable exceptions. For instance, among first-generation youths, children of upper classes show a significant lower gap compared to other classes in the dropout risks. Accordingly, higher risks are found among lower classes of youths of Northern African and South-Eastern Europe ancestry. In line with previous evidence (Fullin and Reyneri 2011), these findings seem to indicate the existence of particularly adverse job conditions of the parents, which might negatively affect the balance of costs and benefits of investing in children education. For the second generation and all remaining national-origin groups social class does not interact with migration background (all these analyses are available upon request).

*5.4.4 What happens after vocational qualification? Continuation rates of immigrant and native youths after completing vocational education*

After establishing that immigrant youths exhibit higher propensity to enroll in vocational schools and vocational training courses, I now investigate deeper into the educational careers of these students upon completion of vocational education and training. More precisely, I aim to explore the extent to which these students decide to continue their education after obtaining a three-year vocational certificate and, again, whether immigrant students differ from natives. It is a relevant

question because it helps understand whether this school branch can be regarded as a "bridge" for subsequent education or, on the contrary, as a "dead end" which prevents students to continue their education and leaves them with the only option of entering the labor market (Barone 2011a). Table 5.2 presents average marginal effects computed after the estimation of a sequence of four logistic regression models (see models with all parameters in Table 5A.3 in Appendix 5A).

Table 5.2 Average marginal effects of immigrant background on continuing education after a three-years vocational certificate: discrete changes in predicted probability between foreign-born youths and natives (Italy, ISFOL 2010)

|  | M1 | M2 | M3 | M4 |
|---|---|---|---|---|
| Foreign-born (ref. native-born) | -.063 * | -.052 | -.052 | -.053 |
|  | (.036) | (.036) | (.035) | (.035) |
| Log Likelihood | -2334.0 | -2312.5 | -2171.7 | -2161.7 |
| LR test |  | 43.0*** | 281.7*** | 19.82** |

Note: M1 controls for sex and area of residence. M2 adds social class. M3 adds vocational sectors and type of vocational institution. M4 adds prior performance (marks in lower secondary education and grade retention). Standard errors (computed with delta-method) in parentheses. Significance levels: *p < 0.10; **p < 0.05; ***p < 0.01.

Parameter estimates from Model 1 (leftmost column) indicate the existence of a negative and significant gap for immigrants, meaning that students who were born abroad are less likely to continue their education after completing a three-year vocational school or training course. The estimated difference between the two groups in the probability of continuing (i.e., discrete change) is 6.3 percentage points and it is significant at the 10 percent level. Once social class is modeled (Model 2), differences between natives and foreign-born students are no longer significant, suggesting that social class does play an important role also on this specific transition point. The introduction in the analysis of type of school and sector (Model 3) significantly increases the explanatory power of the model, but leaves the gap estimate unchanged. The same applies with Model 4, which incorporates information on students' prior performance. At first, this latter result is quite surprising, because we know that immigrants have lower educational performance relative to natives, and this is theoretically relevant for determining subsequent educational decisions. However, we should remember that we are focusing on a specific segment of the education system (vocational education and training), which attracts students with low performance and previous disrupted scholastic careers (ibid.). This happens especially for natives, while such a negative selection is not clearly established for children of immigrants, who tend to enroll in vocational schools also if they have achieved very good marks in lower secondary education (Barban and White 2011). Because of such differentiated selection

mechanisms, native and immigrant students attending vocational education and training courses display, on average, similar achievement levels. As a confirmation of this, the distributions of all three proxies for previous scholastic performance do not significantly differ between immigrant and natives.

These findings could result from different motivations to continue between immigrants and natives. For example, immigrant families and their children may take educational decisions also considering the strong penalty faced by adult immigrants in the Italian labor market (perspective of "anticipated discrimination", see chapter 1, section 1.5.4). Therefore, they might be pushed to continue because they fear they won't find a job rather than deciding to continue because they attach great value to education *per se*. The data seem to reject this hypothesis, because the percentage of those who decide to continue because they want to study is the same among natives as among immigrants (about one-third). Then, more than half of students—be they natives or immigrants—continues because of the expectation of higher returns to additional education or because they fear they would not find an adequate job if they do not continue. Finally, among those who decided not to continue, the majority declared that they wanted to find a job soon (six out of 10 immigrants and five out 10 among natives), while the remainder of the youths already had an occupation (roughly one-fourth) or were not interested in further education (less than one-fifth).[73]

To sum up, the analyses have indicated that differences between immigrants and natives on this specific transition point exist but they are rather weak and fully accounted for by differences in social origins. As robustness check, it was also analyzed whether length of residence plays a role, but weak evidence was found in the data to support the existence of an association between years spent in Italy and the likelihood to continue after vocational school. As already said above, because of data constraints it was not possible to establish whether, among those who decide to continue, immigrants are more or less likely than natives to opt for additional vocational training or for a technical or even general school, therefore more research is needed on this point.[74]

---

[73] Additional models (not shown) indicate that immigrants encounter slightly higher risks of failure if they continue after the three years. However, this differential is not significant, most probably because of small sample sizes for immigrants.

[74] As shown by Barone (2011a), about only one student out of four who decided to continue opt for "regular" upper secondary school, in most cases he/she enrolls in a vocational school.

## 5.5 Conclusions

The goal of this chapter has been to assess whether youths with an immigrant background display comparable school participation patterns as natives in Italian upper secondary education. The above presented empirical results clearly point out that this is not the case: children of immigrants are markedly concentrated in vocational education and training—which substantially reduce their chances of continuing on to tertiary education—and also display higher dropout risks. Hence, this chapter clearly showed that the educational disadvantage of children of immigrants is not limited to cognitive skills and marks but, on the contrary, it also involves educational attainment, in both its horizontal and vertical dimension.

Considering the poor educational performances of immigrants' children in primary and lower secondary education, it is not surprising to observe that the immigrant-native gap propagates to the subsequent educational level, and thus to upper secondary education. However, some patterns seem to differ substantially compared with those established in the previous chapters. Whereas in primary and lower secondary education differences between native-born and foreign-born children of immigrants were rather weak, in upper secondary education immigrant generational status is found to be a very strong determinant of educational attainment. First-generation youths are by far the most severely disadvantaged group, both with regard to dropout risks and segregation into the vocational track, whereas they display the lowest general school enrollment rates. In turn, second-generation youths perform significantly better than their first-generation mates and are almost undistinguishable from natives. Although the available data did not allow to distinguish primary from secondary effects, we could tentatively say that what explains children of immigrants' generational progress in educational attainment is to be searched more among the so called secondary effects rather than the primary effects. Put differently, it seems that little learning achievement gains occur for children of immigrants across generations as compared with the great reduction of the gaps relative to natives in regard to important educational decisions, like school track choice. Of course, the availability of new data containing detailed information on both countries of origin and prior achievement would surely have helped to better disentangle this point.

Similar to the previous chapter, also highly differentiated generational and nationality patterns are found. The case of Eastern Asians (mainly Chinese and Indians) is perhaps the most interesting one. Contrary to a huge amount of international research, youths born in these countries display a sizeable gap in Italy, which persists even after taking into account the marked segregation into self-employment of the parents. This result is even more surprising when

considering the outstanding performance of these students in lower secondary education (chapter 4). However, this negative gap entirely disappears—becoming even positive (with Eastern Asians outperforming natives)—once we turn our attention to the second generation. This strong generational progress suggests that length of exposure to the host society is a key aspect for Eastern Asian descendants, who allegedly manage to overcome the high linguistic and cultural barriers encountered by first-generation immigrants.

First-generation Northern and Sub-Saharan Africans are also largely disadvantaged groups, but, in addition, they also experience limited generational progress, especially Northern Africans. This unsuccessful story has been repeatedly observed in other European context (Heath, et al. 2008, Levels and Dronkers 2008). Nonetheless, it is quite surprising—and worrying—to observe such a disadvantage for the second-generation descendants of one of the longest-established immigrant communities in Italy. Interestingly, once we control for social class, the gap of second-generation Northern Africans disappears—as also found in France by Brinbaum and Cebolla-Boado (2007) and in the Netherlands by Van De Werfhorst and Van Tubergen (2007)—whereas social class plays a much smaller role for the first generation, suggesting that the latter are encountering higher cultural barriers.

Also South-Eastern Europeans show limited progress across generations: gross differences between first- and second-generation youths are never significant. Again, the available data impede to disentangle the link between their prior academic performance and their educational attainment in upper secondary education. Nonetheless, the relatively scarce family socioeconomic resources seem to be the main driver of the lower school attainment of this national group.

A strong contribution of social class is found also for first-generation Latin Americans, and even more so for students from Western countries and former Soviet Union. These groups get close, but still do not reach the level of natives, although youths of Western and Eastern European ancestries—who show the highest attainment among first-generation immigrants—are undistinguishable from natives once social class is taken into account. Because of the already good outcomes of first-generation members, no substantial progress is detected when looking at the second generations.

Besides these generational and nationality patterns, the analysis confirmed that children of mixed-parentage are much more similar to natives than children with both foreign-born parents. Thus, this group performs well not only with regard to achievement but also with regard to attainment, suggesting that, on average, children of mixed parentage are fully comparable to natives and are strongly advantaged over children with two foreign-born parents.

By and large, our analyses point to the key role of social class and corroborate results from other European countries. Overall, social class accounts for half of the observed gap for the first generation, and its contribution climbs to seven-tenths for the second generation, reducing to insignificance their small disadvantage. Hence, there is no difference between natives and second-generation students who belong to the same class. Substantively, this means that the educational success of children of immigrants is crucially dependent not only on a process of acculturation, but also on the economic integration of their parents in the host society. However, these results concerning the second generation should be regarded as provisional. Because immigration is a relatively new phenomenon in Italy, the majority of the second generation is currently attending lower educational levels: second-generation students in Italian upper secondary schools are, to some extent, "pioneers", among which also children of returning migrants might represent a significant presence in southern regions (Azzolini and Barone 2012). Hence, it will be important to update these results in the coming years to assess whether these conclusions on the successful school integration of the second generation are confirmed.

Do these pronounced immigrant-native differences in educational participation affect learning achievements? The next chapter is aimed at answering this question by investigating differences in mathematical and reading literacy between natives and children of immigrants in the different tracks of upper secondary education.

## Appendix A5

*Table A5.1 The educational attainment of first-, second-generation, and mixed-parentage children as compared to natives before and after controlling for social class: logit parameters and standard errors (15-19-year-olds, Italy, Labor Force Survey 2005-2010, N = 51,598)*

| | Dropout | | | | Vocational | | | | Technical | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M1 | | M2 | | M1 | | M2 | | M1 | | M2 | |
| | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
| Natives (ref.) | | | | | | | | | | | | |
| First Generation | 1.76 | .08 | 1.02 | .08 | 1.42 | .07 | .75 | .07 | .74 | .07 | .29 | .07 |
| Second Generation | .42 | .16 | .06 | .16 | .46 | .12 | .14 | .12 | .26 | .11 | .05 | .12 |
| Mixed-Parentage | -.21 | .08 | -.21 | .08 | -.04 | .06 | -.05 | .06 | -.05 | .05 | -.06 | .05 |
| Salariat (ref.) | | | | | | | | | | | | |
| Intermediate employees | | | 1.06 | .08 | | | 1.09 | .05 | | | .8 | .04 |

| | Col 1 | Col 2 | Col 3 | Col 4 | Col 5 | Col 6 |
|---|---|---|---|---|---|---|
| Small employers and self-employed | | 1.86 .06 | | 1.56 .04 | | 1.09 .03 |
| Lower grade white collar workers | | 1.85 .08 | | 1.66 .06 | | 1.08 .05 |
| Lower technical and routine occupations | | 2.6 .06 | | 2.25 .04 | | 1.45 .03 |
| Unemployed | | 3.12 .09 | | 2.48 .08 | | 1.51 .08 |
| Inactive | | 2.57 .08 | | 2.07 .07 | | 1.35 .06 |
| | | | | | | |
| Male (ref.) | | | | | | |
| Female | -1.27 .17 | -1.45 .18 | -1.15 .15 | -1.31 .16 | -1.17 .12 | -1.29 .12 |
| | | | | | | |
| Piemonte and Valle d'Aosta (ref.) | | | | | | |
| Lombardia | .04 .1 | .14 .1 | .02 .08 | .11 .08 | .01 .07 | .08 .07 |
| Trentino Alto Adige | .34 .11 | .49 .12 | .38 .09 | .52 .1 | .14 .08 | .24 .09 |
| Veneto | .16 .12 | .26 .13 | .32 .1 | .41 .1 | .1 .09 | .16 .09 |
| Friuli Venezia Giulia | -.54 .21 | -.35 .22 | 0 .14 | .18 .15 | -.09 .13 | .04 .13 |
| Liguria | -.56 .19 | -.47 .2 | -.61 .15 | -.52 .15 | -.45 .12 | -.39 .13 |
| Emilia Romagna | -.03 .12 | .1 .13 | -.09 .1 | .04 .1 | .22 .09 | .31 .09 |
| Toscana | -.21 .13 | -.13 .14 | -.32 .11 | -.24 .11 | .11 .09 | .16 .09 |
| Umbria | -.57 .22 | -.57 .22 | -.2 .15 | -.2 .16 | -.07 .13 | -.08 .14 |
| Marche | -.38 .18 | -.33 .19 | -.06 .13 | -.01 .14 | .06 .12 | .1 .12 |
| Lazio | -.52 .13 | -.55 .13 | -.56 .1 | -.58 .1 | -.14 .08 | -.15 .08 |
| Abruzzo | -.42 .19 | -.56 .2 | -.34 .15 | -.48 .15 | .15 .12 | .06 .12 |
| Molise | -.21 .16 | -.33 .17 | -.64 .14 | -.72 .14 | .07 .1 | .02 .11 |
| Campania | .31 .1 | .01 .1 | -.2 .09 | -.43 .09 | 0 .07 | -.13 .08 |
| Puglia | .67 .1 | .37 .1 | -.1 .09 | -.34 .09 | .13 .08 | -.02 .08 |
| Basilicata | -.04 .14 | -.19 .14 | .06 .11 | -.06 .11 | .23 .09 | .16 .1 |
| Calabria | .14 .11 | -.14 .11 | .03 .09 | -.18 .09 | .15 .08 | .03 .08 |
| Sicilia | .59 .09 | .26 .1 | -.15 .08 | -.42 .09 | .15 .07 | -.02 .07 |
| Sardegna | .28 .13 | .06 .14 | -.21 .11 | -.38 .12 | .06 .1 | -.05 .1 |
| | | | | | | |
| Constant | .35 .19 | -.9 .2 | .87 .16 | -.15 .17 | 1.4 .13 | .8 .14 |

| | | | | |
|---|---|---|---|---|
| Log-Likelihood M1 | 62794.493 | | | |
| Log-Likelihood M2 | -59539.013 | LR test | 651.96*** | |

Note: All models include the interaction between region of residence and gender and wave dummy variables.

*Table A5.2 The educational attainment of first- and second-generation immigrants by country of origin relative to natives: logit parameters and standard errors (15-19-year-olds, Italy, Labor Force Survey 2005-2010)*

| | First Generation | | | Second Generation | | |
|---|---|---|---|---|---|---|
| | Dropout | Vocational | Technical | Dropout | Vocational | Technical |
| | Coef. Std. Err. | Coef. Std. Err. | Coef. Std. Err. | Coef. Std. Err. | Coef. Std. Err. | Coef. Std. Err. |
| | | | | | | |
| *Italy* (ref.) | | | | | | |
| South-Eastern Europe | 1.56 .11 | 1.23 .1 | .64 .1 | .86 .47 | .7 .37 | .22 .39 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East-Asia | 2.68 | .25 | 2.18 | .24 | 1.13 | .26 | -1.42 | 1.03 | .36 | .36 | .51 | .31 |
| Northern Africa and Middle East | 2.99 | .27 | 2.53 | .26 | 1.55 | .27 | .68 | .34 | .68 | .26 | .49 | .25 |
| Sub-Saharan Africa | 2.74 | .37 | 2.35 | .35 | 1.1 | .39 | .29 | .51 | .48 | .35 | .42 | .33 |
| Latin America | 1.29 | .24 | 1.22 | .19 | 1.06 | .19 | .27 | .51 | .66 | .34 | -.26 | .4 |
| Western Countries and Eastern European countries | .98 | .22 | .84 | .18 | .19 | .19 | .51 | .25 | .24 | .2 | .16 | .18 |
| Male (ref.) | | | | | | | | | | | | |
| Female | -1.32 | .17 | -1.14 | .15 | -1.19 | .12 | -1.3 | .17 | -1.14 | .15 | -1.18 | .12 |
| Piemonte and Valle d'Aosta (ref.) | | | | | | | | | | | | |
| Lombardia | .05 | .1 | .01 | .08 | .02 | .07 | .03 | .1 | -.01 | .08 | .03 | .07 |
| Trentino Alto Adige | .39 | .12 | .39 | .09 | .14 | .09 | .37 | .12 | .39 | .1 | .17 | .09 |
| Veneto | .16 | .13 | .35 | .1 | .14 | .09 | .11 | .14 | .37 | .1 | .15 | .1 |
| Friuli Venezia Giulia | -.57 | .23 | -.11 | .16 | -.17 | .14 | -.64 | .25 | -.05 | .16 | -.14 | .14 |
| Liguria | -.6 | .2 | -.55 | .15 | -.47 | .13 | -.57 | .2 | -.58 | .16 | -.46 | .13 |
| Emilia Romagna | -.04 | .13 | -.17 | .1 | .19 | .09 | -.01 | .13 | -.23 | .11 | .26 | .09 |
| Toscana | -.15 | .14 | -.29 | .11 | .13 | .09 | -.22 | .14 | -.36 | .11 | .11 | .09 |
| Umbria | -.52 | .23 | -.13 | .16 | -.02 | .14 | -.42 | .24 | -.11 | .17 | .05 | .14 |
| Marche | -.39 | .19 | -.05 | .14 | .12 | .12 | -.4 | .2 | .01 | .14 | .17 | .12 |
| Lazio | -.46 | .13 | -.51 | .1 | -.12 | .08 | -.47 | .13 | -.54 | .1 | -.12 | .08 |
| Abruzzo | -.5 | .21 | -.4 | .16 | .15 | .12 | -.45 | .21 | -.4 | .16 | .14 | .12 |
| Molise | -.16 | .17 | -.57 | .14 | .12 | .11 | -.21 | .17 | -.58 | .15 | .15 | .11 |
| Campania | .33 | .1 | -.2 | .09 | .01 | .08 | .33 | .1 | -.2 | .09 | .02 | .08 |
| Puglia | .74 | .1 | -.07 | .09 | .16 | .08 | .71 | .1 | -.08 | .09 | .16 | .08 |
| Basilicata | -.01 | .14 | .07 | .11 | .21 | .1 | -.03 | .14 | .05 | .11 | .22 | .1 |
| Calabria | .17 | .11 | 0 | .09 | .15 | .08 | .15 | .11 | .01 | .09 | .17 | .08 |
| Sicilia | .6 | .1 | -.17 | .08 | .16 | .07 | .6 | .1 | -.15 | .08 | .18 | .07 |
| Sardegna | .31 | .13 | -.21 | .12 | .06 | .1 | .31 | .13 | -.21 | .12 | .07 | .1 |
| Constant | .39 | .19 | .86 | .17 | 1.41 | .13 | .38 | .19 | .85 | .17 | 1.4 | .14 |
| Log-Likelihood | -59266.692 | | | | | | -57448.338 | | | | | |

Note: All models include the interaction between region of residence and gender and wave dummy variables.

*Table A5.3 Probability of continuing education after obtaining a 3-years vocational certificate: average marginal effects for foreign-born youths: logit parameters and standard errors (Italy, ISFOL 2010) (N= 3,608)*

| | M1 | | M2 | | M3 | | M4 | |
|---|---|---|---|---|---|---|---|---|
| | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
| Native-born (ref.) | | | | | | | | |
| Foreign-born | -.28 | .16 | -.23 | .16 | -.25 | .17 | -.26 | .17 |
| Unskilled workers (ref.) | | | | | | | | |
| Skilled workers | | | .1 | .1 | .11 | .11 | .12 | .11 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lower grade white collars | | | .47 | .13 | .47 | .13 | .47 | .13 |
| Small employers, self-employed | | | .05 | .14 | .05 | .14 | .03 | .14 |
| Intermediate employees | | | .66 | .12 | .62 | .13 | .62 | .13 |
| Salariat | | | -.03 | .12 | -.05 | .12 | -.06 | .13 |
| Missing | | | .27 | .14 | .33 | .14 | .36 | .14 |
| | | | | | | | | |
| Electrotechnics (ref.) | | | | | | | | |
| Industry | | | | | -.07 | .13 | -.06 | .13 |
| Business services | | | | | .45 | .13 | .44 | .13 |
| Social care services | | | | | -.14 | .15 | -.14 | .15 |
| Tourism | | | | | .28 | .13 | .28 | .13 |
| | | | | | | | | |
| Vocational training (ref.) | | | | | | | | |
| Vocational school | | | | | 1.23 | .08 | 1.21 | .08 |
| | | | | | | | | |
| Sufficient (ref.) | | | | | | | | |
| Good | | | | | | | -.01 | .08 |
| Very good | | | | | | | .12 | .13 |
| Excellent | | | | | | | -.46 | .27 |
| | | | | | | | | |
| 0 years repeated in lower sec. (ref.) | | | | | | | | |
| 1 year | | | | | | | -.44 | .14 |
| > 1 year | | | | | | | -.95 | .46 |
| | | | | | | | | |
| 0 years repeated in upper sec. (ref.) | | | | | | | | |
| 1 year | | | | | | | .02 | .12 |
| > 1 year | | | | | | | -.22 | .24 |
| | | | | | | | | |
| Male (ref.) | | | | | | | | |
| Female | .14 | .07 | .14 | .07 | .19 | .09 | .16 | .09 |
| | | | | | | | | |
| North-West (ref.) | | | | | | | | |
| North-East | .09 | .08 | .11 | .08 | .39 | .09 | .4 | .09 |
| Center | .42 | .14 | .4 | .14 | .34 | .15 | .32 | .15 |
| South | .41 | .1 | .41 | .1 | 0 | .11 | 0 | .11 |
| | | | | | | | | |
| Constant | -.93 | .12 | -1.1 | .13 | -3.08 | .2 | -2.97 | .2 |
| Log-Likelihood | -2334 | | -2312.5 | | -2171.7 | | -2161.7 | |
| LR test | | | 43.0*** | | 281.7*** | | 19.82** | |

# 6 (Compulsory) school is over. What competencies do children of immigrants take home?

## 6.1 Introduction

In the previous chapters it has been shown that immigrant background affects students' upper secondary school participation in several ways. Youths with an immigrant background exhibit higher propensity to enroll in vocational schools over general and academic oriented ones. Moreover, they have higher risks of dropping out of school before obtaining any qualification. I have also documented that generational status and ethnicity significantly shape youths' school participation and that their contribution adds to the effects of social class, which on average accounts for 50 and 70 percent of the observed gaps for the first and second generation, respectively.

In this chapter, I ask whether the highly differentiated patterns of school participation just mentioned are reflected in comparable variations in mathematics and reading competencies, as assessed by standardized tests administered to a nationally representative sample of 15-year-old students. Examining students' competencies at this specific age is of particular interest because these children are in their last year of compulsory education and, for many, this is their final year of any schooling before entering the labor market. Coherently with the previous chapters, I document variations by immigrant generational status before and after accounting for family background, thus comparing gross and net immigrant disadvantages (Heath and Cheung 2007). In addition, I also explore the contribution of language proficiency to the achievement gaps.

Second, I investigate whether immigrant-native achievement differences are explained by the different distribution of immigrants and natives across school tracks and also whether the magnitude of the gap is stable across types of schools. Finally, I attempt to establish, as also done in chapter 3, whether there exists any association between immigrants' concentration in school and students' achievement.

In order to answer these questions, I analyze mathematics and reading standardized test scores derived from the 2009 Programme for International Student Assessment (PISA). The chapter follows a similar structure as the previous ones. After this short introductory section, in section 6.2 research questions and hypotheses are presented. Section 6.3 describes data and

methods employed in the empirical analysis. Section 6.4 presents the main findings and section 6.5 concludes by summarizing and discussing results.

## 6.2 Research questions and hypotheses

The general aim of this chapter is to shed light on the achievement gaps between native and immigrant 15-year-old students in Italian upper secondary education. After having examined variations in school choice and dropout risk (see chapter 5), it is important to explore the extent to which immigrant students differ from their native classmates with regard to the development of cognitive skills—which are assumed to be important in the labor market, even more so if we consider that PISA assesses real life competences and not curricular ones.

In the first place, I examine variations in mathematical and reading literacy by students' immigrant generational status. Drawing on the theoretical and empirical literature described in chapter 1 as well as on the empirical evidence collected in the previous chapters—which provided mixed evidence on generational patterns of educational achievement and attainment—I investigate whether second-generation students significantly outperform first-generation ones. Also, I consider mixed-parentage children separately from children with both foreign-born parents, because I expect the former to achieve higher test results than first and second generations. As in the previous chapters, I predict that households with at least one native-born parent are in an advantaged position in terms of country specific human and social capital employable for supporting children's educational development. I also argue that distinguishing this group of students from those with both foreign-born parents is even more important in upper secondary education than in lower educational levels, because at this level the incidence rate of second-generation youths is even lower compared with mixed-parentage children (as we have seen in chapter 2) and considering them together with mixed-parentage children would potentially muddle the estimates of the competences of the second generation.

Second, I investigate how much of these variations are accounted for by family background. In many other European immigration countries, educational achievement differences between natives and children of immigrants can be largely explained by different distributions of economic resources between native and immigrant households. Given the poor labor market attainment of adult immigrants in Italy, I hypothesize that a substantial reduction in achievement gaps occurs once family socioeconomic background is held constant. At the same time, I surmise that the contribution of family background might not be equally strong in Italy as it has been in traditional receiving countries because of the well-known devaluation of foreign titles in the Italian labor market (Reyneri 2004a, Fullin and Reyneri 2011). Such interaction

effects between immigrant and social background have found to be negligible in the previous chapters. In this chapter, I am going to test whether they are any stronger with regard to achievement in upper secondary education.

When turning to language proficiency, I expect that ability in the host country language reduces the educational achievement gaps for children of immigrants and that the effect is stronger on reading competences than on mathematical ones. Moreover, building on findings presented in chapters 3 and 4, I predict that the contribution of language is more pronounced for first-generation students because they learn Italian as their second language compared with second-generation youths who grew up in Italy and also with mixed-parentage children who benefit from having one native-speaking parent.

Next, I investigate how one of the main factors of differentiation within the Italian educational system (i.e., tracking) mediates the association between migration background and performances. As extensively documented in chapter 5, children of immigrants exhibit higher probability than natives of being enrolled in vocational schools, and such differential choice persits even net of previous achievement (Barban and White 2011). On average, at least half of this higher risk is explained by their relatively poorer socioeconomic conditions. Because of endogeneity of school choice and skills, it is difficult to disentangle the causal effects of school type on achievement. Such a question remains beyond the aims of this chapter. Nonetheless, I maintain that documenting how children of immigrants perform within the different segments of the educational system is of great importance for it sheds light on the heterogeneity of competences that students will bring into their lives after school.

Finally, I also investigate the existence of a significant association between immigrant concentration at school and students' achievement and whether this association varies according to immigrant generational status and across school tracks. In chapter 3, I have demonstrated that the association between percentage of immigrants and achievement is weak and inconsistent, if family characteristics are controlled for. Replicating this analysis in upper secondary education allows me to increase the understanding of the phenomenon and to provide some policy relevant information—especially considering the recently introduced 30 percent policy, already described in chapters 2 and 3. Finally, it seems particularly important to examine this phenomenon in vocational schools, because these are schools with the highest incidence rates of students with immigrant origins.

## 6.3 Data and empirical strategy

*6.3.1 PISA data*

I use data from the Programme for International Student Assessment (PISA) collected in 2009. PISA assesses 15-year-old students' competences in three domains: reading, mathematics, and science, and it collects individual, family, and school background information through questionnaires administered to students and school officials. PISA samples are derived from a complex, two-stage stratified sampling procedure with schools containing 15-year-old students selected in the first stage and individual students selected in the second. The sample used in this chapter contains some missing values in the independent variables of interest and I dealt with this through listwise deletion, removing all cases with any missing values on the variables used.[75] The only exception was language spoken at home, for which I kept the missing values as a separate category, as also described below.

*6.3.2 Variables*

*Mathematics and reading competencies* As dependent variables I use students' scores in mathematics and reading tests. Reading literacy is defined as an individual's capacity to understand, use and engage with written texts. Mathematical literacy is concerned with the ability of students to analyse, reason and communicate ideas effectively and to pose and interpret solutions to mathematical problems in a variety of situations. The tests are aimed at measuring students' capabilities in different "real-life" situations. Both test scores are standardized on a common scale (the mean score for all OECD countries is 500, with a standard deviation of 100) allowing cross-country comparisons. In 2009 the mean reading score in Italy was 486 with standard deviation of 96. For math, the mean was 483, with standard deviation of 93.

*Immigrant Generational Status.* The sampled students have been classified by immigrant generational status. Information on students' place of birth (abroad vs. host country) has been combined with that of their parents. In line with previous chapters, I use a "strict" definition of immigrant generational status by identifying first-and second-generation immigrants as individuals with both parents born abroad. More precisely, the sample has been broken down into the following categories: natives (defined as native-born children with both parents native-

---

[75] To partially check for biases due to missing values on some of the independent variables used in the analyses, I replicated the models with both a stepwise deletion method and by imputing missing values and also including them as their own "missing" category for which we obtained estimates. These additional analyses did not yield substantially different results from those presented in this chapter.

born); first generation (foreign-born children with both parents born abroad), second generation (native-born children whose parents are both foreign-born). Consistently with previous chapters, children of mixed-parentage are considered as a distinct category not only because of the already mentioned specificity of this group, but also because of their quantitative relevance.[76]

*Family Socioeconomic Background.* I measure family socioeconomic status and the availability of educationally relevant resources at home through four variables. First, I use parental education to capture the human capital possessed within the family. This variable has been coded in a categorical way following the ISCED classification, ranging from ISCED 1 to ISCED 5a/6. Second, I use the highest occupational status of parents by including the international socioeconomic index of occupational status (ISEI). Third, to further capture the availability of cognitively stimulating resources at home I include a PISA-constructed index of educationally relevant resources available at home (e.g., a place to study, a personal computer, books). Finally, I add a binary variable which allows to adjust for variations in the family structure. The variable takes the value one for nuclear families and zero for non-nuclear family types.

*Language Spoken At Home.* As a proxy for Italian language proficiency, I include language spoken at home as a dummy variable, which takes the value zero if the student declares he usually speaks the host-country language (or a national dialect) and the value one otherwise.[77]

*School factors* Considering the existence of an important factor of horizontal differentiation, which might shape inequality of educational opportunity, I include a categorical variable indicating the specific track in which the student is enrolled. This variable is coded as following: Academic schools, Technical schools, Vocational schools.[78] Also, I additionally adjust the estimates for school socioeconomic and immigrant composition by taking the weighted average of the highest parental occupational status as well as the proportion of first-generation immigrants enrolled in each school.

*Additional Control Variables.* Finally, I further control for gender, age, region and the size of area of residence (from rural areas up to large cities).

Table 6.1 presents variable descriptions and coding for measures used in the analysis, along with the descriptive outcomes for each group in percentages or means.

---

[76] The vast majority of mixed-parentage children is native-born. These children are considered together with the small fraction of those who were born abroad since they do not differ significantly.

[77] Models were also run distinguishing students who speak a dialect at home from those who speak Italian, with the former performing closer to those who speak Italian rather than to those who speak a foreign language, especially in the math test. The estimated immigrant-native gaps did not change significantly between the two specifications.

[78] I consider vocational schools and vocational training courses together as in chapter 5, because of the small numeric relevance of the latter and because of the increasing integration of the two branches, which is also reflected in very similar parameters (as estimated in additional models, not shown here).

Table 6.1 Weighted descriptive statistics by immigrant generational status (Italy, PISA 2009)

| Variable | Metric | Natives | First generation | Second Generation | Mixed parentage |
|---|---|---|---|---|---|
| *Family background* | | | | | |
| Parental educational level (%) | ISCED 1 | 1.32 | 6.35 | 6.36 | 0.55 |
| | ISCED 2 | 23.16 | 15.34 | 22.52 | 16.94 |
| | ISCED 3b/c | 6.22 | 7.20 | 3.78 | 5.86 |
| | ISCED 3a/4a | 36.99 | 37.78 | 29.13 | 38.86 |
| | ISCED 5b | 5.75 | 8.51 | 7.50 | 8.89 |
| | ISCED 5a/6 | 26.56 | 24.82 | 30.71 | 28.89 |
| Home possessions | -6.9=Min | 0.1 | -0.8 | -0.6 | 0.0 |
| | 3.7=Max | (0.82) | (0.83) | (0.92) | (0.80) |
| Parental occupational status | 16=Min | 47.6 | 35.3 | 40.8 | 47.6 |
| | 90=Max | (16.34) | (12.58) | (17.83) | (15.92) |
| Family Structure (%) | Nuclear | 88.84 | 79.01 | 85.60 | 84.82 |
| | Single parent | 11.16 | 20.99 | 14.40 | 15.18 |
| *Language (%)* | Italian | 88.67 | 22.30 | 54.92 | 87.42 |
| | Other | 0.16 | 63.46 | 27.54 | 3.34 |
| | Missing | 11.17 | 14.24 | 17.54 | 9.24 |
| *School characteristics* | | | | | |
| Track | General | 46.20 | 16.30 | 32.96 | 43.88 |
| | Technical | 29.73 | 26.52 | 26.47 | 31.82 |
| | Vocational | 23.44 | 41.73 | 35.46 | 23.03 |
| | Lower Sec | 0.62 | 15.45 | 5.12 | 1.26 |
| Proportion immigrants per class | None | 0.03 | 0.24 | 0.08 | 0.04 |
| | All | (0.05) | (0.29) | (0.10) | (0.07) |
| Socioeconomic school composition | 22.5=Min | 47.2 | 41.9 | 46.2 | 47.2 |
| | 71.6=Max | (8.40) | (7.58) | (9.23) | (8.62) |
| *Controls* | | | | | |
| Gender (%) | Male | 50.73 | 51.54 | 56.13 | 50.92 |
| | Female | 49.27 | 48.46 | 43.87 | 49.08 |
| Age | 15.3=Min | 15.7 | 15.7 | 15.7 | 15.7 |
| | 16.3=Max | (0.29) | (0.29) | (0.28) | (0.28) |
| School community | Village | 1.22 | 2.79 | 3.49 | 1.22 |
| | Small town | 15.42 | 21.31 | 15.78 | 18.14 |
| | Town | 52.01 | 44.18 | 35.50 | 51.69 |
| | City | 23.11 | 23.22 | 27.03 | 19.55 |

| | | | | |
|---|---|---|---|---|
| Large City | 8.25 | 8.50 | 18.20 | 9.39 |
| % | 88.5 | 4.0 | 1.3 | 6.3 |
| N | 25,989 | 1130 | 340 | 2114 |

*Note*: All estimates based on final sampling weights. Standard errors are in parentheses and are based on replicate sampling weights.

Figures in Table 6.1 indicate that children of immigrants are composed, mostly of first-generation and mixed-parentage children. The first generation accounts for 4 percent of the PISA sample. Similarly, mixed-parentage children account for more than 6 percent. In contrast, the second generation represents only about 1 percent. The distribution of the different groups reveals a common trait of new immigration countries and reflects the recency of immigration, with most children of immigrants born in Italy still too young to be included in the PISA data.

What background characteristics do immigrant students of different generations bring into Italian school? As seen in table 6.1, on average, children of mixed couples originate from similar social backgrounds as natives, possessing almost identical educational resources at home. The picture changes once first- and second-generation students are considered. Parents of first-generation students hold less prestigious jobs as compared to native parents, and this translates into fewer resources (evident in the index of home possessions) relevant for children's educational chances. Families of second-generation students posses higher amounts of relevant resources but still lag behind parents of the majority school population At the same time, the average educational attainment of the parental immigrant generation does not differ much from that of Italians. The percentages of highly educated parents (ISCED 5 or more) are almost identical to those of the native population, confirming reports of the devaluation of foreign academic titles in the Italian labor market (Fullin and Reyneri 2011).

Roughly two-thirds of first-generation students report that they do not speak Italian. Among second-generation students, more than 55 percent report speaking the national language. Mixed-parentage children remain almost identical to natives. The analysis of speaking the national language at home does not come without methodological caveats. This information is missing for approximately 10 percent of the sample. Robustness checks carried out with probit regression models (where the probability of being missing on this variable was used as dependent variable) revealed that the potential bias is small because missing cases are distributed roughly equally across groups once family background is controlled for. However, given that the sample of children of immigrants is already relatively small, I decided to keep the missing cases as a separate category in the analysis.

Table 6.1 also shows the distributions of students in different tracks in upper secondary education. In line with chapter 5, first-generation students are clearly overrepresented in

vocational and underrepresented in the general tracks while the second generation displays a smaller distance from natives and mixed-parentage children exhibit very similar school choices as natives.

*6.3.3 Analytical strategy*

In what follows, I first analyze the average reading and mathematics skills of natives and children of immigrants. I estimate mean student achievement following the approach recommended by PISA, using the five plausible values, final sampling weights, and 80 replicate sampling weights provided with the data. The use of plausible values is aimed at capturing an unbiased and continuous measure of student proficiency from discrete exam scores, while the weights account for the sampling structure of the survey and provide design-based measures of uncertainty (OECD 2009).

As a second step, I regress reading and mathematics scores on immigrant generational status. I fit a series of model specifications, progressively adding covariates to assess how variations in family socioeconomic background, language spoken at home and school characteristics account for immigrant-native achievement gaps. I use both linear regressions and multilevel linear models with levels for individual students and their schools. [79] All linear regression models incorporate student weights provided by PISA and standard errors are adjusted to allow for clustering of students into schools. To further investigate the consistency of the gap along the distributions of test scores, I also run quantile regressions as robustness checks. All models are fitted using each of the five plausible values as the dependent variable and then averaged the resulting parameter estimates.[80]

## 6.4 Results

---

[79] The multilevel models are fitted using the student and school level probability weights adjusted according to the approach suggested in (Pfeffermann, et al. 1998). I calculated the adjusted weights using the software described in (Chantala, et al. 2006). I did not use replicate weights given the computational intensity of the multilevel model estimation. All of the multilevel estimates presented in this chapter are produced using the *gllamm* package for Stata. This allowed to incorporate probability weights at each level. I fit the models using adaptive quadrature approach combined with maximum likelihood estimation. As a robustness check I also replicated all analyses without probability weights using maximum likelihood estimation and restricted maximum likelihood estimation implemented by Stata's *xtmixed* function.

[80] Because each student in PISA is tested on a randomly drawn subset of the total set of questions, results are not presented as point estimates. Rather, for each student a probability distribution of test scores is estimated and then five random draws are taken and reported in the dataset. These five draws are the five "plausible values" that shall always be used when analyzing PISA dat. See OECD(2009) for details.

Figure 6.1 displays average scores in mathematics and reading of each immigrant generational status category.
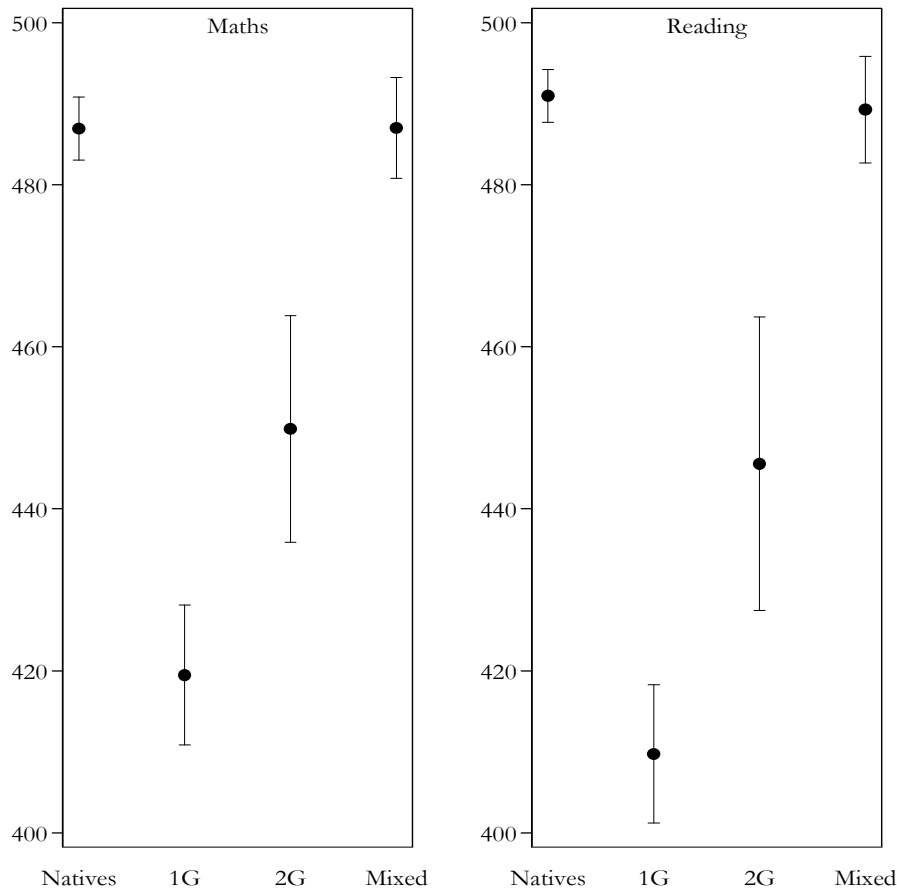


Figure 6.1 Average mathematical and reading literacy of natives and children of immigrants (Italy, PISA 2009). Mean scores of native, first generation (1G), second generation (2G), and mixed-parent students. Circles show point estimates calculated using final sampling weights and all five plausible values; lines show 95% confidence intervals calculated using all 80 replicate sampling weights and all five plausible values.

In particular, Figure 6.1 shows the existence of clear generational patterns. Natives tend to perform better than both the first and the second generation, while they are not distinguishable from children of mixed-parentage. More precisely, first-generation students systematically underperform all other groups in both mathematics and reading. The differences compared to natives are impressively large (between 0.70 and 0.85 of a standard deviation) and are particularly pronounced with regard to reading competences.

Second-generation students' estimated means have higher uncertainty due to smaller sample size. Nonetheless, their disadvantage compared to natives is once again evident, as is their advantage relative to first generations.

Finally, mixed-parentage students largely outperform both first and second generations, suggesting that having at least one native-born parent serves as a buffer against low educational performance.

*6.4.2 The contribution of individual and school-level factors*

After showing how average skills vary across groups, I now test to what extent existing explanatory hypotheses at the individual and family level account for the observed differences. In Figure 6.2 I present the parameter estimates from a sequence of five linear regression models with clustered standard errors estimated separately for each subject. The symbols in Figure 6.2 show the point estimates from each model of the coefficients for each immigrant generation group, with native students used as the reference category. Lines show the 95 percent confidence intervals around each estimate.[81]

The first model incorporates immigrant generational status, age, sex, region and area of residence. First-generation students perform systematically worse than natives while second-generation students display a smaller gap. The size of the gap for the first generation ranges between 77 points in mathematics and 88 points in reading.[82] As far as second-generation students are concerned, Figure 6.2 confirms their relatively better outcomes compared to the first generation as well as their disadvantage compared to natives. Confirming my expectations, children of mixed parents systematically outperform children with both foreign-born parents and perform essentially as well as natives. Finally, as reported in Appendix A6 (see Tables A6.1 and A6.2), the parameters of the other covariates present expected signs: males outperform females in mathematics, while the opposite occurs in reading; there are strong differences between regions, especially between northern and southern regions, age is strongly and positively associated with test results, while living in areas with fewer than 3,000 people results in lower achievement levels.

---

[81] Tables with all estimates from these models are reported in Appendix A6.
[82] The magnitude of the estimated gap is slightly larger in the model compared to the averages presented above, because now the models include region as fixed effects. Because immigrants are concentrated in the regions with the highest achievement levels (the northern regions), the gap increases when this control is included.

Do these patterns change after modeling other predictors at the family level? Model 2 adds parental education and occupation, home possessions, and family structure to the analysis. As hypothesized, these measures of family background substantially contribute to the reduction of the performance gap between natives and children of immigrants. The gap for both first- and second-generation students drops by roughly 40 percent. This reduction is highly significant for first-generation students, while it is not significant for the second generation, essentially because of the high standard errors due to small sample size.

The associations between the specific variables used to capture family background and achievement are, in line with our expectations, all positive and strongly significant: higher parental education, higher ISEI scores, higher home possessions, and nuclear families versus non-nuclear families lead to higher achievement levels (see models in Appendix A6). Drawing on previous research on Italy which points out lower returns to education for adult immigrants in the labor market (Fullin and Reyneri 2011), in additional models (not shown) I allowed for interactions between immigrant generational status and parental occupation and education to test whether such lower returns are transferred to their children as well. I did not find evidence supporting the existence of such a transfer, suggesting that children of immigrants have comparable returns to their parents' socioeconomic backgrounds as natives. Of course this is an average result: it would be interesting to test whether such a pattern vary across national-origin groups, but this information was not available in the data.
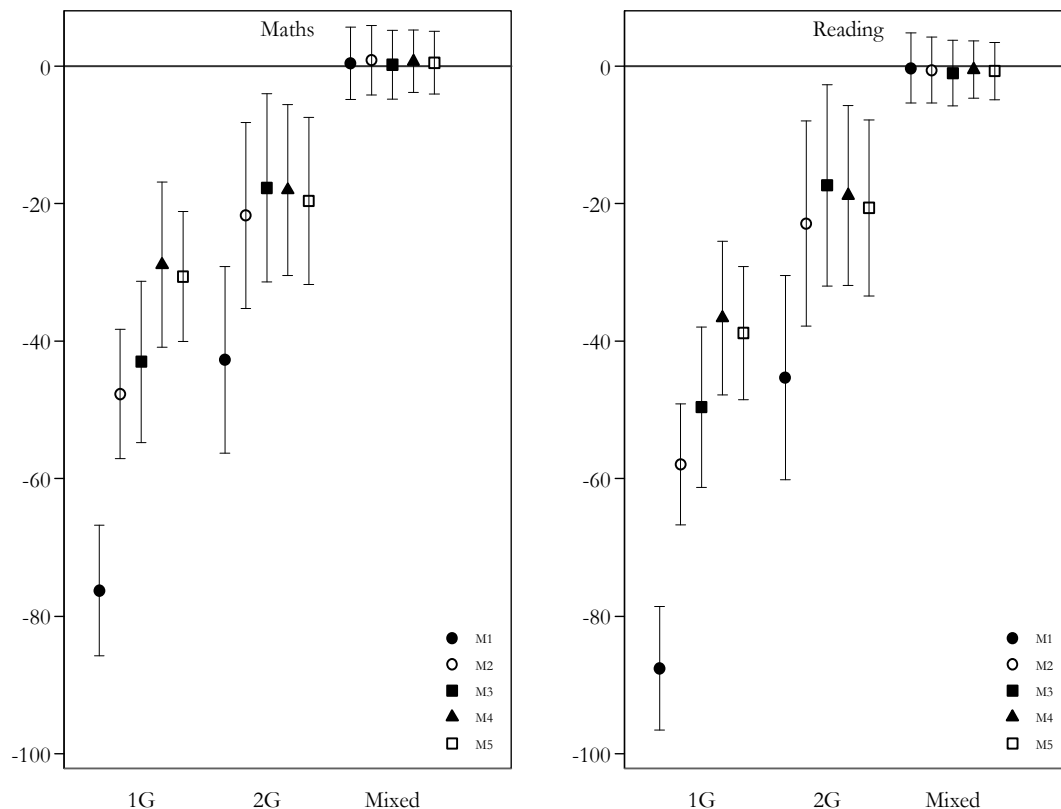
Figure 6.2 Linear regression estimates of the achievement gaps between natives and children of immigrants in mathematics and reading competences with standard errors clustered at the school level (Italy, PISA 2009). Estimated difference in scores for first generation (1G), second generation (2G), and mixed-parentage students as compared to natives in models 1 (closed circles), 2 (open circles), 3 (closed squares), 4 (closed triangles) and 5 (open squares) with 95% confidence intervals (lines). Model 1 includes immigrant generational status, age, sex, region and area of residence as covariates. Model 2 incorporates the highest parental occupation and education, home possessions, and family structure. Model 3 adds language spoken at home. Model 4 includes tracking. Model 5 adds school percentage of first-generation students and school average socioeconomic background. All models use all five plausible values and include student and school weights.

Next, Model 3 incorporates language spoken at home. Although the effect of language on reading literacy is significant, the differences between the Model 2 and Model 3 gap estimates are neither in the case of reading nor in mathematics significantly different from zero. However, if we look just at the point estimates, the inclusion of the language variable improves the estimated performance of immigrant students relative to natives. This contribution is more pronounced for first-generation students in reading competences (their disadvantage drops by 8 points, roughly 15 percent), whereas for the second generation and especially for mixed-parentage children language spoken at home plays a smaller role.

148

After documenting variations in student performance by immigrant generational status and exploring the contribution of family factors, I investigated the contribution of tracking (Model 4). Results of these additional models indicate that these school endogenous factors do not significantly affect the gap estimates—albeit slightly narrowing them. More precisely, model 4 indicates that the introduction of tracking slightly and non-significantly reduces the gap for first-generation students. These results are robust even after controlling for a long list of additional school-level variable like school ownership (public vs. private schools), streaming between classes, schools' autonomy in resources and assessment allocation, and student-teacher ratio (additional analysis not shown). Moreover, this result is in line with previous studies which indicate that tracking does not significantly reduce the gaps (Mantovani 2008a, Dustmann, et al. 2011). Further analyses on the role played by school tracking are in the next section.

Finally, the average socioeconomic composition of the school is positively associated with achievement, but the same does not apply to percentage of immigrants, whose parameter is never significant once all other characteristics are included in the models (Model 5). If all other variables are excluded, then this parameter is negative and significant, suggesting that the individual and school-level factors fully explain the negative gross association between percentage of immigrants in the school and average school achievement. To further investigate this aspect, I include two cross-level interactions: between percentage of immigrants and immigrant background—to assess whether the percentage of immigrants differently affects students depending on their immigrant background—and between percentage of immigrants and school track—to establish whether the percentage of first generation students in school exerts differentiated effects across school types. These additional models rejected the existence of heterogeneous effects of immigrants' school concentration. First, natives and immigrants are both unaffected by high percentages of immigrants at school, net of individual characteristics and school average socioeconomic background. This result is substantially in line with findings from primary education, where I found very weak associations (chapter 3). Second, this result is consistent across the different tracks of upper secondary education. Hence, the percentage of immigrants does not affect students' achievement over and above individual characteristics, not even in vocational schools, where one could have expected to find a negative association, given the high concentration of immigrants.[83]

---

[83] All these models were replicated using multilevel models (see Appendix A6). I decided to present the linear regression estimates instead of multilevel estimates because the latter produce an underestimation of the contribution of family background as a consequence of the fact that schools in Italy are strongly segregated by socioeconomic status as also demonstrated in chapter 5 and shown in Azzolini and colleagues (2012).

*6.4.3 Educational achievement variations by school track*

After showing that tracking does not significantly affect the gap once individual characteristics are controlled for, in this section I further explore the role played by such factor of school-type differentiation. I first investigate the contribution of tracking to test score variance, and, second, I assess the existence of interactions between tracking and immigrant background. In both cases, I employ multilevel models, as described in section 6.3, in order to get correct estimates of between-school variance.

First, I decompose the total variance in test scores in between- and within-school variance. This analysis is presented in Table 6.2, which clearly shows that between-school variance is very large in the empty model (M1) and it is dramatically reduced in the model where tracking is modeled. Intra-class correlation (the portion of variance which is explained at the school level) is very high (about 50 percent in the empty model) and it is reduced by about two-thirds in the model with tracking).

Table 6.2 Individual and school-level variances in mathematics test scores and intra-class correlation, before and after adjusting for tracking (Italy, PISA 2009)

|  | Empty model | Model with tracking |
|---|---|---|
| Within-School variance | 4199.5 | 4188.9 |
|  | (45.4) | (65.8) |
| Between-School variance | 3987.2 | 2270.8 |
|  | (261.0) | (125.8) |
| Intra-Class Correlation | 49% | 35% |

*Note*: Mathematical literacy parameters obtained with the *gllamm* package for Stata. All models use all five plausible values and include student and school weights.

Second, to further investigate how school-type differentiation affects immigrants' children outcomes, I fit an additional multilevel model which has the same variables included in Model 5 (see the previous section) but also allows for cross-level interaction between tracking and immigrant generational status. Given the different patterns of school participation of immigrants' children and natives, I would expect the gap to be smaller in these schools than in general ones. The interaction parameters go indeed in this direction, but they are very small and insignificant. This is partly explained by the fact that models control for socioeconomic background, which is the main explanatory factor of the differentiated school choices of natives and children of immigrants. To partially prove this, I investigated immigrants' and natives' probabilities to enrol in the different tracks and school types by the means of multinomial probit models. Confirming results presented in chapter 5, I found that the former have higher risk of enrolling in vocational

schools, and that, once controlled for family background and language, these gaps hugely decrease and almost disappear. These additional analyses are available upon request. As regards the direct parameters of each school track, these are ample and strongly significant in both linear regressions and multilevel models. For example, in the linear regression models students attending a general school outperform students attending a technical one by about 40 points, those attending a vocational schools by nearly 100 points, and those still enrolled in lower secondary schools by over 140 points in mathematics, whereas in reading differences are even larger (see Appendix A6).

This high heterogeneity is clearly shown in Figure 6.3, which presents the results of a simulation where I set all individual characteristics at fixed values (the values of natives) and let immigrant generational status and type of school vary.

Figure 6.3 shows that school type differentiates natives and children of immigrants in much the same way. More precisely, tracking plays an important role in shaping students' achievement—with general school students performing at the top and vocational schools at the bottom. But these between-school differences are roughly the same for natives as for immigrants' children. This implies that, for instance, first-generation students attending general schools are much more similar to their native Italian classmates than students attending vocational schools, regardless of their immigrant background. Without attaching any causal interpretation to these between-school differences, figure 6.3 seems to suggest that the school track attended might have similar consequences on the cognitive development of natives and children of immigrants.
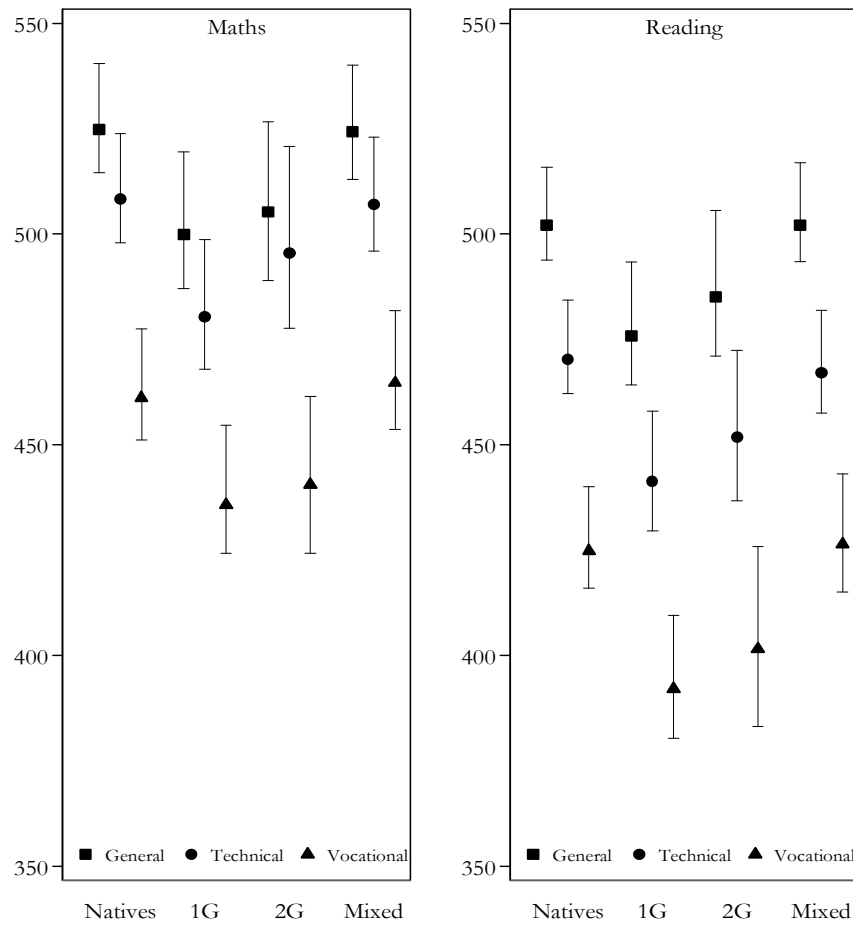
Figure 6.3 Predicted scores in mathematics and reading competences by immigrant generational status and school type (Italy, PISA 2009). Predicted scores, by generational status and school type, of hypothetical male student who is 15.7 years old, speaks Italian at home, has at least one parent with a secondary education (but no parents with higher education), has a parental occupation status index of 47, has a home possession index of 0, lives in a nuclear family, and attends a town-based school in which 4% of students are first generation immigrants and the mean socio-economic index of students is 47. Symbols are predicted scores with 95% confidence intervals (lines). Models included school factors and interactions between tracking and school type and immigrant generational status. All models allow for school random intercepts, use all five plausible values and include student and school weights. Lower secondary schools are not shown. Models are in Appendix A6.

*6.4.4 Beyond averages: a quantile regression analysis of the gaps*

In the previous sections two interesting results have been established. First, on average, differences between the first and the second generation disappear when family and school-level

factors are modeled. Second, on average, the gap between natives and immigrants' children is the same across the different school types. Both findings are based on average comparisons. However, as suggested by Schenpf (2008), focusing on averages might disguise the high heterogeneity of educational achievements among immigrants' children, who tend to display a much higher educational dispersion compared to natives. As a consequence of the possible different distribution of test scores between natives and children of immigrants, the magnitude of the immigrant-native gaps could vary at different achievement percentiles. For example, it could be larger at the lowest percentiles because of the existence of considerable groups of "worst" achieving immigrants who fall considerably behind "worst" achieving native students (Schnepf 2008, p. 26). Of course, such variations could be partly explained by ethnic variation in learning achievement. Unfortunately, information on country of origin is not available in the Italian PISA data and therefore this hypothesis cannot be empirically tested.[84]

Also, one could surmise that test score distributions of natives and immigrants' children vary across tracks, because previous research has demonstrated that children of immigrants enroll in general schools only if they have achieved excellent marks in lower secondary education whereas a much looser link between prior ability and general school enrollment exists for natives (Barban and White 2011). Considering these different selection mechanisms for immigrants and natives into the different school types, it could be expected that in general schools immigrant-native differences are smaller—and possibly even positive (with the children of immigrants outperforming natives)—at the lowest achievement percentiles of the distribution compared to the highest percentiles and that in vocational schools the reverse is true (meaning that the gaps are smaller at the highest percentiles than at the lowest percentiles).

To explore such compositional factors between immigrant and native students, I estimated quantile regressions. Selected parameter estimates from these regression models are presented in Figure 6.4. The symbols show point estimates of the coefficients (at the .05, .50 and .95 percentiles) for each immigrant generation group, with native students used as the reference category. The models were run first on the full sample (the two panels at the top) and next on the sub-samples of general and vocational schools. Lines show the 95 percent confidence intervals around each estimate.[85]

---

[84] However, additional analyses (not shown) investigated the role played by mother's country of origin (i.e., Italy, European Union countries, other European countries, and the remaining countries). This variable accounts for a small part of the gaps between natives and children of immigrants. However, students whose mothers were born in Non–European countries display slightly lower academic achievements than students whose mothers were born within the European Union.

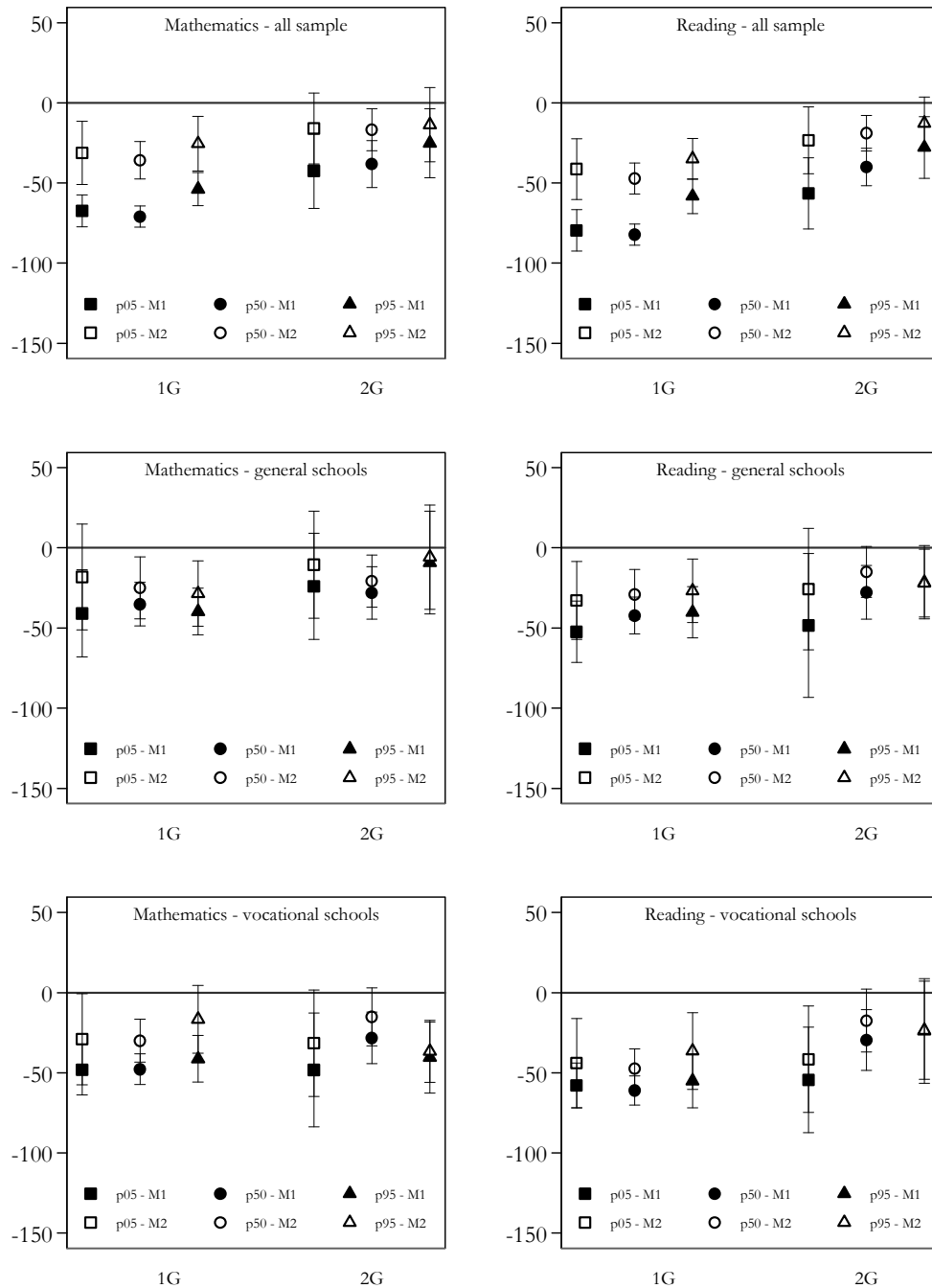[85] Mixed-parentage children are not included in this analysis.

Figure 6.4 Quantile regression estimates of the achievement gaps between natives and children of immigrants in mathematics and reading competences (Italy, PISA 2009). Estimated difference in test scores for first generation (1G) and second generation (2G) students as compared to natives at the .05th (squares), .50th (circles) and .95th (triangles) percentiles. Model 1 (closed symbols) includes immigrant generational status, age, sex, region and area of residence. Model 2 (open symbols) adds the highest parental occupation and education, home possessions, family

structure and language spoken at home. All models use all five plausible values. Standard errors are obtained with 100 bootstrap replications. Models are in Appendix A6.

The two panels at the top of Figure 6.4 prove that average gap estimates (shown in Figure 6.2) are not disguising huge compositional differences between groups in terms of test score distribution: the estimated gaps do not vary significantly at different achievement percentiles. Nevertheless, the gap seems to be somewhat (but not significantly) smaller at 95th percentiles for both the first and the second generation, and the latter are almost never distinguishable from natives once family background and language are held equal. The panels relative to general and vocational schools show that immigrant-native differentials are stable across school tracks, also at different achievement percentiles. This result serves as corroborating evidence that no significant differences in the immigrant-native gaps exist across school tracks.

Although variations are very small, some more specific considerations can be tentatively advanced. First, it can be noted that first-generation immigrants in some cases close their gap with natives in mathematics but this never happens in reading. These results confirm once again that first-generation immigrants encounter particularly high linguistic drawbacks. More precisely, Figure 6.4 shows that the disadvantage of first-generation immigrants is smallest at the 5th percentile of the distribution in general schools and at the 95th percentile in vocational schools. Hence, these results provide some support to the aforementioned hypothesis concerning the different selection mechanisms of immigrants and natives into the different school tracks. Finally, Figure 6.4 also makes apparent that second-generation youths are almost never distinguishable from natives at the different percentiles, although they seem to encounter some difficulties in vocational schools.

To sum up, quantile regression analysis served as robustness check for the results presented in sections 6.4.2 and 6.4.3. This additional analysis showed that the gap is roughly stable across the achievement distribution with some small variations across tracks and generations, which seem to confirm the existence of different selection mechanisms into the different types of schools but on which further research is definitely needed. In any case, these results do not provide strong support for Schnepf's (2008) argument that the low average performance of immigrants is due to the presence of very low performing ones, because in Italy at lowest percentiles the gap is essentially equal to that observed at highest percentiles.

## 6.5 Conclusions

The empirical results presented in this chapter indicate that marked achievement gaps exist between 15-year-old natives and immigrants' children even after controlling for a long list of family and school-level characteristics. These results add to the empirical evidence produced in the previous chapters, indicating that the immigrant-native achievement gaps are consistent across all levels of the Italian education system.

Also, a clear association between immigrant generational status and educational achievement has been established. Second-generation students perform worse than natives but do significantly better than first-generation ones on both reading and mathematical tests. This confirms the importance of growing up in the host society rather than in a foreign one, and thus not having to adapt to a new country, culture and school. This result is also in line with the ones obtained when looking at educational attainment (see chapter 5), however now it is interesting to note that the achievement differences between the first and the second generation completely disappear once family and school-level factors are included in the analysis. This evidence seems to suggest that not only children's nativity status is important but so too is that of their parents. If both parents were born abroad, they most likely lack familiarity with the host education system, consequently they provide their children with relatively poor scholastic support and their children's educational prospects are negatively affected. We should consider, however, that no information on country of origin was available in the data, and this is a particularly important factor given that in Italy among the second generation there is a higher incidence of Northern African students, while among the first generation the largest groups are Eastern Europeans. To explore heterogeneity in immigrant students' achievement, I fitted, as robustness checks, quantile regressions and found that the gap is roughly the same at different percentiles of the achievement distributions.

In line with all previous chapters, mixed-parentage children are found to outperform both first- and second-generation students and are essentially indistinguishable from natives. In other words, having only one foreign-born parent does not represent a drawback, possibly because the native-born parent possesses the relevant country-specific human and social capital needed to foster children's educational achievement. Once again, these findings underline the absolute importance of distinguishing mixed-parentage children from children with two foreign-born parents.

These generational patterns in students' achievement are partially explained by differences in the occupational and economic integration of parents. Family background is a strong predictor of students' achievement and reduces the immigrant-native gaps by roughly 40 percent. This is an expected result, knowing the strong segregation of adult immigrants into the lower positions of the occupational ladder in the country and because similar patterns have been

observed in the previous chapters as well. Moreover, no interactions have been found between immigrant and social background, thus confirming results of the previous chapters that these two forms of educational inequality operate in a cumulative way.

Next, students who reported speaking a foreign language at home did worse on the reading test than those who declared to speak Italian, and including the language variable in the models slightly reduces the magnitude of the disadvantage of first-generation students. Another proof of the importance of language comes from the comparison of the competences of first-generation immigrants in mathematics and reading, being relatively higher in the former, most likely because mathematics tests require lower linguistic skills compared to reading ones.

Regarding the organization of the education system, the existence of different tracks is found to be an important factor of student differentiation. Tracking explains a large part of school-level variance in student scores, and school track parameters are ample and highly significant. Nevertheless, our analysis indicates that the immigrant-native gaps remain unaltered across school tracks, if family background and language are held equal and that they are also roughly consistent at different achievement percentiles.

Finally, as also found in primary education (chapter 3), school immigrant concentration does not exert significant effects on students' achievement—be they natives or immigrants—after controlling for family background. Not even in schools with the highest percentages of immigrants (i.e., vocational schools and regional training courses) a negative and significant effect has been found. As already acknowledged, this analysis is affected by endogeneity. Nevertheless, on the basis of the research insights presented in chapter 1, it can be argued that the direction of the bias is known: the observed endogenous association is likely to be overestimated compared with the actual (and not observed) causal association. Therefore, it seems fairly reasonable to conclude that the presence of immigrants in Italian classes has hardly represented a threat to student achievement so far.

## Appendix A6

*Table A6.1 Linear regression estimates of achievement gaps between natives and children of immigrants in mathematics competences with standard errors clustered at the school level (Italy, PISA 2009) (N=29,573)*

|  | M1 | | M2 | | M3 | | M4 | | M5 | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
| Natives (ref.) | | | | | | | | | | |
| First-generation | -76.29 | 4.85 | -47.68 | 4.79 | -43.01 | 5.99 | -28.88 | 6.12 | -30.59 | 4.82 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Second-generation | -42.72 | 6.93 | -21.72 | 6.9 | -17.7 | 6.98 | -18.02 | 6.35 | -19.6 | 6.2 |
| Mixed-parentage | 0.43 | 2.68 | 0.87 | 2.57 | 0.22 | 2.55 | 0.71 | 2.32 | 0.51 | 2.32 |
| | | | | | | | | | | |
| ISCED1 (ref.) | | | | | | | | | | |
| ISCED2 | | | 17.67 | 9.4 | 15.91 | 9.22 | 0.68 | 9.16 | 0.11 | 9.16 |
| ISCED3b-c | | | 29.26 | 10.23 | 26.3 | 9.94 | 4.38 | 9.42 | 3.54 | 9.44 |
| ISCED3a-4 | | | 31.87 | 10.13 | 29.48 | 9.88 | 4.08 | 9.3 | 2.76 | 9.25 |
| ISCED5b | | | -2.31 | 10.41 | -2.57 | 10.16 | -20.96 | 9.41 | -21.73 | 9.42 |
| ISCED5a-6 | | | 23 | 10.24 | 21.64 | 10 | -5.34 | 9.34 | -7.32 | 9.32 |
| | | | | | | | | | | |
| Highest ISEI | | | 1.07 | 0.06 | 0.99 | 0.06 | 0.51 | 0.05 | 0.35 | 0.05 |
| | | | | | | | | | | |
| Home possessions | | | 13.93 | 1.24 | 13.48 | 1.22 | 6.37 | 1.16 | 5.15 | 1.13 |
| | | | | | | | | | | |
| Nuclear family | | | 8.86 | 2.21 | 8.08 | 2.17 | 3.19 | 1.92 | 3.59 | 1.89 |
| | | | | | | | | | | |
| Italian language (ref.) | | | | | | | | | | |
| Foreign language | | | | | -6.86 | 7.2 | 1.13 | 5.82 | 1.61 | 5.67 |
| Language missing | | | | | -44.91 | 3.02 | -31.39 | 2.29 | -30.35 | 2.25 |
| | | | | | | | | | | |
| General (ref.) | | | | | | | | | | |
| Technical | | | | | | | -39.74 | 3.69 | -24.7 | 4.9 |
| Vocational | | | | | | | -96.28 | 4.68 | -74.65 | 6.68 |
| Lower sec. | | | | | | | -147.87 | 22.73 | -128.82 | 30.6 |
| | | | | | | | | | | |
| % immigrants in school | | | | | | | | | 17.26 | 31.29 |
| | | | | | | | | | | |
| Mean ISEI | | | | | | | | | 1.8 | 0.34 |
| | | | | | | | | | | |
| Age | 15.28 | 2.71 | 14.11 | 2.54 | 13.82 | 2.47 | 10.81 | 2.42 | 10.33 | 2.36 |
| | | | | | | | | | | |
| Male | 18.51 | 2.28 | 18.23 | 2.05 | 19.86 | 2.01 | 30.57 | 1.87 | 30.64 | 1.83 |
| | | | | | | | | | | |
| Village (ref.) | | | | | | | | | | |
| Small town | 42.28 | 11.02 | 32.88 | 9.93 | 30.78 | 9.65 | 1.2 | 8.63 | 0.54 | 8.53 |
| Town | 54.83 | 9.13 | 40.51 | 8.24 | 37.14 | 8.12 | 0.78 | 7.94 | -2.43 | 7.77 |
| City | 50.06 | 10.09 | 31.61 | 9.1 | 27.98 | 8.97 | -5.91 | 8.41 | -13.81 | 8.41 |
| Large city | 52.95 | 15.88 | 33.85 | 13.85 | 29.44 | 13.63 | -8.48 | 11.04 | -17.87 | 11.11 |
| Missing | 44.06 | 13.6 | 30.9 | 11.73 | 27.18 | 11.34 | -12.55 | 9.91 | -14.18 | 9.54 |
| | | | | | | | | | | |
| Piemonte (ref.) | | | | | | | | | | |
| Lombardia | 20.18 | 11.87 | 17.02 | 9.83 | 16.3 | 9.41 | 16.21 | 7.02 | 14.35 | 6.74 |
| Liguria | -11.55 | 12.43 | -12.78 | 10.35 | -12.89 | 9.92 | -17.34 | 6.76 | -18.62 | 6.53 |
| VdA | 14.24 | 17.62 | 10.65 | 14.91 | 10.93 | 14.09 | 3.37 | 14.38 | 1.77 | 12.56 |
| Veneto | 16.09 | 11.48 | 13.43 | 9.52 | 14.08 | 9.05 | 17.48 | 6.67 | 17.37 | 6.37 |
| Trento | -8.61 | 14.83 | -2.58 | 12.54 | -1.38 | 12.01 | 24.44 | 9.43 | 24.51 | 8.7 |
| Bozen | 12.62 | 11.9 | 12.76 | 9.96 | 11.14 | 9.7 | 20.93 | 5.71 | 19.46 | 5.63 |
| FVG | -2 | 12.3 | -3.5 | 10.21 | -1.9 | 9.83 | 2.95 | 6.61 | 1.39 | 6.17 |

| | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
|---|---|---|---|---|---|---|---|---|---|---|
| Emilia R | 10.45 | 13.04 | 6.3 | 10.62 | 6.78 | 10.1 | 6.39 | 6.55 | 5.06 | 6.3 |
| Marche | 1.43 | 11.99 | -0.72 | 9.99 | -0.53 | 9.53 | -3.82 | 6.3 | -4.02 | 6.11 |
| Toscana | 2.16 | 12.05 | -2.43 | 10.22 | -3.24 | 9.82 | -9.03 | 6.69 | -8.98 | 6.46 |
| Umbria | -22.19 | 12.8 | -23.16 | 10.74 | -21.61 | 10.26 | -20.24 | 6.86 | -18.91 | 6.76 |
| Lazio | -26.39 | 13.69 | -30.49 | 11.6 | -29.27 | 11.13 | -35.78 | 7.99 | -35.72 | 7.97 |
| Abbruzzo | -22.92 | 12.27 | -23.13 | 10.12 | -22.89 | 9.69 | -30.76 | 7.27 | -29.07 | 7.12 |
| Molise | -21.51 | 13.11 | -24.51 | 10.54 | -24.07 | 10.15 | -43.09 | 7.9 | -40.21 | 7.57 |
| Campania | -54.17 | 12.74 | -47.46 | 10.72 | -44.6 | 10.3 | -57.2 | 7.29 | -50.03 | 7.71 |
| Puglia | -14.63 | 12.47 | -7.55 | 10.61 | -6.98 | 10.19 | -17.33 | 8.79 | -9.8 | 8.65 |
| Basilicata | -27.87 | 10.88 | -34.87 | 9.14 | -33.97 | 8.73 | -61 | 7.12 | -57.29 | 7.21 |
| Calabria | -54.16 | 11.72 | -48.37 | 9.54 | -46.31 | 9.15 | -54.49 | 6.32 | -48.29 | 6.57 |
| Sardegna | -17.43 | 12.24 | -22.23 | 10.32 | -20.74 | 9.86 | -46.02 | 7.95 | -41.43 | 7.84 |
| Sicilia | -47.21 | 12.88 | -40.95 | 11 | -38.16 | 10.36 | -34.23 | 7.24 | -30.52 | 6.78 |
| | | | | | | | | | | |
| Constant | 183.46 | 44.3 | 133.91 | 43.09 | 149.72 | 41.74 | 305.22 | 40.04 | 227.86 | 42.87 |
| R2 | 0.11 | | 0.20 | | 0.22 | | 0.36 | | 0.37 | |

*Table A6.2 Linear regression estimates of achievement gaps between natives and children of immigrants in reading competences with standard errors clustered at the school level (Italy, PISA 2009) (N=29,573)*

| | M1 | | M2 | | M3 | | M4 | | M5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
| Natives (ref.) | | | | | | | | | | |
| First-generation | -87.6 | 4.6 | -57.9 | 4.5 | -49.6 | 5.9 | -36.6 | 5.7 | -38.8 | 4.9 |
| Second-generation | -45.3 | 7.6 | -22.9 | 7.6 | -17.3 | 7.5 | -18.8 | 6.7 | -20.6 | 6.5 |
| Mixed-parentage | -0.3 | 2.6 | -0.6 | 2.4 | -1.0 | 2.4 | -0.5 | 2.1 | -0.7 | 2.1 |
| | | | | | | | | | | |
| ISCED1 (ref.) | | | | | | | | | | |
| ISCED2 | | | 23.7 | 7.7 | 21.9 | 7.6 | 8.1 | 7.8 | 7.5 | 7.7 |
| ISCED3b-c | | | 41.7 | 8.4 | 38.7 | 8.1 | 17.4 | 7.9 | 16.4 | 7.9 |
| ISCED3a-4 | | | 46.7 | 8.0 | 44.3 | 7.8 | 18.7 | 7.7 | 17.2 | 7.6 |
| ISCED5b | | | 11.1 | 8.3 | 10.8 | 8.1 | -6.6 | 7.8 | -7.4 | 7.8 |
| ISCED5a-6 | | | 39.0 | 8.2 | 37.6 | 8.0 | 9.7 | 7.7 | 7.5 | 7.7 |
| | | | | | | | | | | |
| Highest ISEI | | | 1.1 | 0.1 | 1.1 | 0.1 | 0.5 | 0.1 | 0.3 | 0.0 |
| | | | | | | | | | | |
| Home possessions | | | 13.7 | 1.1 | 13.3 | 1.1 | 5.2 | 1.0 | 3.8 | 1.0 |
| | | | | | | | | | | |
| Nuclear family | | | 6.3 | 2.2 | 5.6 | 2.2 | 0.4 | 1.9 | 0.9 | 1.9 |
| | | | | | | | | | | |
| Italian language (ref.) | | | | | | | | | | |
| Foreign language | | | | | -12.6 | 6.3 | -4.4 | 5.0 | -3.9 | 4.9 |
| Language missing | | | | | -44.2 | 2.9 | -29.2 | 2.1 | -28.0 | 2.1 |

| | M1 coef | M1 SE | M2 coef | M2 SE | M3 coef | M3 SE | M4 coef | M4 SE | M5 coef | M5 SE |
|---|---|---|---|---|---|---|---|---|---|---|
| General (ref.) | | | | | | | | | | |
| Technical | | | | | | | -54.4 | 3.1 | -37.4 | 4.1 |
| Vocational | | | | | | | -110.8 | 4.2 | -86.5 | 5.8 |
| Lower sec. | | | | | | | -146.1 | 18.2 | -125.4 | 23.0 |
| % immigrants in school | | | | | | | | | 21.4 | 25.4 |
| Mean ISEI | | | | | | | | | 2.0 | 0.3 |
| Age | 17.1 | 2.6 | 16.1 | 2.4 | 15.8 | 2.4 | 12.6 | 2.3 | 12.1 | 2.2 |
| Male | -41.3 | 2.3 | -41.7 | 2.0 | -40.2 | 1.9 | -26.5 | 1.7 | -26.4 | 1.6 |
| Village (ref.) | | | | | | | | | | |
| Small town | 49.6 | 13.2 | 38.9 | 11.8 | 36.8 | 11.7 | 3.8 | 11.3 | 3.1 | 10.5 |
| Town | 64.0 | 12.0 | 47.4 | 10.9 | 44.1 | 10.9 | 4.3 | 11.0 | 0.7 | 10.1 |
| City | 70.4 | 12.7 | 48.9 | 11.5 | 45.3 | 11.4 | 7.5 | 11.3 | -1.4 | 10.5 |
| Large city | 74.9 | 18.0 | 52.2 | 15.6 | 47.9 | 15.5 | 5.6 | 13.0 | -5.0 | 12.5 |
| Missing | 54.3 | 17.2 | 38.5 | 15.1 | 34.8 | 14.7 | -10.4 | 12.5 | -12.2 | 11.9 |
| Piemonte (ref.) | | | | | | | | | | |
| Lombardia | 23.8 | 12.3 | 20.5 | 9.8 | 19.7 | 9.4 | 20.0 | 6.6 | 17.9 | 6.3 |
| Liguria | -12.7 | 13.2 | -14.7 | 10.9 | -14.8 | 10.5 | -19.5 | 6.8 | -20.9 | 6.6 |
| VdA | 27.3 | 16.9 | 23.0 | 13.6 | 23.3 | 12.7 | 13.6 | 11.6 | 11.9 | 9.6 |
| Veneto | 7.7 | 12.1 | 5.0 | 9.9 | 5.7 | 9.4 | 10.1 | 6.9 | 10.1 | 6.4 |
| Trento | -28.2 | 16.4 | -22.0 | 13.6 | -20.7 | 13.0 | 8.8 | 10.0 | 8.9 | 9.1 |
| Bozen | -4.8 | 12.0 | -5.2 | 9.8 | -6.8 | 9.5 | 3.4 | 5.3 | 1.8 | 5.2 |
| FVG | 2.1 | 13.2 | 0.3 | 10.8 | 1.9 | 10.4 | 7.0 | 6.5 | 5.3 | 6.0 |
| Emilia R | 3.8 | 13.3 | -0.6 | 10.4 | -0.1 | 9.8 | 0.6 | 5.6 | -0.9 | 5.3 |
| Marche | 3.8 | 13.3 | 1.7 | 11.0 | 1.9 | 10.5 | -1.1 | 6.5 | -1.3 | 6.3 |
| Toscana | -0.2 | 12.9 | -5.4 | 10.8 | -6.2 | 10.4 | -12.5 | 6.1 | -12.5 | 6.0 |
| Umbria | -25.1 | 13.5 | -26.4 | 11.1 | -24.9 | 10.6 | -22.8 | 7.0 | -21.3 | 6.9 |
| Lazio | -21.8 | 14.2 | -26.5 | 11.6 | -25.3 | 11.2 | -33.1 | 7.0 | -33.0 | 7.1 |
| Abbruzzo | -22.4 | 12.5 | -22.6 | 9.9 | -22.4 | 9.4 | -30.8 | 6.1 | -28.8 | 5.9 |
| Molise | -20.0 | 12.8 | -23.3 | 9.9 | -22.9 | 9.5 | -44.1 | 7.1 | -40.8 | 6.7 |
| Campania | -49.5 | 12.8 | -41.1 | 10.3 | -38.3 | 9.8 | -53.0 | 6.3 | -44.8 | 6.7 |
| Puglia | -15.9 | 12.5 | -6.9 | 10.1 | -6.4 | 9.6 | -18.2 | 6.7 | -9.6 | 6.6 |
| Basilicata | -13.1 | 11.0 | -20.8 | 8.8 | -19.9 | 8.3 | -52.4 | 6.1 | -48.1 | 6.0 |
| Calabria | -53.7 | 13.0 | -46.4 | 10.5 | -44.3 | 10.1 | -53.3 | 6.2 | -46.2 | 6.3 |
| Sardegna | -15.0 | 12.7 | -19.7 | 10.4 | -18.2 | 9.9 | -48.4 | 7.5 | -43.1 | 7.4 |
| Sicilia | -51.4 | 13.5 | -43.5 | 11.3 | -40.7 | 10.7 | -36.0 | 6.9 | -31.7 | 6.6 |
| Constant | 236.9 | 44.3 | 172.3 | 41.9 | 188.0 | 40.8 | 359.0 | 39.2 | 271.3 | 40.0 |
| R2 | 0.16 | | 0.26 | | 0.28 | | 0.45 | | 0.46 | |

*Table A6.3 Weighted Multilevel Models of Math Literacy in Italy (PISA 2009)*

| Variable | M1 | M2 | M3 | M4 |
|---|---|---|---|---|
| First-generation | −36.93* | −27.96* | −26.74* | −25.35* |
| | (2.52) | (2.63) | (3.50) | (5.36) |
| Second-generation | −25.84* | −19.44* | −18.06* | −19.60* |
| | (4.60) | (4.52) | (4.63) | (7.10) |
| Mixed-parentage | −1.09 | −0.07 | −0.24 | −0.62 |
| | (1.66) | (1.64) | (1.63) | (2.38) |
| Age | 6.72* | 6.62* | 6.64* | 6.48* |
| | (1.60) | (1.57) | (1.56) | (1.55) |
| Male | 26.78* | 25.63* | 26.18* | 27.71* |
| | (1.07) | (1.05) | (1.05) | (1.07) |
| Small town | 13.65 | 13.25 | 13.60 | 10.41 |
| | (9.07) | (8.60) | (8.34) | (5.70) |
| Town | 27.82* | 25.77* | 25.63* | 8.39 |
| | (8.06) | (7.62) | (7.35) | (4.91) |
| City | 27.06* | 23.91* | 23.54* | −1.48 |
| | (9.17) | (8.66) | (8.37) | (5.65) |
| Large city | 2.82 | 0.90 | 0.39 | −13.60 |
| | (20.83) | (19.98) | (19.66) | (12.46) |
| ISCED2 | | 11.55* | 11.24* | 10.21* |
| | | (4.32) | (4.33) | (4.32) |
| ISCED3b-c | | 15.60* | 14.95* | 13.26* |
| | | (4.45) | (4.43) | (4.42) |
| ISCED3a-4 | | 12.15* | 11.81* | 10.05* |
| | | (4.26) | (4.26) | (4.24) |
| ISCED5b | | −10.56* | −10.12* | −11.55* |
| | | (4.66) | (4.66) | (4.65) |
| ISCED5a-6 | | 5.45 | 5.47 | 3.45 |
| | | (4.44) | (4.44) | (4.42) |
| Highest ISEI | | 0.38* | 0.37* | 0.32* |
| | | (0.04) | (0.04) | (0.04) |
| Home possessions | | 5.87* | 5.87* | 5.36* |
| | | (0.65) | (0.65) | (0.65) |
| Nuclear family | | 0.62 | 0.44 | 0.42 |
| | | (1.47) | (1.45) | (1.44) |
| Foreign language | | | −2.24 | −1.74 |
| | | | (3.71) | (3.71) |
| Language missing | | | −23.99* | −23.37* |
| | | | (1.55) | (1.54) |
| % immigrants in school | | | | −24.20 |
| | | | | (21.04) |
| Mean ISEI | | | | 1.96* |
| | | | | (0.28) |
| Technical | | | | −25.56* |
| | | | | (5.04) |
| Vocational | | | | −78.35* |
| | | | | (5.74) |
| Lower sec. | | | | −137.40* |
| | | | | (20.25) |
| Technical X first-generation | | | | −1.84 |
| | | | | (6.41) |
| Technical X second-generation | | | | 4.31 |
| | | | | (11.35) |
| Technical X mixed-parentage | | | | −0.75 |
| | | | | (3.77) |
| Vocational X first-generation | | | | −0.70 |
| | | | | (6.35) |
| Vocational X second-generation | | | | −0.01 |
| | | | | (10.16) |
| Vocational X mixed-parentage | | | | 3.41 |
| | | | | (4.16) |
| Lower sec. X first-generation | | | | 45.07 |
| | | | | (23.86) |

| | | | | |
|---|---|---|---|---|
| Lower sec. X second-generation | | | | 58.49 |
| | | | | (34.76) |
| Lower sec. X mixed-parentage | | | | 12.99 |
| | | | | (26.07) |
| Mean school int. | 361.42* | 337.43* | 340.55* | 300.02* |
| | (27.91) | (27.66) | (27.34) | (28.55) |
| School var. | 3439.65 | 3081.80 | 2948.13 | 1090.69 |
| Student var. | 3831.75 | 3771.34 | 3734.39 | 3739.78 |
| N | 29573 | 29573 | 29573 | 29573 |
| Deviance | 1247638 | 1245543 | 1244257 | 1240724 |

Note: Standard errors in parentheses; *$p$ < .05 (two-tailed test). All models control include region controls.

*Table A6.4 Weighted Multilevel Models of Reading Literacy in Italy (PISA 2009)*

| Variable | M1 | M2 | M3 | M4 |
|---|---|---|---|---|
| First-generation | −44.14* | −37.17* | −30.61* | −27.18* |
| | (2.54) | (2.62) | (3.34) | (4.98) |
| Second-generation | −26.91* | −21.34* | −17.91* | −17.35* |
| | (4.58) | (4.50) | (4.57) | (6.60) |
| Mixed-parentage | −1.17 | −0.66 | −0.57 | −0.24 |
| | (1.62) | (1.61) | (1.62) | (2.28) |
| Age | 8.90* | 9.01* | 8.99* | 8.82* |
| | (1.56) | (1.53) | (1.53) | (1.51) |
| Male | −22.31* | −23.64* | −23.12* | −21.98* |
| | (1.03) | (1.04) | (1.04) | (1.02) |
| Small town | 13.07 | 13.03 | 13.46 | 10.44* |
| | (11.89) | (11.31) | (11.01) | (4.55) |
| Town | 31.54* | 29.64* | 29.58* | 11.32* |
| | (11.43) | (10.89) | (10.59) | (4.07) |
| City | 39.49* | 36.26* | 35.98* | 8.53 |
| | (12.34) | (11.74) | (11.43) | (4.58) |
| Large city | 16.97 | 14.97 | 14.58 | −0.76 |
| | (21.99) | (20.92) | (20.59) | (10.19) |
| ISCED2 | | 11.12* | 10.77* | 9.96* |
| | | (4.44) | (4.45) | (4.41) |
| ISCED3b-c | | 19.47* | 18.76* | 17.32* |
| | | (4.52) | (4.51) | (4.48) |
| ISCED3a-4 | | 19.20* | 18.79* | 17.25* |
| | | (4.35) | (4.36) | (4.32) |
| ISCED5b | | −3.44 | −2.99 | −4.35 |
| | | (4.70) | (4.68) | (4.65) |
| ISCED5a-6 | | 12.77* | 12.73* | 10.91* |
| | | (4.53) | (4.53) | (4.49) |
| Highest ISEI | | 0.35* | 0.33* | 0.28* |
| | | (0.04) | (0.04) | (0.04) |
| Home possessions | | 4.27* | 4.22* | 3.70* |
| | | (0.64) | (0.63) | (0.63) |
| Nuclear family | | 0.06 | −0.06 | −0.02 |
| | | (1.39) | (1.37) | (1.36) |
| Foreign language | | | −10.77* | −10.01* |
| | | | (3.73) | (3.72) |
| Language missing | | | −23.67* | −23.22* |
| | | | (1.44) | (1.42) |
| % immigrants in school | | | | −25.38 |
| | | | | (20.43) |
| Mean ISEI | | | | 2.00* |
| | | | | (0.21) |
| Technical | | | | −40.25* |
| | | | | (3.24) |
| Vocational | | | | −90.63* |
| | | | | (4.58) |
| Lower Sec | | | | −134.71* |
| | | | | (18.29) |
| Technical X first-generation | | | | −2.44 |
| | | | | (6.22) |
| Technical X second-generation | | | | −1.78 |
| | | | | (10.20) |
| Technical X mixed-parentage | | | | −2.34 |
| | | | | (3.74) |
| Vocational X first-generation | | | | −6.49 |
| | | | | (6.16) |
| Vocational X second-generation | | | | −2.73 |

| | | | | (11.27) |
|---|---|---|---|---|
| Vocational X mixed-parentage | | | | 2.23 |
| | | | | (4.09) |
| Lower sec. X first-generation | | | | 42.39 |
| | | | | (25.08) |
| Lower sec. X second-generation | | | | 44.88 |
| | | | | (56.60) |
| Lower sec. X mixed-parentage | | | | 4.14 |
| | | | | (31.98) |
| Mean school int. | 350.86* | 320.48* | 324.02* | 290.69* |
| | (28.47) | (28.37) | (28.08) | (27.78) |
| School var. | 3773.64 | 3330.87 | 3190.57 | 740.10 |
| Student var. | 3653.17 | 3600.41 | 3562.05 | 3579.50 |
| N | 29573 | 29573 | 29573 | 29573 |
| Deviance | 1241941 | 1239841 | 1238514 | 1233305 |

Note: Standard errors in parentheses; *$p$ < .05 (two-tailed test). All models control include region controls.

*Table A6.5 Quantile regression estimates of the gaps between natives and children of immigrants in mathematics and reading competences: all sample (Italy, PISA 2009)*

| Math | q05 | | | | q50 | | | | q95 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M1 | | M3 | | M1 | | M3 | | M1 | | M3 | |
| | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
| First-generation | -67.3 | 5.0 | -31.2 | 10.1 | -70.9 | 3.4 | -35.8 | 5.9 | -53.8 | 5.3 | -25.4 | 8.7 |
| Second-generation | -42.4 | 11.9 | -16.0 | 11.3 | -38.1 | 7.4 | -16.7 | 6.7 | -25.1 | 11.0 | -13.6 | 11.8 |
| Mixed-parentage | -3.1 | 4.2 | -0.4 | 4.7 | -1.5 | 2.4 | -0.2 | 2.8 | -1.0 | 4.1 | -0.8 | 4.5 |
| ISCED2 | | | 22.2 | 11.1 | | | 21.2 | 7.3 | | | 17.7 | 10.7 |
| ISCED3b-c | | | 30.5 | 11.6 | | | 34.5 | 7.7 | | | 29.3 | 11.4 |
| ISCED3a-4 | | | 33.3 | 10.8 | | | 33.7 | 7.4 | | | 26.7 | 10.7 |
| ISCED5b | | | -7.6 | 12.3 | | | 3.3 | 7.7 | | | 3.1 | 11.8 |
| ISCED5a-6 | | | 14.0 | 11.4 | | | 24.4 | 7.5 | | | 24.2 | 11.1 |
| Highest ISEI | | | 0.8 | 0.1 | | | 0.9 | 0.1 | | | 0.7 | 0.1 |
| Home possessions | | | 16.5 | 1.6 | | | 13.7 | 1.0 | | | 9.5 | 1.7 |
| Nuclear family | | | 14.6 | 4.0 | | | 5.5 | 2.4 | | | 0.7 | 3.3 |
| Foreign language | | | -14.3 | 11.1 | | | -7.8 | 6.9 | | | -9.5 | 9.3 |
| Language missing | | | -34.2 | 3.4 | | | -39.5 | 2.3 | | | -37.7 | 3.4 |
| Age | 9.0 | 3.7 | 9.7 | 4.1 | 12.2 | 2.2 | 10.2 | 2.5 | 10.3 | 3.5 | 8.5 | 3.9 |
| Male | 6.6 | 2.3 | 7.9 | 2.3 | 18.1 | 1.2 | 18.2 | 1.4 | 32.3 | 1.8 | 26.2 | 2.2 |
| Constant | 186.2 | 58.9 | 116.3 | 67.2 | 265.1 | 35.2 | 225.9 | 40.3 | 398.2 | 55.7 | 374.8 | 62.8 |

| Reading | q05 | | | | q50 | | | | q95 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | M1 | | M3 | | M1 | | M3 | | M1 | | M3 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
| First-generation | -79.5 | 6.6 | -41.3 | 9.7 | -82.1 | 3.4 | -47.2 | 5.0 | -58.2 | 5.5 | -34.9 | 6.5 |
| Second-generation | -56.4 | 11.3 | -23.3 | 10.7 | -40.0 | 5.9 | -18.9 | 5.7 | -27.8 | 9.8 | -12.6 | 8.3 |
| Mixed-parentage | -0.9 | 4.3 | -1.8 | 4.2 | -1.4 | 2.4 | -1.6 | 2.2 | -4.8 | 3.3 | -2.5 | 3.1 |
| ISCED2 | | | 20.6 | 9.9 | | | 25.0 | 6.5 | | | 11.9 | 8.8 |
| ISCED3b-c | | | 37.3 | 10.4 | | | 41.5 | 6.7 | | | 25.8 | 8.6 |
| ISCED3a-4 | | | 41.4 | 9.7 | | | 47.6 | 6.5 | | | 31.0 | 8.6 |
| ISCED5b | | | 4.9 | 10.3 | | | 10.8 | 7.1 | | | 4.8 | 9.6 |
| ISCED5a-6 | | | 28.6 | 9.7 | | | 42.0 | 6.7 | | | 28.5 | 8.8 |
| Highest ISEI | | | 1.1 | 0.1 | | | 1.1 | 0.0 | | | 0.8 | 0.1 |
| Home possessions | | | 16.4 | 1.5 | | | 13.7 | 0.8 | | | 8.9 | 1.3 |
| Nuclear family | | | 12.9 | 3.4 | | | 5.9 | 1.9 | | | 0.2 | 2.8 |
| Foreign language | | | -20.1 | 10.0 | | | -11.4 | 5.3 | | | -10.5 | 8.1 |
| Language missing | | | -42.9 | 3.1 | | | -44.1 | 1.9 | | | -42.2 | 3.1 |
| Age | 13.4 | 4.0 | 13.4 | 3.4 | 14.7 | 2.3 | 15.0 | 1.9 | 11.2 | 3.1 | 10.8 | 2.9 |
| Male | -52.7 | 2.4 | -53.7 | 2.2 | -43.7 | 1.3 | -41.1 | 1.2 | -23.2 | 1.8 | -25.6 | 1.7 |
| Constant | 191.4 | 64.2 | 128.0 | 54.5 | 312.1 | 36.7 | 224.0 | 31.5 | 453.7 | 49.1 | 409.0 | 46.0 |

Table A6.6 Quantile regression estimates of the gaps between natives and children of immigrants in mathematics and reading competences: general schools (Italy, PISA 2009)

| Math | q05 | | | | q50 | | | | q95 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M1 | | M3 | | M1 | | M3 | | M1 | | M3 | |
| | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
| First-generation | -41.0 | 13.9 | -18.2 | 16.8 | -35.2 | 6.9 | -25.0 | 9.8 | -39.8 | 7.4 | -28.5 | 10.4 |
| Second-generation | -24.0 | 16.9 | -10.6 | 17.0 | -28.1 | 8.4 | -20.8 | 8.3 | -9.3 | 16.4 | -5.8 | 16.6 |
| Mixed-parentage | -2.2 | 5.4 | -1.6 | 5.5 | -2.1 | 3.3 | -1.0 | 3.0 | 3.2 | 5.3 | 4.4 | 5.0 |
| ISCED2 | | | 44.8 | 31.7 | | | 3.0 | 14.2 | | | -9.8 | 30.1 |
| ISCED3b-c | | | 53.0 | 32.2 | | | 9.6 | 14.3 | | | -10.5 | 30.6 |
| ISCED3a-4 | | | 53.3 | 31.5 | | | 11.9 | 14.1 | | | -7.1 | 30.1 |
| ISCED5b | | | 20.6 | 31.8 | | | -9.6 | 14.5 | | | -21.3 | 31.2 |
| ISCED5a-6 | | | 37.3 | 31.6 | | | 7.6 | 14.3 | | | -5.9 | 30.4 |

| | q05 M1 coef. | s.err. | q05 M3 coef. | s.err. | q50 M1 coef. | s.err. | q50 M3 coef. | s.err. | q95 M1 coef. | s.err. | q95 M3 coef. | s.err. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Highest ISEI | | | 0.4 | 0.1 | | | 0.4 | 0.1 | | | 0.4 | 0.1 |
| Home possessions | | | 11.1 | 2.0 | | | 5.3 | 1.1 | | | 3.9 | 1.6 |
| Nuclear family | | | 10.6 | 4.8 | | | 3.9 | 2.7 | | | -0.4 | 4.0 |
| Foreign language | | | 4.3 | 16.2 | | | 1.3 | 9.6 | | | 1.6 | 11.1 |
| Language missing | | | -34.3 | 5.7 | | | -36.5 | 3.0 | | | -29.9 | 5.2 |
| Age | 5.7 | 5.1 | 5.1 | 5.1 | 8.5 | 2.7 | 7.6 | 2.8 | 5.7 | 4.1 | 6.0 | 4.3 |
| Male | 39.0 | 3.2 | 34.1 | 3.1 | 47.6 | 1.7 | 44.6 | 1.6 | 45.2 | 2.6 | 44.9 | 2.3 |
| Constant | 275.0 | 87.2 | 218.4 | 90.4 | 330.2 | 43.6 | 315.7 | 46.2 | 511.7 | 68.3 | 500.9 | 77.1 |

| Reading | q05 | | | | q50 | | | | q95 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M1 | | M3 | | M1 | | M3 | | M1 | | M3 | |
| | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
| First-generation | -52.4 | 9.8 | -32.8 | 12.4 | -42.3 | 5.8 | -29.1 | 7.9 | -40.2 | 8.2 | -26.8 | 10.1 |
| Second-generation | -48.4 | 22.9 | -25.8 | 19.3 | -27.9 | 8.6 | -15.1 | 8.1 | -21.5 | 11.6 | -22.1 | 10.8 |
| Mixed-parentage | -5.3 | 6.2 | -4.1 | 5.2 | -1.8 | 2.6 | -1.3 | 2.7 | -3.4 | 4.2 | -1.9 | 4.3 |
| ISCED2 | | | 53.0 | 27.6 | | | 0.4 | 10.5 | | | 0.2 | 20.8 |
| ISCED3b-c | | | 64.2 | 28.3 | | | 9.4 | 10.8 | | | 7.6 | 21.4 |
| ISCED3a-4 | | | 67.3 | 27.7 | | | 14.1 | 10.4 | | | 13.4 | 20.8 |
| ISCED5b | | | 40.3 | 28.2 | | | -4.3 | 11.0 | | | -4.7 | 21.0 |
| ISCED5a-6 | | | 53.3 | 27.8 | | | 10.5 | 10.7 | | | 13.2 | 20.6 |
| Highest ISEI | | | 0.5 | 0.1 | | | 0.4 | 0.1 | | | 0.4 | 0.1 |
| Home possessions | | | 6.2 | 1.9 | | | 3.1 | 0.9 | | | 2.9 | 1.8 |
| Nuclear family | | | 9.4 | 5.3 | | | 0.1 | 2.4 | | | -2.2 | 3.8 |
| Foreign language | | | -9.1 | 13.2 | | | -8.2 | 8.0 | | | -7.6 | 11.0 |
| Language missing | | | -31.6 | 5.4 | | | -33.3 | 2.8 | | | -28.7 | 5.3 |
| Age | 12.3 | 5.2 | 13.8 | 4.9 | 10.4 | 2.5 | 10.2 | 2.5 | 9.2 | 3.7 | 8.7 | 3.8 |
| Male | -19.5 | 3.3 | -25.3 | 3.2 | -8.7 | 1.4 | -10.9 | 1.5 | -8.3 | 2.1 | -10.6 | 2.4 |
| Constant | 216.9 | 89.1 | 121.1 | 84.3 | 362.9 | 41.6 | 344.1 | 43.0 | 505.6 | 61.7 | 487.6 | 64.0 |

*Table A6.7 Quantile regression estimates of the gaps between natives and children of immigrants in mathematics and reading competences: vocational schools (Italy, PISA 2009)*

| Math | q05 | | | | q50 | | | | q95 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M1 | | M3 | | M1 | | M3 | | M1 | | M3 | |
| | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
| First-generation | -48.0 | 8.1 | -29.0 | 14.5 | -47.7 | 4.9 | -30.0 | 6.8 | -41.3 | 7.4 | -16.6 | 10.8 |
| Second-generation | -48.2 | 18.1 | -31.5 | 16.9 | -28.2 | 8.2 | -15.1 | 9.2 | -40.4 | 11.3 | -36.6 | 9.9 |
| Mixed-parentage | 4.5 | 6.4 | 3.8 | 6.4 | -1.5 | 4.4 | -0.9 | 4.3 | -4.0 | 7.7 | -3.7 | 7.4 |
| ISCED2 | | | 2.4 | 10.0 | | | 15.2 | 7.1 | | | 11.8 | 14.8 |
| ISCED3b-c | | | 8.2 | 11.4 | | | 24.3 | 7.7 | | | 25.0 | 16.0 |
| ISCED3a-4 | | | 4.9 | 10.1 | | | 16.2 | 7.1 | | | 13.4 | 15.3 |
| ISCED5b | | | -25.3 | 12.4 | | | -2.8 | 7.9 | | | -9.7 | 17.1 |
| ISCED5a-6 | | | -18.9 | 11.5 | | | 3.2 | 7.5 | | | 6.7 | 16.1 |
| Highest ISEI | | | 0.4 | 0.2 | | | 0.5 | 0.1 | | | 0.7 | 0.2 |
| Home possessions | | | 10.7 | 2.6 | | | 11.3 | 1.6 | | | 5.1 | 2.7 |
| Nuclear family | | | 12.5 | 5.6 | | | 4.0 | 3.5 | | | -0.5 | 5.3 |
| Foreign language | | | -12.4 | 15.8 | | | -9.2 | 7.9 | | | -20.2 | 10.8 |
| Language missing | | | -18.0 | 4.7 | | | -23.1 | 3.0 | | | -25.7 | 5.1 |
| Age | 9.3 | 6.2 | 11.4 | 6.3 | 7.8 | 3.9 | 7.3 | 3.9 | 11.2 | 6.2 | 10.6 | 7.0 |
| Male | 9.8 | 4.1 | 10.4 | 3.7 | 10.9 | 2.2 | 11.6 | 2.2 | 13.1 | 3.7 | 14.5 | 3.9 |
| Constant | 159.4 | 98.5 | 113.1 | 100.9 | 302.1 | 61.0 | 285.4 | 61.1 | 359.7 | 99.6 | 330.7 | 112.9 |

| Reading | q05 | | | | q50 | | | | q95 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M1 | | M3 | | M1 | | M3 | | M1 | | M3 | |
| | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. | coef. | s.err. |
| First-generation | -57.9 | 7.1 | -44.0 | 14.2 | -61.1 | 4.6 | -47.4 | 6.3 | -55.1 | 8.6 | -36.5 | 12.2 |
| Second-generation | -54.5 | 16.8 | -41.6 | 17.0 | -29.6 | 9.7 | -17.5 | 10.0 | -23.9 | 16.6 | -23.5 | 15.6 |
| Mixed-parentage | 2.9 | 8.3 | 2.1 | 8.3 | -1.7 | 4.6 | -0.8 | 4.4 | 2.4 | 8.3 | 0.4 | 7.3 |
| ISCED2 | | | 12.8 | 13.6 | | | 15.5 | 8.4 | | | 0.1 | 14.6 |
| ISCED3b-c | | | 27.1 | 14.7 | | | 30.4 | 9.0 | | | 16.4 | 15.8 |
| ISCED3a-4 | | | 24.2 | 13.6 | | | 22.6 | 8.4 | | | 12.8 | 14.8 |
| ISCED5b | | | 4.0 | 15.2 | | | 0.7 | 9.3 | | | -12.9 | 16.0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ISCED5a-6 | | | 9.4 | 14.6 | | | 14.8 | 8.8 | | | 10.4 | 15.7 |
| Highest ISEI | | | 0.3 | 0.2 | | | 0.6 | 0.1 | | | 0.6 | 0.2 |
| Home possessions | | | 9.5 | 2.5 | | | 9.3 | 1.5 | | | 7.7 | 3.1 |
| Nuclear family | | | 12.1 | 5.7 | | | 6.5 | 3.3 | | | -2.9 | 6.1 |
| Foreign language | | | -5.3 | 15.9 | | | -2.2 | 8.4 | | | -18.8 | 12.6 |
| Language missing | | | -22.1 | 5.2 | | | -26.5 | 2.9 | | | -31.7 | 5.3 |
| Age | 13.9 | 7.0 | 11.8 | 6.7 | 9.4 | 4.0 | 8.9 | 3.9 | 17.6 | 7.0 | 20.1 | 7.0 |
| Male | -39.3 | 4.0 | -41.5 | 4.1 | -42.4 | 2.4 | -41.7 | 2.3 | -39.0 | 4.1 | -34.7 | 3.8 |
| Constant | 147.5 | 111.6 | 158.9 | 106.5 | 357.1 | 63.0 | 320.3 | 62.4 | 324.6 | 110.9 | 256.1 | 112.1 |

# Concluding remarks

The goal of this dissertation has been to investigate patterns and explanations of the educational gaps between natives and children of immigrants in Italy. Combining two distinct research strands (i.e., studies on immigrant adaptation and research on social stratification), I have examined education as a key factor for the structural integration and the chances of social mobility of children of immigrants in the receiving society. Although primarily descriptive, this dissertation contributes to the empirical literature in several respects. First, it adds fresh empirical evidence from a novel destination of international migration, like Italy, which has attracted impressive numbers of immigrants in recent years, and which differs from more traditional receiving countries in regard to some key institutional settings (e.g., large underground economy, weak and family-centered welfare regime) and features of the migratory phenomenon (e.g., high shares of illegal entries, wide range of countries of origin). Second, it extends to the national level the empirical research on Italy, which has been almost entirely limited to small-scale and local studies so far. Third, by relying on five different data sources, this work represents a novel research design for Italy in that it combines the investigation of both educational achievement—as measured through marks and outcomes of standardized achievement tests—and educational attainment—in both its vertical and horizontal dimension, thus considering dropout risks and school track choice. Fourth, these aspects have been investigated at different stages of the education system allowing for a comprehensive and systematic empirical inquiry on the schooling of children of immigrants in Italy, which surely contributes to the knowledge of the phenomenon and, hopefully, paves the way for future research aimed at addressing more specific research questions and forming policy.

The analyses point to a pronounced educational disadvantage for children of immigrants in both achievement and attainment and throughout all educational levels from primary to upper secondary education. Youths with immigrant origins exhibit lower learning achievements, especially in reading; obtain lower marks; and enrol in shorter and vocational oriented schools—which substantially reduce their chances to access tertiary education. Also, they are more likely to leave the education system without obtaining any qualification and thus enter the lower segments of the labor market with limited chances of upward mobility. Although the analyses were not based on longitudinal data—which would have allowed me to properly account for unobserved individual heterogeneity—it seems reasonable to interpret these findings as a strong indication that children of immigrants are severely disadvantaged and that their disadvantage is fairly

consistent across cohorts, types of schools and educational outcomes or subjects. Moreover, these findings are robust to different data sources and statistical methods, which further reinforces the validity of the conclusions drawn. Thus, immigrant background exerts pronounced negative effects on children's educational opportunities in Italy and, considering that the immigrant population keeps growing in the country, important consequences to the dynamics of inequality of educational opportunity are expected.

A further pessimistic note comes from the consideration that children of immigrants who were born in Italy (the second generation), on average, almost never manage to catch up with natives and it is even unclear whether they make any appreciable educational gain over first-generation immigrants. Although, in general, second-generation children outperform their first-generation counterparts, indicating that immigrant generational status is an important factor, differences in the educational outcomes of the first and the second generation appear rather small and are often insignificant. Apparently, this finding contrasts with a well-established regularity in international research, which shows that second-generation children display significantly better outcomes compared to their first-generation counterparts and in some cases reach or even outperform natives. But do children of immigrants all encounter the same problems? As I am going to discuss below, rather than a clear generational pattern of either decline or progress, highly differentiated patterns are found to take place, underscoring that children of immigrants' educational success, first, varies depending on the specific educational outcomes considered and, second, it is to a great extent dependent on country of origin.

To begin with, as summarized in table 7.1, the second generation makes much progress over first-generation children with regard to educational choices and dropout risk, becoming undistinguishable from natives. In contrast, with regard to learning achievements a much smaller progress is detected across generations when individual and family characteristics are held equal. Hence, immigrants' children development of competencies across generations is rather limited as compared to the pronounced reduction of the disadvantage in educational decisions and dropout risks. In other words, children of immigrants seem to encounter greater difficulties in achievement even if they were born and raised in Italy. A slightly bigger generational progress is detected in reading skills relative to mathematics, but also in this case second-generation students do not reach the level of natives. This suggests that the second generation benefits from not having to adapt to a new country and thus to learn a new language from scratch. At the same time, if both their parents are born abroad (and, consequently, hardly possess a good mastery of the Italian language), the linguistic acculturation process of children is limited, possibly because they seldom speak the host country language at home.

Table 7.1 The educational disadvantage of first- and second-generation children of immigrants and children of mixed parentage adjusted for social background, across educational outcomes and levels (Italy, various years)

|  | Standardized test scores in primary education | Lower secondary education exit exam | Dropout risk in upper secondary education | General school enrolment | Standardized test scores in upper secondary education |
|---|---|---|---|---|---|
| First Generation | +++ | +++ | +++ | +++ | +++ |
| Second Generation | ++ | +++ | 0 | 0 | ++ |
| Mixed Parentage | 0 | ++ | 0 | 0 | 0 |

*Note*: "+" indicates the existence of a disadvantage relative to natives, "0" indicates a substantial equality with natives, while "—" indicates the existence of an immigrants' advantage over natives. Double or triple "—" or "+" indicate stronger gaps. The table refers to differences between children of immigrants and natives adjusted for socioeconomic background.

The distinction largely known in the literature between primary and secondary effects of immigrant background (and thus between the component of inequality that results in differentiated learning achievements from the component that determines variations in educational choices conditional upon prior achievement) could help interpret these findings (Heath and Brinbaum 2007, Kristen, et al. 2011). Unfortunately, due to data limitations, these two components could not be empirically distinguished and therefore the conclusions on upper secondary education that we can draw are a mixture of both, especially those regarding dropout—considering that dropout risk is significantly determined by poor educational performance.[86] Nonetheless, keeping in mind this *caveat*, the analysis provides reasonably strong support for the results found in other countries, which point out that primary effects of immigrant background are stronger than secondary effects (Kristen, et al. 2008). The fact that educational achievement gaps persist across generations, while gaps in attainment disappear, reinforces this statement. But before speculating about the potential explanatory mechanisms of these differences, the basic message coming from the empirical results reported here is that the acculturation process of children of immigrants in Italy is to some extent "blocked"—at least when it comes to learning achievements and skill formation—and that immigration status of the parents is almost as important as that of their children. If both parents were born abroad, their children, regardless of their own place of birth, encounter marked difficulties at school. However, this generally weak generational progress in educational achievement might be partially explained by differences in the country-of-origin composition of the first and the second

---

[86] Results on primary and lower secondary education are unaffected by this problem, because these schools are compulsory and fully comprehensive, and thus immigrant-native differences in outcomes are fully interpretable as "primary effects".

generation. The relatively poor outcomes of the second generation could be explained by the higher share, as compared to the first generation, of Northern Africans—who display particularly poor educational outcomes in Italy as in other European countries. Hence, it is rather difficult to derive an overall conclusion about the existence of a generational progress in children of immigrants' education. Instead, it is more appropriate to comment on the generational patterns observed within specific national-origin groups, as I am going to do below.

The existence of such compositional effects does not invalidate the conclusion about the importance of parental resources, which is instead further reinforced when turning the attention to the experience of mixed-parentage children (i.e., children with one native- and one foreign-born parent). These children are much more well-off compared to those with both foreign-parents and essentially perform at the same level as natives (with the only exception of the exit exam of lower secondary education, in which they significantly underperform natives). Having at least one native parent serves as a protective factor against low performance and shorter scholastic careers, because the native parent possesses the country specific human capital and the social capital needed to foster their children's schooling. This result highlights the importance of distinguishing children of mixed parentage from those with two foreign-born parents. Quite often in empirical works these groups are analyzed together, yet the findings reported in this dissertation clearly indicate that their situation is very different.

As mentioned above, besides immigrant generational status, another important source of heterogeneity in children of immigrants' educational outcomes is country of origin. In line with the segmented assimilation theory, which predicts divergent pathways of assimilation along ethnic lines (Portes and Zhou, 1993), empirical research has extensively documented that different ethnic groups show different trajectories of educational achievement and attainment. The analyses presented in this dissertation substantially confirm such heterogeneity. As summarized in table 7.2, national-origin groups display highly different levels of educational success and, although they all slightly improve, or at least maintain, their education across generations, there are also quite different patterns that are worth being carefully considered. The two most severely disadvantaged groups (Sub-Saharan Africans and North-Africans) also show inconsistent generational gains. Second-generation children from these countries make some progress with regard to attainment—meaning that they have lower risks of dropout and slightly higher chances of being enrolled in academically oriented schools as compared to the first-generation members from the same countries—but at the same time they do not improve marks in lower second education. Particularly, Northern Africans (mainly Moroccans) show a poor integration into the Italian school system. Although this unsuccessful story has been repeatedly observed in other European contexts (Brinbaum and Cebolla-Boado 2007, Van De Werfhorst

and Van Tubergen 2007, Levels and Dronkers 2008), it is nonetheless quite striking to observe such a large disadvantage for the second-generation descendants of one of the longest-established immigrant communities in Italy. With the available data it was not possible to disentangle the specific mechanisms underlying the disadvantage of these students. Social background was found to explain the gap in educational attainment for the second generation of Northern African ancestry, but it could not account for the gaps in marks, which persisted even after adjusting for language proficiency. Hence, these findings raise the question whether Northern African students are encountering particularly high cultural barriers or adverse contexts of reception: two aspects that future research should seek to address with new data.

Table 7.2 The educational disadvantage of first- and second-generation children of immigrants adjusted for social background, by country of origin (Italy, various years)

| Countries of origin | First Generation | Second Generation |
| --- | --- | --- |
| Northern Africa and Middle East | +++ | ++ |
| Sub-Saharan Africa | +++ | ++ |
| South-Eastern Europe | ++ | ++ |
| Latin America | + | 0 |
| Eastern European countries | 0 | 0 |
| Western Countries | 0 | 0 |
| Eastern Asia | ++ | — |

*Note*: "+" indicates the existence of a disadvantage relative to natives, "0" indicates a substantial equality with natives, while "—" indicates the existence of an immigrants' advantage over natives. Double or triple "—" or "+" indicate stronger gaps. The table refers to differences between children of immigrants and natives adjusted for socioeconomic background, and are based on results presented in chapters 4 and 5 using data from ITAGEN2 and the Italian Labor Force Survey.

Also South-Eastern Europeans (mainly Romanians and Albanians) face a pronounced educational disadvantage, but mixed evidence was found regarding their progress across generations. Second-generation members of this group do worse than their first-generation co-ethnics on the exit exam of lower secondary education, whereas with regard to educational attainment (dropout and track placement) they show weak improvement. Such evidence strikingly contrasts with a widely accepted assumption according to which the higher the performance at one specific educational stage, the higher the outcomes at the subsequent one. Hence, more research is needed to disentangle the mechanisms which lead to this result, which might be a consequence of differences in the national-composition of the first and second generation of this broad group. Unfortunately, with the available data it was not possible to

further break down this group. Data limitations also prevented teasing out the link between their prior academic performance and their educational attainment in upper secondary education; however the relatively scarce family socioeconomic conditions seem to be the main driver of the lower school attainment of South-Eastern Europeans.

Next, results highlight that first-generation immigrants from Latin America encounter a small disadvantage which disappears when turning the attention to the second generation. Hence, second-generation children of Latin American ancestry seem to overcome the small disadvantages faced by their first-generation co-ethnics and are hardly distinguishable from natives. Among the least disadvantaged immigrant groups there are also children of Western and Eastern European ancestries. In line with a quite well-established finding in the literature (Heath, et al 2008), youths from Western European countries perform at the same level as natives regardless of their generational status, once family background is held constant. Cultural proximity as well as the presence of return migration are plausible explanations for the good performance of Western Europeans in Italy, whereas for the descendants of Eastern European migrants—who also are essentially undistinguishable from natives—the high human capital possessed by the parents could be the key factor in determining their high outcomes (Kogan 2011).

Finally, the situation of children of Eastern Asian ancestry is extremely heterogeneous. In apparent contradiction with international research, immigrants from East-Asian countries (predominantly, China and India) are among the most severely disadvantaged groups in Italy when it comes to school participation in upper secondary education, even after taking into account the pronounced segregation of their parents into self-employment. This result is even more surprising when considering the outstanding performance of these students in lower secondary education. However, this negative gap entirely disappears, and becomes even positive (with Chinese students outperforming natives), in both marks and educational attainment once the attention is turned to the second-generation members of this group—being this latter result fully in line with previous research (Heath, et al. 2008). This marked generational progress suggests that length of exposure to the host society is a key aspect for Eastern Asian descendants who seemingly manage to overcome the high linguistic and cultural barriers encountered, possibly because, as often found in the literature, Asian families attach high importance to the investment in education of their children, have more strict parenting styles and spend more time with them (Kao and Tienda, 1995, Louie 2001). Simply put, the experience of Asian students in Italy would seem to fit into the "assimilation hypothesis". However, in order to corroborate such an interpretation, further research should attempt to disentangle the link between educational outcomes and the social integration of Asian communities—which is particularly low for the

Chinese (Ceccagno 2004). This point raises a wider theoretical question about whether ethnic ties are detrimental or beneficial for the educational success of members of the ethnic group (Alba and Nee 1997, Zhou 1997). More specifically, future research should seek to understand whether the great educational gains detected for Eastern Asian students are attributable to the weakening of ethnic ties across generations, or, on the contrary, whether these youths take advantage of ethnic community resources and networks, which might not necessarily vanish but could instead reinforce over time (Portes and Rumbaut 2001).

All in all, rather than a clear generational pattern of either decline or progress, highly differentiated patterns are tacking place in Italy. Examples of successful schooling—which would reinforce an optimistic view about the chances of immigrant adaptation to the country—co-exist with systematic cases of persisting educational drawbacks—which would depict a rather pessimistic scenario. Unfortunately, with the available data it was not possible to explore ethnic heterogeneity in test scores, therefore the external validity of these conclusions is restricted to marks and upper secondary school participation. Considering that test scores represent a more objective measure of cognitive skills compared with marks, future research should overcome this shortcoming. Moreover, results concerning the second generation's educational outcomes in upper secondary education should be regarded as provisional. Because immigration is a new phenomenon in Italy, the majority of the second generation is currently attending lower educational levels, and second-generation students in Italian upper secondary schools are, to some extent, "pioneers". Hence, it will be important to update these results in the upcoming years and assess whether the conclusions on school integration of the second generation are confirmed.

When commenting on generational and national-origin patterns of educational achievement and attainment I have stated several times that family background is an important determinant of such variations, but what is its specific contribution? And does it vary across generational and national groups? In line with quite a large body of research carried out in several European countries (Heath, et al. 2008), the empirical analyses presented in this thesis established that a substantial part of the gross differences observed between natives and children of immigrants are a reflection of group differences in socioeconomic endowments. Such a finding was found to be consistent across educational levels, data sources, different measures of social origins and also different educational outcomes. Thus, it can be asserted with a fairly high degree of confidence that roughly half of the observed gaps between natives and children of immigrants is in fact due to the low socio-economic resources available to the latter. Considering that adult immigrants (the parental generation), on average, have access to lower-status and less rewarding occupations than natives with similar characteristics (Fullin and Reyneri 2011), it is not

surprising to find that these occupational and economic drawbacks are passed on to the children's generation, with less educationally relevant resources available and less investment in their education.

However, the analyses also highlighted the heterogeneity of the contribution of social origins across generations and ethnic groups. Regarding generations, as showed in Table 7.1, social origins explain the small disadvantage of the second generation in regard to educational attainment, but do not suffice in accounting for their gaps in achievement outcomes, suggesting, as just said above, that the learning development of second-generation children is strongly dependent on their parents' immigrant status. A further consideration is that, although social origins' contribution to the gap of the second generation is slightly larger than that for the first generation, social origins hardly serve as an explanation for the differences *between* generations. Even though parents of second-generation children have spent more years in Italy, they still encounter significantly strong penalties in the labor market. This is also indirect evidence that occupational upward mobility of adult immigrants in Italy—if it exists at all—is happening at a rather slow pace.

Next, the contribution of social origins is found to be highly heterogeneous across ethnic groups. Supporting the conclusions reached by studies carried out in other European countries (Heath, et al. 2008), I found that socioeconomic background plays a relatively stronger role for the least disadvantaged groups, suggesting that the particularly high drawbacks of the most severely disadvantaged groups are possibly rooted in cultural factors. As already mentioned above, social origins completely explain all the small gap of Westerners and Eastern Europeans, who are culturally close to natives and have highly educated parents, whereas they play a relatively smaller role for Northern and Sub-Saharan Africans, who are both linguistically and culturally more distant from the host society. Likewise, social origins explain a small part of the large dropout risks of first-generation Eastern Asians—who encounter particularly high linguistic barriers as well as pronounced social segregation (especially, the Chinese)—whereas social origins play a much more relevant role when the second generation is considered—which has for the most part overcome linguistic problems.

All in all, we can conclude that a traditional explanation of educational inequality, like social origins—which has been long proven to affect natives' educational opportunities (Breen and Jonsson 2005)—also significantly affects the schooling of children of immigrants. Thus, the increased number of foreigners in Italian classrooms has not only been accompanied by the emergence of new differences but it has also renewed the attention towards old ones, which, although slowly declining among the native population (Breen, et al. 2009, Barone, et al. 2010), have become increasingly important when looking at students of immigrant descent.

Still, some relevant parts of the gaps, especially for the most disadvantaged groups, remain unexplained. A large body of research has demonstrated that, among the culturally relevant resources possessed by immigrant families which could help explain educational gaps, language is probably one of the most important. Hence, drawing on this research, I hypothesized that proficiency in the Italian language could be an important additional explanatory factor, especially considering that, as is well known, immigrants hardly possess an adequate mastery of the Italian language when they first enter the country. Results have demonstrated that students who frequently speak Italian with their parents and display a good mastery of the Italian language encounter fewer difficulties at school. Also, language acquisition seems to be sensitive to students' age and time spent in the country—because it plays a more important role at lower education levels as compared to upper secondary education, and even more so for first-generation children, although, as mentioned above, significant gaps in reading skills are detected also for the second generation. Moreover, its contribution also showed some notable variations across ethnic groups, proving to be especially strong for pupils of Eastern Asian ancestry, whose mother tongue is rather distant from Italian.

A further argument for explaining the achievement gaps is related to the possibility that immigrant parents cannot provide their children with the same educational support as native parents do and that they are less able to support their children's engagement in cognitively stimulating activities. Unfortunately such direct measures of parental involvement and educationally relevant resources at home were not always available in the data sources employed in this dissertation. Nevertheless, evidence from primary schools suggested that the introduction of such direct measures adds additional explanatory power to traditional indicators of family socioeconomic background. This finding is particularly interesting in light of the consideration that cognitive and non-cognitive skills acquired at the first stages of pupils' educational careers determine their subsequent educational outcomes and future life chances (Cunha, et al. 2006). It shall be underscored that these lower investments in children's education are not necessarily due to lower value attached to education but they are likely a consequence of the fact that immigrant parents often have less time to dedicate to their children's scholastic activities (Dalla Zuanna, et al. 2009) possibly because of their precarious and disadvantaged job positions. In addition to these "socioeconomic" impediments, immigrant parents often lack the necessary language skills and country-specific knowledge which would allow them to provide children with valuable support in school work as well as positive interaction with schools and teachers. All these factors related to home environments and families' access to social networks and information channels could not be adequately investigated with the available data and therefore they could be object of future empirical work.

To conclude, the demographic expansion of immigrants' children at school—coupled with their checkered educational outcomes—calls for urgent policy intervention. But what policies are needed to redress this upsurging form of educational inequality and to ensure that children obtain the schooling they aspire and they qualify to, regardless of their immigrant background? Although this dissertation was not directly aimed at elaborating nor assessing new policy solutions, some of the empirical findings presented here pave the way for further research specifically addressed to this policy dimension. First of all, results showed that policy aimed at reducing immigrant-native gaps in education should be tailored to the individual and the family rather than to the class or the school level. This statement is based on the fact that a clear link between the percentage of immigrants in the classroom and student achievement was not identified in this thesis. Without addressing the causality of this relationship, the non-existence of such association, over and beyond family background, might be a consequence of the fact that strong immigrant residential segregation has not taken place thus far in Italy and, consequently, immigrants are rather evenly distributed across schools. Moreover, not even in schools with the highest concentration of immigrants (i.e., vocational schools) was a negative association found reinforcing the conclusion that the problem of immigrant concentration is still limited to a marginal fraction of schools in Italy. Hence, rather than investing resources on desegregation policies—whose appropriateness and effects are unclear—public policy should be first aimed at easing some of the well-known hindrances faced by children of immigrants at the individual and family level. Some examples of policy measures that could effectively enhance immigrants' educational outcomes might include targeted language training programmes for newcomers or initiatives aimed at encouraging and stimulating immigrant parents' involvement in their children's schooling also through enhanced interaction with teachers. Moreover, activities of educational guidance at the end of lower and upper secondary education with a specific focus on the information problems of children of immigrants and their families are advised. In all these aspects, policy oriented research surely should be encouraged in order to sustain the elaboration and implementation of evidence-based policies. But, beyond these interventions, the most important take-away message for policy makers is that educational policies for children of immigrants should not overlook the role played by socioeconomic background. Because a substantial part of the immigrant-native gap is accounted for by different socioeconomic endowments, it is clear that *ad hoc* policies, as those just listed above, are not enough for children of immigrants to close their gaps relative to natives. These *ad hoc* policies should be accompanied by a strong commitment to reduce the burden of socioeconomic deprivation for all students—be they natives or children of immigrants. Such a comprehensive perspective on the phenomenon would allow public recognition of the hindrances faced by the newcomers, which are only

partially "new" problems. In fact, for the most part they are problems which have traditionally affected educational opportunity in Italy, as well as other Western societies, and which still heavily condition children's opportunities regardless of their migration background.

# References

Abdulkadiroglu, A., Angrist, J. D., and Pathak, P. A. (2011), "The Elite Illusion: Achievement Effects at Boston and New York Exam Schools," Technical, National Bureau of Economic Research.

Adsera, A., and Pytlikova, M. (2012), "The Role of Language in Shaping International Migration," *IZA Discussion Paper Series*, 6333.

Adsera, A., and Tienda, M. (2012), "Comparative Perspectives on International Migration and Child Wellbeing," *The ANNALS of the American Academy of Political and Social Science*, forthcoming.

Alba, R., Kasinitz, P., and Waters, M. C. (2011), "The Kids Are (Mostly) Alright: Second-Generation Assimilation: Comments on Haller, Portes and Lynch," *Social Forces*, 89, 763-773.

Alba, R., and Nee, V. (1997), "Rethinking Assimilation Theory for a New Era of Immigration," *International Migration Review*, 826-874.

Alba, R. D., and Nee, V. (2003), *Remaking the American Mainstream: Assimilation and Contemporary Immigration*, Cambridge MA: Harvard University Press.

Allison, P. D. (1999), "Comparing Logit and Probit Coefficients across Groups," *Sociological Methods & Research*, 28, 186-208.

Allmendiger, J. (1989), "Educational Systems and Labor Market Outcomes," *European Sociological Review*, 5, 231-250.

Alon, S., Domina, T., and Tienda, M. (2010), "Stymied Mobility or Temporary Lull? The Puzzle of Lagging Hispanic College Degree Attainment," *Social Forces*, 88, 1807-1832.

Ambrosini, M. (1999), *Utili Invasori: L'inserimento Degli Immigrati Nel Mercato Del Lavoro Italiano*, Milano: FrancoAngeli.

Ambrosini, M. (2001), *La Fatica Di Integrarsi*, Bologna: il Mulino.

Ambrosini, M., and Molina, S. (eds.) (2004), *Seconde Generazioni. Un'introduzione Al Futuro Dell'immigrazione in Italia*, Torino: Fondazione Giovanni Agnelli.

Amistadi, V., Bazzanella, A., and Buzzi, C. (2009), "Genere, Immigrazione E Differenze Di Performance in Scienze, Matematica E Lettura," in *Rapporto Provinciale Pisa 2006. I Dati Ocse-Pisa 2006 Per Il Trentino*, ed. M. Gentile, Trento: Iprase, pp. 143-162.

Arum, R., and Shavit, Y. (1995), "Secondary Vocational Education and the Transition from School to Work," *Sociology of Education*, 68, 187-204.

Azzolini, D., and Barone, C. (2012), "Tra Vecchie E Nuove Disuguaglianze: La Partecipazione Scolastica Degli Studenti Immigrati Nelle Scuole Secondarie Superiori in Italia," *Rassegna Italiana di Sociologia*.

Azzolini, D., Schnell, P., and Palmer, J. (2012), "Educational Achievement Gaps between Immigrant and Native Students in Two New Immigration Countries: Italy and Spain in

Comparison," *The ANNALS of the American Academy of Political and Social Science*, forthcoming.

Ballarino, G., Bernardi, F., Requena, M., and Schadee, H. (2009), "Persistent Inequalities? Expansion of Education and Class Inequality in Italy and Spain," *European Sociological Review*, 25, 123-138.

Ballarino, G., and Checchi, D. (eds.) (2006), *Sistema Scolastico E Diseguaglianza Sociale. Scelte Individuali E Vincoli Strutturali*, Bologna: Il Mulino.

Ballarino, G., and Schadee, H. (2008), "La Disuguaglianza Delle Opportunità Educative in Italia, 1930-1980: Tendenze E Cause," *Polis*, 22, 373-402.

Barban, N., and Dalla-Zuanna, G. (2010), "A Portrait of Immigrant Children's Housing Experiences in Italy," *Housing Studies*, 25, 559-584.

Barban, N., and White, M. J. (2011), "Immigrants' Children's Transition to Secondary School in Italy," *International Migration Review*, 45, 702-726.

Barone, C. (2006), "Cultural Capital, Ambition and the Explanation of Inequalities in Learning Outcomes: A Comparative Analysis," *Sociology*, 40, 1039-1058.

Barone, C. (2011a), "I Percorsi Di Studio Successivi Alla Qualifica," in *Gli Esiti Formativi Ed Occupazionali Dei Giovani Qualificati Nei Percorsi Triennali Di Istruzione E Formazione Professionale*, ed. IARD, Trieste e Milano, pp. 66-75.

Barone, C. (2011b), "Some Things Never Change. Gender Segregation in Higher Education across Eight Nations and Three Decades," *Sociology of Education*, 84, 157-176.

Barone, C. (2012), "Contro L'espansione Dell'istruzione (E Per La Sua Ridistribuzione). Il Caso Della Riforma Universitaria Del 3+2," *Scuola Democratica*, 4.

Barone, C., Luijkx, R., and Schizzerotto, A. (2010), "Elogio Dei Grandi Numeri: Il Lento Declino Delle Disuguaglianze Nelle Opportunità Di Istruzione in Italia," *Polis*, XXIV, 5-34.

Barone, C., and Van de Werfhorst, H. G. (2011), "Education, Cognitive Skills and Earnings in Comparative Perspective," *International Sociology*, 26, 483.

Beck, A., Corak, M., and Tienda, M. (2012), "Age at Immigration and the Adult Attainments of Child Migrants to the United States," *The ANNALS of the American Academy of Political and Social Science*, forthcoming.

Becker, G. (1964), *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, Columbia University Press: New York.

Becker, G. (1967), *Human Capital and the Personal Distribution of Income*, University of Michigan Press.

Becker, G. S., and Lewis, H. G. (1973), "On the Interaction between the Quantity and Quality of Children," *Journal of Political Economy*, 81, 279-288.

Becker, R. (2003), "Educational Expansion and Persistent Inequalities of Education," *European Sociological Review*, 19, 1-19.

Bertozzi, R. (2004), "Dopo La Terza Media: Le Scelte, La Riuscita E Le Aspettative Dei

Giovani," in *La Condizione Dei Minori Stranieri in Italia, Ministero Dell'istruzione, Dell'università E Della Ricerca*, ed. G. Giovannini, Fondazione ISMU.

Besozzi, E., and Colombo, M. (eds.) (2006), *Percorsi Dei Giovani Stranieri Tra Scuola E Formazione Professionale in Lombardia*, ed. R. 2005, Milano: Fondazione ISMU.

Besozzi, E., and Colombo, M. (eds.) (2007), *Giovani Stranieri in Lombardia Tra Presente E Futuro. Rapporto 2006*, Milano: Fondazione Ismu.

Besozzi, E., Colombo, M., and Santagati, M. (eds.) (2009), *Giovani Stranieri, Nuovi Cittadini. Le Strategie Di Una Generazione Ponte*, ed. F. Ismu, Milano: Franco Angeli.

Biedinger, N., Becker, B., and Rohling, I. (2008), "Early Ethnic Educational Inequality: The Influence of Duration of Preschool Attendance and Social Composition," *European Sociological Review*, 24, 243-256.

Blake, J. (1981), "Family Size and the Quality of Children," *Demography*, 18, 421-442.

Blangiardo, G. C., and Tanturri, M. L. (2006), "La Presenza Straniera in Italia," in *Il Mezzogiorno Dopo La Grande Regolarizzazione. Immagini E Problematiche Dell'immigrazione* (Vol. 3), eds. G. C. Blangiardo and P. Farina, Milano: Franco Angeli.

Blau, P. M., and Duncan, O. D. (1967), *The American Occupational Structure*, ed. Wiley, New York:

Bleakley, H., and Chin, A. (2010), "Age at Arrival, English Proficiency, and Social Assimilation among U.S. Immigrants," *American Economic Journal: Applied Economics*, 2, 165.

Bodovski, K. (2010), "Parental Practices and Educational Achievement: Social Class, Race, and Habitus," *British Journal of Sociology of Education*, 31, 139 - 156.

Borjas, G. (1992), "Ethnic Capital and Intergenerational Mobility," *The Quarterly Journal of Economics*, 107, 123-150.

Borjas, G. J. (1995), "Ethnicity, Neighborhoods, and Human Capital Externalities," *The American Economic Review*, 85, 365-390.

Borrione, P., Donato, L., Landini, S., and Valletti, R. (2006), "Alunni Stranieri, Futuri Cittadini: Un Confronto Tra Gli Studenti Italiani E Stranieri in Piemonte Attraverso I Dati Pisa 2003," in *Pisa 2003: Bravi Come Gli Altri. Nuova Luce Sulle Competenze Dei Quindicenni Nel Confronto Tra Regioni Italiane Ed Europee*, ed. L. Abburrà, Milano: Franco Angeli, pp. pp. 129-148.

Boudon, R. (1974), *Education, Opportunity and Social Inequality*, New York: Wiley.

Bourdieu, P., and Passeron, J. C. (1979), *The Inheritors: French Students and Their Relation to Culture*, University of Chicago Press Chicago.

Bourdieu, P., and Passeron, J. C. (1990), *Reproduction in Education, Society, and Culture* (Vol. 4), Sage Publications Ltd.

Bratti, M., Checchi, D., and Filippin, A. (eds.) (2007), *Da Dove Vengono Le Competenze Degli Studenti? I Divari Territoriali Nell'indagine Ocse Pisa 2003*, Bologna: Il Mulino.

Breen, R. (2001), "A Rational Choice Model of Educational Inequality," *J. March Institute working paper*.

Breen, R. (ed.) (2004), *Social Mobility in Europe*, Oxford: Oxford University Press.

Breen, R., and Goldthorpe, J. H. (1997), "Explaining Educational Differentials: Towards a Formal Rational Action Theory," *Rationality and Society*, 9, 275-305.

Breen, R., and Jonsson, J. O. (2005), "Inequality of Opportunity in Comparative Perspective: Recent Research on Educational Attainment and Social Mobility," *Annual Review of Sociology*, 31, 223-243.

Breen, R., Luijkx, R., Müller, W., and Pollak, R. (2009), "Non-Persistent Inequality in Educational Attainment: Evidence from Eight European Countries," *American journal of sociology*, 114, 1475-1521.

Bressan, N. (2012), "La Presenza Economica Cinese in Lombardia E Trentino. Il Settore Della Ristorazione E Il Distretto Del Porfido," *I Quaderni di Sociologia*, 57.

Brinbaum, Y., and Cebolla-Boado, H. (2007), "The School Careers of Ethnic Minority Youth in France. Success or Disillusion?," *Ethnicities*, 7, 445–474.

Buchmann, C., and Park, H. (2009), "Stratification and the Formation of Expectations in Highly Differentiated Educational Systems," *Research in Social Stratification and Mobility*, 27, 245-267.

Campani, G., Carchedi, F., and Tassinari, A. (eds.) (1994), *L'immigrazione Silenziosa, Le Comunità Cinesi in Italia*, Torino: Fondazione Agnelli.

Canino, P. (2010), *Stranieri Si Nasce...E Si Rimane? Differenziali Nelle Scelte Scolastiche Tra Giovani Italiani E Stranieri*, Fondazione Cariplo.

Casacchia, O., Natale, L., Paterno, A., and Terzera, L. (2008), *Studiare Insieme, Crescere Insieme? Un'indagine Sulle Seconde Generazioni in Dieci Regioni Italiane*, Milano: Franco Angeli.

Castles, S., and Miller, M. J. (2003), *The Age of Migration: International Population Movements in the Modern World*, New York: Guildorf Press.

Cebolla-Boado, H. (2007), "Immigrant Concentration in Schools: Peer Pressures in Place?," *European Sociological Review*, 23, 341-356.

Cebolla-Boado, H. (2011), "Primary and Secondary Effects in the Explanation of Disadvantage in Education : The Children of Immigrant Families in France," *British Journal of Sociology of Education*, 32, 407-430.

Cebolla-Boado, H., and Medina, L. G. (2011), "The Impact of Immigrant Concentration in Spanish Schools: School, Class, and Composition Effects," *European Sociological Review*, 27, 606-623.

Ceccagno, A. (2004), *Giovani Migranti Cinesi: La Seconda Generazione a Prato*, Milano: Franco Angeli.

Chantala, K., Blanchette, D., and Suchindran, C. M. (2006), "Software to Compute Sampling Weights for Multilevel Analysis," *Carolina Population Center*.

Checchi, D. (2009), "Uguaglianza Delle Opportunità Nella Scuola Secondaria Italiana," *Università di Milano, working paper*, 3rd and 5th version - august/october 2009.

Checchi, D., and Braga, M. (2009), "Divario Territoriale E Formazione Delle Competenze Degli Studenti Quindicenni," *Ricercazione*, 1, 115-131.

Checchi, D., and Flabbi, L. (2006), "Mobilità Intergenerazionale E Decisioni Scolastiche in Italia," in *Sistema Scolastico E Disuguaglianza Sociale. Scelte Individuali E Vincoli Strutturali*, eds. G. Ballarino and D. Checchi, Bologna: Il Mulino, pp. 27-90.

Checchi, D., and Flabbi, L. (2007), "Intergenerational Mobility and Schooling Decisions in Italy and Germany," *IZA Discussion Paper*, No. 2876.

Chiswick, B. R. (1978), "The Effect of Americanization on the Earnings of Foreign-Born Men," *The Journal of Political Economy*, 86, 897-921.

Chiswick, B. R., and DebBurman, N. (2004), "Educational Attainment: Analysis by Immigrant Generation," *Economics of Education Review*, 23, 361-379.

Chiswick, B. R., and Miller, P. W. (2005), "Linguistic Distance: A Quantitative Measure of the Distance between English and Other Languages," *Journal of Multilingual and Multicultural Development*, 26, 1-11.

Chiswick, B. R., and Miller, P. W. (2009), "The International Transferability of Immigrants' Human Capital," *Economics of Education Review*, 28, 162-169.

Cnel-Censis. (2008), "Vissuti Ed Esiti Della Scolarizzazione Dei Minori Di Origine Immigrata in Italia."

Cobalti, A., and Schizzerotto, A. (1994), *La Mobilità Sociale in Italia*, Bologna: Il Mulino.

Coleman, J. S. (1988), "Social Capital in the Creation of Human Capital," *American journal of sociology*, 95-120.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, F., Mood, A. M., and Weinfeld, F. D. (1966), *Equality of Educational Opportunity*, Washington, DC: U.S. Dept. of Health Education and Welfare Office of Education.

Collins, R. (1993), "Emotional Energy as the Common Denominator of Rational Action," *Rationality and Society*, 5, 203.

Colombo, A., and Sciortino, G. (2004a), *Gli Immigrati in Italia*, Bologna: Il Mulino.

Colombo, A., and Sciortino, G. (2004b), "Italian Immigration: The Origins, Nature and Evolution of Italy's Migratory Systems," *Journal of Modern Italian Studies*, 9, 49-70.

Condron, D. J. (2009), "Social Class, School and Non-School Environments, and Black/White Inequalities in Children's Learning," *American Sociological Review*, 74, 683-708.

Constant, A., and Massey, D. S. (2005), "Labor Market Segmentation and the Earnings of German Guestworkers," *Population Research and Policy Review*, 24, 489-512.

Crosnoe, R. (2001), "The Social World of Male and Female Athletes in High School," *Sociological Studies of Children and Youth*, 8, 89-110.

Crul, M., and Schneider, J. (2009), "Children of Turkish Immigrants in Germany and the Netherlands: The Impact of Differences in Vocational and Academic Tracking Systems," *The*

*Teachers College Record*, 111, 1508-1527.

Cunha, F., Heckman, J. J., Lochner, L., and Masterov, D. V. (2006), "Interpreting the Evidence on Life Cycle Skill Formation " in *Handbook of the Economics of Education* (Vol. 1), eds. E. Hanushek and F. Welch, Amsterdam: Elsevier.

Cvajner, M., and Sciortino, G. (2010), "Away from the Mediterranean. Italy's Changing Migration Systems," *Italian Politics and Society*, 69, 15-23.

Dalla Zuanna, G., Farina, P., and Strozza, S. (2009), *Nuovi Italiani. I Giovani Immigrati Cambieranno Il Nostro Paese?* , Bologna: Il Mulino.

Dearden, L., Machin, S., and Vignoles, A. (2009), "Economics of Education Research: A Review and Future Prospects," *Oxford review of education*, 35, 617-632.

DiMaggio, P. (1982), "Cultural Capital and School Success: The Impact of Status Culture Participation on the Grades of Us High School Students," *American Sociological Review*, 189-201.

Dronkers, J., and Robert, P. (2008), "Differences in Scholastic Achievement of Public, Private Government-Dependent, and Private Independent Schools," *Educational Policy*, 22, 541.

Duncan, G. J., and Magnuson, K. A. (2005), "Can Family Socioeconomic Resources Account for Racial and Ethnic Test Score Gaps?," *The future of Children - Princeton Brookings*, 15, 35-54.

Dustmann, C. (2004), "Parental Background, Secondary School Track Choice, and Wages," *Oxford Economic Papers*, 56, 209-230.

Dustmann, C., Frattini, T., and Lanzara, G. (2011), "Educational Achievement of Second Generation Immigrants: An International Comparison," *CReAM Discussion Paper Series*, 16.

Entorf, H., and Lauk, M. (2008a), "Peer Effects, Social Multipliers and Migrants at School: An International Comparison," *Journal of Ethnic and Migration Studies*, 34, 633-654.

Entorf, H., and Minoiu, N. (2004), "Pisa Results: What a Difference Immigration Law Makes," *IZA Discussion Paper*, No. 1021.

Entorf, P. H., and Lauk, D. M. (2008b), "Peer Effects, Social Multipliers and Migrants at School: An International Comparison," *Journal of Ethnic and Migration Studies*, 34, 633-654.

Erikson, R., and Goldthorpe, J. (1992), *The Constant Flux: A Study of Class Mobility in Industrial Societies*, Oxford: Clarendon Press.

Erikson, R., and Jonsson, J. (eds.) (1996), *Can Education Be Equalized? The Swedish Case in Comparative Perspective*, Oxford: Westview Press.

Esping-Andersen, G. (2004), "Unequal Opportunities and the Mechanisms of Social Inheritance," in *Generational Income Mobility in North America and Europe*, ed. M. Corak, Cambridge: Cambridge University Press, pp. 289-314.

Esser, H. (2006), "Migration, Language and Integration," *AKI Research Review - WZB Berlin*, 4.

Eurostat. (2011), "Europe in Figures - Eurostat Yearbook 2011," *European Union*.

Fairlie, R. W. (2003), "An Extension of the Blinder/Oaxaca Decomposition Technique to Logit

and Probit Models," *Economic Growth Center Yale University*, Discussion Paper No. 873, New Haven, CT: Yale Department of Economics.

Fasani, F. (2008), "Country Report for Italy: Undocumented Migration: Counting the Uncountable: Data and Trends across Europe," *Clandestino*, http://irregular-migration.net//Italy_Database.5798.0.html.

Fekjær, S. N. (2007), "New Differences, Old Explanations. Can Educational Differences between Ethnic Groups in Norway Be Explained by Social Background?," *Ethnicities*, 7, 367–389.

Fekjær, S. N., and Birkelund, G. E. (2007), "Does the Ethnic Composition of Upper Secondary Schools Influence Educational Achievement and Attainment? A Multilevel Analysis of the Norwegian Case," *European Sociological Review*, 23, 309–323.

Feliciano, C. (2005), "Does Selective Migration Matter? Explaining Ethnic Disparities in Educational Attainment among Immigrants' Children," *International Migration Review*, 39, 841-871.

Feliciano, C., and Rumbaut, R. G. (2005), "Gendered Paths: Educational and Occupational Expectations and Outcomes among Adult Children of Immigrants," *Ethnic and Racial Studies*, 28, 1087-1118.

Fertig, M. (2003), "Educational Production, Endogenous Peer Group Formation and Class Composition: Evidence from the Pisa 2000 Study," *IZA Discussion Papers*, 714.

Fischer, C. S., Hout, M., Jankowski, M. S., Lucas, S. R., Swidler, A., and Voss, K. (1996), *Inequality by Design: Cracking the Bell Curve Myth*, Princeton, NJ: Princeton University Press

Freeman, R. B. (2006), "People Flows in Globalization," *Journal of Economic Perspectives*, 20, 145-170.

Friedberg, R. M. (2000), "You Can't Take It with You? Immigrant Assimilation and the Portability of Human Capital," *Journal of Labor Economics*, 221-251.

Fullin, G., and Reyneri, E. (2011), "Low Unemployment and Bad Jobs for New Immigrants in Italy," *International Migration*, 49, 118-147.

Gabrielli, G., Paterno, A., Castiglioni, B., and Dalla Zuanna, G. (2009), "Two Years Later: Integration Process of Second Generation Migrants in Italy," *XXVI IUSSP International Population Conference*.

Gans, H. J. (1992), "Second‐Generation Decline: Scenarios for the Economic and Ethnic Futures of the Post‐1965 American Immigrants," *Ethnic and Racial Studies*, 15, 173-192.

Gans, H. J. (2007), "Acculturation, Assimilation and Mobility," *Ethnic and Racial Studies*, 30, 152-164.

Ganzeboom, H. B. C., Graaf, P. M. d., and Treiman, D. J. (1992), "A Standard Socio-Economic Index of Occupational Status," *Social science research*, 21, 1-56.

Gibson, M. A. (1988), *Accommodation without Assimilation: Sikh Immigrants in an American High School*, Ithaca, NY: Cornell Univ Press.

Gibson, M. A., and Ogbu, J. U. (1991), *Minority Status and Schooling: A Comparative Study of Immigrant and Involuntary Minorities*, New York: Garland Publishing.

Giovannini, G., and Queirolo Palmas, L. (eds.) (2002), *Una Scuola in Comune. Esperienze Scolastiche in Contesti Multietnici Italiani*, Torino: Fondazione Giovanni Agnelli.

Glick, J., and White, M. (2003), "The Academic Trajectories of Immigrant Youths: Analysis within and across Cohorts," *Demography*, 40, 759-783.

Goldthorpe, J. (1996), "Class Analysis and the Reorientation of Class Theory: The Case of Persisting Differentials in Educational Attainment " *British Journal of Sociology*, 47, 481-505

Goldthorpe, J. H. (2007), *On Sociology* (2nd ed.), Stanford, Calif.: Stanford University Press.

Gordon, M. M. (1964), *Assimilation in American Life: The Role of Race, Religion, and National Origins*, Oxford University Press, USA.

Granovetter, M. S. (1973), "The Strength of Weak Ties," *American journal of sociology*, 1360-1380.

Haller, W., Portes, A., and Lynch, S. M. (2011), "Dreams Fulfilled, Dreams Shattered: Determinants of Segmented Assimilation in the Second Generation," *Social Forces*, 89, 733-762.

Hancox, R. J., Milne, B. J., and Poulton, R. (2005), "Association of Television Viewing During Childhood with Poor Educational Achievement," *Archives of Pediatrics & Adolescent Medicine*, 159, 614-618.

Hanushek, E., and Wößmann, L. (2006), "Does Educational Tracking Affect Performance and Inequality?," *Economic Journal*, 116.

Hanushek, E. A., Kain, J. F., and Rivkin, S. G. (2009), "New Evidence About Brown V. Board of Education: The Complex Effects of School Racial Composition on Achievement," *Journal of Labor Economics*, 27, 349-383.

Hardouin, J.-B. (2007), "Rasch Analysis: Estimation and Tests with Raschtest," *The Stata Journal*, 7, 1-23.

Harrison, E., and Rose, D. (2009), *Social Class in Europe: An Introduction to the European Socio-Economic Classification*, ed. Routledge, UK:

Hatton, T. J., and Leigh, A. (2011), "Immigrants Assimilate as Communities, Not Just as Individuals," *Journal of Population Economics*, 24, 389-419.

Hauser, R. M., and Warren, J. R. (1997), "Socioeconomic Indexes for Occupations: A Review, Update, and Critique," *Sociological methodology*, 27, 177-298.

Heath, A., and Brinbaum, Y. (2007), "Explaining Ethnic Inequalities in Educational Attainment," *Ethnicities*, 7, 291-305.

Heath, A., and MacMahon, D. (1997), "Education and Occupational Attainment: The Impact of Ethnic Origins," in *Education, Employment and Housing among Ethnic Minorities in Britain*, ed. V. Karn, London: Hmso.

Heath, A., Rothon, C., and Kilpi, E. (2008), "The Second Generation in Western Europe: Education, Unemployment and Occupational Attainment," *Annual Review of Sociology*, 34, 211-235.

Heath, A. F., and Cheung, S. Y. (2007), *Unequal Chances: Ethnic Minorities in Western Labour*

*Markets*, Oxford: Oxford University Press.

Heckman, J. J., and Masterov, D. V. (2004), "The Productivity Argument for Investing in Young Children," *Review of Agricultural Economics*, 29, 446-493.

Hendrickx, J. (2002), "Isko: Stata Module to Recode 4 Digit Isco-88 Occupational Codes," *Statistical Software Components*, Boston College Department of Economics, revised 20 Oct 2004.

Herrnstein, R. J., and Murray, C. A. (1996), *The Bell Curve: Intelligence and Class Structure in American Life*, New York: Free Press.

Hirschman, C. (2001), "The Educational Enrollment of Immigrant Youth: A Test of the Segmented-Assimilation Hypothesis," *Demography*, 38, 317-336.

Hirschman, C., and Wong, M. G. (1986), "The Extraordinary Educational Attainment of Asian Americans: A Search for Historical Evidence and Explanations," *Social Forces*, 65, 1-27.

Hoenig, K., and Wenz, S. E. (2010), "Discrimination in the Evaluation of Primary Schoolers' Performance Experimental Evidence from Germany," *presented at the 3rd International Bamberg Summer School in Empirical Education Research.*

IARD. (ed.) (2011), *Gli Esiti Formativi Ed Occupazionali Dei Giovani Qualificati Nei Percorsi Triennali Di Istruzione E Formazione Professionale*, Trieste e Milano:

Invalsi (2010), *Esami Di Stato I Ciclo - A.S. 2009/10. Prova Nazionale: Prime Analisi*, www.invalsi.it.

Istat (2005), *Gli Stranieri in Italia: Analisi Dei Dati Censuari. 14° Censimento Generale Della Popolazione E Delle Abitazioni*, ed. S. S. Nazionale, Roma:

Istat. (2009), "La Popolazione Straniera Residente in Italia," *www.istat.it.*

Jackson, M., Kiernan, K., and McLanahan, S. (2010), "Nativity Differences in Child Development across Diverse Populations, Settings and Outcomes: Do Socioeconomic Resources Narrow or Widen the Gap?," *Fragile Families Working Paper*, WP 10-11 FF.

Jencks, C., and Tach, L. (2006), "Would Equal Opportunity Mean More Mobility?," in *Mobility and Inequality: Frontiers of Research from Sociology and Economics*, eds. S. Morgan, D. Grusky and G. Fields, Stanford University Press.

Jenks, C., and Mayer, S. E. (1990), "The Social Consequencies of Growing up in a Poor Neighborhood," in *Inner-City Poverty in the United States*, eds. L. J., L. E. and M. G.H., Washington D.C.: National Academy Press.

Jensen, A. R. (1972), *Genetics and Education*, New York: Harper & Row, Publishers, Inc.,.

Kalter, F., and Kogan, I. (2006), "Ethnic Inequalities at the Transition from School to Work in Belgium and Spain: Discrimination or Self-Exclusion?," *Research in Social Stratification and Mobility*, 24, 259-274.

Kao, G. (2004a), "Parental Influences on the Educational Outcomes of Immigrant Youth," *International Migration Review*, 38, 427-449.

Kao, G. (2004b), "Social Capital and Its Relevance to Minority and Immigrant Populations," *Sociology of Education*, 77, 172-175.

Kao, G., and Thompson, J. S. (2003), "Racial and Ethnic Stratification in Educational Achievement and Attainment," *Annual Review of Sociology*, 29, 417–442.

Kao, G., and Tienda, M. (1995), "Optimism and Achievement: The Educational Performance of Immigrant Youth," *Social Science Quarterly*, 76.

Kao, G., and Tienda, M. (1998), "Educational Aspirations of Minority Youth," *American Journal of Education*, 106, 349-384.

Karen, D. (2002), "Changes in Access to Higher Education in the United States: 1980-1992," *Sociology of Education*, 191-210.

Keith, T. Z., Reimers, T. M., Fehrmann, P. G., Pottebaum, S. M., and Aubey, L. W. (1986), "Parental Involvement, Homework, and Tv Time: Direct and Indirect Effects on High School Achievement," *Journal of Educational Psychology*, 78, 373.

Kerckhoff, A. C. (2001), "Education and Social Stratification Processes in Comparative Perspective," *Sociology of Education*, 3-18.

Kogan, I. (2006), "Labor Markets and Economic Incorporation among Recent Immigrants in Europe," *Social Forces*, 85, 697-721.

Kogan, I. (2011), "New Immigrants — Old Disadvantage Patterns? Labour Market Integration of Recent Immigrants into Germany," *International Migration*, 49, 91-117.

Koretz, D. M. (2008), *Measuring Up: What Educational Testing Really Tells Us*, Harvard Univ Press.

Kristen, C. (2002), "Hauptschule, Realschule Oder Gymnasium?," *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 54, 534-552.

Kristen, C. (2005), *School Choice and Ethnic School Segregation: Primary School Selection in Germany*, Munster: Waxmann.

Kristen, C., and Dollmann, J. (2010), "Sekundäre Effekte Der Ethnischen Herkunft: Kinder Aus Türkischen Familien Am Ersten Bildungsübergang," *Vom Kindergarten bis zur Hochschule*, 117-144.

Kristen, C., Edele, A., Kalter, F., Kogan, I., Schulz, B., Stanat, P., and Will, G. (2011), "The Education of Migrants and Their Children across the Life Course," *Erziehungswiss*, 14, 121–137.

Kristen, C., and Granato, N. (2007), "The Educational Attainment of the Second Generation in Germany. Social Origins and Ethnic Inequality," *Ethnicities*, 7, 343–366.

Kristen, C., Reimer, D., and Kogan, I. (2008), "Higher Education Entry of Turkish Immigrant Youth in Germany," *International Journal of Comparative Sociology*, 49, 127.

Lahaie, C. (2008), "School Readiness of Children of Immigrants: Does Parental Involvement Play a Role?," *Social Science Quarterly*, 89, 684-705.

Lareau, A., and Weininger, E. B. (2003), "Cultural Capital in Educational Research: A Critical Assessment," *Theory and Society*, 32, 567-606.

Levels, M., and Dronkers, J. (2008), "Educational Performance of Native and Immigrant Children from Various Countries of Origin," *Ethnic and Racial Studies*, 31, 1404-1425.

Levels, M., Dronkers, J., and Kraaykamp, G. (2008), "Immigrant Children's Educational Achievement in Western Countries: Origin, Destination, and Community Effects on Mathematical Performance," *American Sociological Review*, 73, 835-853.

Louie, V. (2001), "Parents' Aspirations and Investment: The Role of Social Class in the Educational Experiences of 1.5- and Second-Generation Chinese Americans," *Harvard Educational Review*, 71, 438-475.

Lüdemann, E., and Schwerdt, G. (2010), *Migration Background and Educational Tracking: Is There a Double Disadvantage for Second-Generation Immigrants?* , CESifo, Center for Economic Studies & Ifo Institute for economic research.

Maaz, K., Trautwein, U., Luedtke, O., and Baumert, J. (2008), "Educational Transitions and Differential Learning Environments: How Explicit between-School Tracking Contributes to Social Inequality in Educational Outcomes," *Child Development Perspectives*, 2, 99-106.

Mantovani, D. (2008a), "Gli Studenti Stranieri Sui Banchi Di Scuola in Emilia-Romagna," in *Le Competenze Degli Studenti in Emilia-Romagna. I Risultati Di Pisa 2006*, ed. G. Gasperoni, Bologna: Il Mulino, pp. 161-196.

Mantovani, D. (2008b), "*Integrazione E Riuscita Scolastica Delle Seconde Generazioni Nella Provincia Di Bologna*," University of Trento, Department of Sociology and Social Research.

Mantovani, D., and Martini, E. (2008), "Children of Immigrants in Trento: Educational Achievement through the Lens of Friendship " *Intercultural Education*, 19, 435 - 447.

Mare, R. D. (1980), "Social Background and School Continuation Decisions," *Journal of the American Statistical Association*, 75, 295–305.

Mare, R. D. (1981), "Change and Stability in Educational Stratification," *American Sociological Review*, 46, 72-87.

Marks, G. N. (2005), "Accounting for Immigrant Non-Immigrant Differences in Reading and Mathematics in Twenty Countries," *Ethnic and Racial Studies*, 28, 925–946.

Martini, E. (2009), "Il Ruolo Delle Relazioni Amicali Nelle Performance Scolastiche Dei Figli Di Immigrati," *Convegno nazionale dell'Osservatorio Nazionale sulla famiglia "I giovani immigrati e le loro famiglie", Ancona, November 27-28, 2008*.

Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., and Taylor, J. E. (1993), "Theories of International Migration: A Review and Appraisal," *Population and development review*, 431-466.

Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., and Taylor, J. E. (1998), *Worlds in Motion: Understanding International Migration at the End of the Millennium*, Clarendon: Press Oxford.

McLanahan, S., and Percheski, C. (2008), "Family Structure and the Reproduction of Inequalities," *Annual Review of Sociology*, 34, 257–276.

Mencarini, L., Baldoni, E., and Dalla Zuanna, G. (2009), "The Situation of Children in Immigrant Families in Italy: Changes and Challenges," *Innocenti working paper*, IWP-2009-15.

Minello, A., and Barban, N. (2012), "The Educational Expectations of Children of Immigrants in

Italy," *The ANNALS of the American Academy of Political and Social Science*, forthcoming.

MIUR-ISMU. (2011), "Alunni Con Cittadinanza Non Italiana. Verso L'adolescenza. Rapporto Nazionale A.S. 2010/2011," *Quaderni ISMU*, 4.

Miur. (2009), "Alunni Con Cittadinanza Non Italiana Scuole Statali E Non Statali. Anno Scolastico 2007/2008."

Miur. (2010a), "Focus in Breve Sulla Scuola. La Presenza Degli Alunni Stranieri Nelle Scuole Statali."

Miur. (2010b), "Gli Esami Di Stato Conclusivi Del I Ciclo - A. S. 2009/2010."

Mocetti, S. (2008), "Educational Choices and the Selection Process before and after Compulsory Schooling," *Temi di discussione (Economic working papers)*, 691.

Modood, T. (2004), "Capitals, Ethnic Identity and Educational Qualifications," *Cultural Trends*, 13, 87-105.

Mood, C. (2009), "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It," *European Sociological Review*, 26, 67-82.

Myers, D., Gao, X., and Emeka, A. (2009), "The Gradient of Immigrant Age-at-Arrival Effects on Socioeconomic Outcomes in the U.S.," *International Migration Review*, 43, 205-229.

Nielsen, H., and Schindler Rangvid, B. (2011), "The Impact of Parents' Years since Migration on Children's Academic Achievement," *IZA Discussion Paper Series*, 6242.

Notten, N., and Kraaykamp, G. (2010), "Parental Media Socialization and Educational Attainment: Resource or Disadvantage?," *Research in Social Stratification and Mobility*, 28, 453-464.

Nusche, D. (2009), "What Works in Migrant Education? A Review of Evidence and Policy Options," *OECD Education Working Papers*.

OECD (2006), *Where Immigrant Students Succeed. A Comparative Review of Performance and Engagement in Pisa 2003*, Paris: Oecd Publishing.

OECD. (2009), "Pisa Data Analysis Manual: Sas," *2nd Edition*.

Park, R. E. (1914), "Racial Assimilation in Secondary Groups," *The American Journal of Sociology*, 19, 606-623.

Perlmann, J., and Waldinger, R. (1997), "Second Generation Decline? Children of Immigrants, Past and Present-a Reconsideration," *International Migration Review*, 893-922.

Pfeffermann, D., Skinner, C. J., Holmes, D. J., Goldstein, H., and Rasbash, J. (1998), "Weighting for Unequal Selection Probabilities in Multilevel Models," *Journal of the Royal Statistical Society: series B (statistical methodology)*, 60, 23-40.

Phalet, K., Deboosere, P., and Bastiaenssen, V. (2007), "Old and New Inequalities in Educational Attainment. Ethnic Minorities in the Belgian Census 1991–2001," *Ethnicities*, 7, 390–341.

Piore, M. J. (1979), *Birds of Passage: Migrant Labor and Industrial Societies*, Cambridge University Press.

Pisati, M. (2002), "La Partecipazione Al Sistema Scolastico," in *Vite Ineguali*, ed. A. Schizzerotto, Il Mulino.

Platt, L. (2005), "The Intergenerational Social Mobility of Minority Ethnic Groups," *Sociology*, 39, 445-461.

Portes, A. (1997), "Immigration Theory for a New Century: Some Problems and Opportunities," *International Migration Review*, 799-825.

Portes, A., Aparicio, R., Haller, W., and Vickstrom, E. (2010), "Moving Ahead in Madrid: Aspirations and Expectations in the Spanish Second Generation," *International Migration Review*, 44, 767-801.

Portes, A., and Fernandez-Kelly, P. (2008), "No Margin for Error: Educational and Occupational Achievement among Disadvantaged Children of Immigrants," *The ANNALS of the American Academy of Political and Social Science*, 620, 12-36.

Portes, A., Fernandez-Kelly, P., and Haller, W. (2009), "The Adaptation of the Immigrant Second Generation in America: A Theoretical Overview and Recent Evidence," *Journal of Ethnic and Migration Studies*, 35, 1077-1104.

Portes, A., and Hao, L. (2004), "The Schooling of Children of Immigrants: Contextual Effects on the Educational Attainment of the Second Generation," *Proceedings of the National Academy of Sciences*, 101, 11920-11927.

Portes, A., and MacLeod, D. (1996), "Educational Progress of Children of Immigrants: The Roles of Class, Ethnicity, and School Context," *Sociology of Education*, 69, 255-275.

Portes, A., and Rumbaut, R. G. (2001), *Legacies: The Story of the Immigrant Second Generation*, Berkeley: University of California Press.

Portes, A., and Zhou, M. (1993), "The New Second Generation: Segmented Assimilation and Its Variants," *Annals of the American Academy of Political and Social Science*, 530, 74–96.

Queirolo Palmas, L. (2002), "Etnicamente Diversi? Alunni Di Origine Straniera E Scelte Scolastiche," *Studi di sociologia*, XL, 199-213.

Queirolo Palmas, L. (2006), *Prove Di Seconde Generazioni. Giovani Di Origine Immigrata Tra Scuole E Spazi Urbani*, Milano: Franco Angeli.

Reyneri, E. (2004a), "Education and the Occupational Pathways of Migrants in Italy," *Journal of Ethnic and Migration Studies*, 30, 1145-1162.

Reyneri, E. (2004b), "Immigrants in a Segmented and Often Undeclared Labour Market," *Journal of Modern Italian Studies*, 9, 71-93.

Reyneri, E., and Fullin, G. (2011), "Labour Market Penalties of New Immigrants in New and Old Receiving West European Countries," *International Migration*, 49, 31-57.

Ribas-Mateos, N. (2004), "How Can We Understand Immigration in Southern Europe?," *Journal of Ethnic and Migration Studies*, 30, 1045-1063.

Rivas, A., and Portes, A. (2011), "The Adaptation of Migrant Children," *The Future of Children*, 21,

219-246.

Rivellini, G., and Terzera, L. (2009), "The Measurement of Social Integration among the Pupils: School and Outside Friendships," *XXVI IUSSP International Population Conference.*

Rothon, C. (2007), "Can Achievement Differentials Be Explained by Social Class Alone? An Examination of Minority Ethnic Educational Performance in England and Wales at the End of Compulsory Schooling," *Ethnicities*, 7, 306–322.

Rouse, C., Brooks-Gunn, J., and McLanahan, S. (2005), "Introducing the Issue. School Readiness: Closing Racial and Ethnic Gaps," *The Future of Children*, 15.

Rumbaut, R. G. (1997), "Assimilation and Its Discontents: Between Rethoric and Reality," *International Migration Review*, 31, 923-960.

Rumbaut, R. G. (2004), "Ages, Life Stages, and Generational Cohorts: Decomposing the Immigant First and Second Generations in the United States," *International Migration Review*, 38, 1160-1205.

Ryan, A. M. (2000), "Peer Groups as a Context for the Socialization of Adolescents' Motivation, Engagement, and Achievement in School," *Educational Psychologist*, 35, 101–111.

Sartori, F. (2009), *Differenze E Disuguaglianze Di Genere*, Bologna: Il Mulino.

Schizzerotto, A., and Barone, C. (2006), *Sociologia Dell'istruzione*, Bologna: Il Mulino.

Schneeweis, N. (2011), "Educational Institutions and the Integration of Migrants," *Journal of Population Economics*, 24, 1281-1308.

Schnepf, S. V. (2004), "How Different Are Immigrants? A Cross-Country and Cross-Survey Analysis of Educational Achievement," *IZA Discussion Paper Series*, 1398.

Schnepf, S. V. (2008), "Inequality of Learning Amongst Immigrant Children in Industrialised Countries," *IZA Discussion Paper Series*, 3337.

Sciortino, G. (2006), "Vent'anni Di Immigrazioni Irregolari," *Il Mulino*, 6, 1033-1043.

Sciortino, G. (2008), "La Popolazione Immigrata Straniera in Condizione Irregolare: Una Realtà Fortemente Dinamica," in *L'immigrazione Straniera in Lombardia. La Settima Indagine Regionale. Rapporto 2007*, ed. G. Blangiardo, Milano: Osservatorio Regionale per l'integrazione e la multietnicità, pp. 149-157.

Scott Long, J. (2006), *Regression Models for Categorical Dependent Variables Using Stata* (Second ed.), College Station, TX: Stata press.

Sewell, W. H., Haller, A. O., and Portes, A. (1969), "The Educational and Early Occupational Attainment Process," *American Sociological Review*, 82-92.

Shavit, Y., and Blossfeld, H.-P. (1993), *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*, Boulder, Col: Westview Press.

Shavit, Y., and Müller, W. (1998), *From School to Work. A Comparative Study of Educational Qualifications and Occupational Destinations*, Oxford: Clarendon Press

St–Hilaire, A. (2002), "The Social Adaptation of Children of Mexican Immigrants: Educational Aspirations Beyond Junior High School," *Social Science Quarterly*, 83, 1026-1043.

Strozza, S. (2008), "Partecipazione E Ritardo Scolastico Dei Ragazzi Stranieri E D'origine Straniera," *Studi emigrazione*, 171, 699-722.

United Nations, D. o. E. a. S. A., Population Division (2012), *The Age and Sex of Migrants 2011 Wallchart*, New York: United Nations.

Van de Werfhorst, H. G., and Mijs, J. J. B. (2010), "Achievement Inequality and the Institutional Structure of Educational Systems: A Comparative Perspective," *Annual Review of Sociology*, 36, 407–428.

Van De Werfhorst, H. G., and Van Tubergen, F. (2007), "Ethnicity, Schooling, and Merit in the Netherlands," *Ethnicities*, 7, 416–444.

Werum, R. E., Davis, T., and Cheng, S. (2011), "How Institutional Context Alters Social Reproduction Dynamics: Ethnic Track Placement Patterns in the Us and Germany," *Research in Social Stratification and Mobility*, 29, 371-391.

Wolfe, R., and Gould, W. (1998), "An Approximate Likelihood-Ratio Test for Ordinal Response Models," *Stata Technical Bulletin*, 7.

Wooldridge, J. (2002), *Econometric Analysis of Cross-Section and Panel Data*, Cambridge MA: The MIT Press.

Yiu, J. (2011), "The School Readiness of the Children of Immigrants in the United States: The Role of Families, Childcare and Neighborhoods," *Fragile Families Working Paper*, WP11-11-FF.

Zhou, M. (1997), "Growing up American: The Challenge Confronting Immigrant Children and Children of Immigrants," *Annual Review of Sociology*, 63-95.

Zhou, M., and Bankston, C. L. (1998), *Growing up American: How Vietnamese Children Adapt to Life in the United States*, Russell Sage Foundation Publications.

Zhou, M., and Kim, S. S. (2006), "Community Forces, Social Capital, and Educational Achievement: The Case of Supplementary Education in the Chinese and Korean Immigrant Communities," *Harvard Educational Review*, 76, 1-29.

Zlotnik, H. (2003), "The Global Dimensions of Female Migration," *Migration Information Source*, 1.