LENGTH OF STAY IN THE HOST COUNTRY AND EDUCATIONAL ACHIEVEMENT OF IMMIGRANT STUDENTS: THE ITALIAN CASE

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Length of stay in the host country and educational achievement of immigrant students: the Italian case

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Abstract

Using Italian data on language standardized tests for different levels of schooling we investigate 1) if the observed gap in educational attainments in first generation immigrants tends to lower the longer their stay in Italy and 2) if younger children reduce the gap faster than their older schoolmates. Results confirm the presence of a significant gap between natives and immigrants students in school outcomes for all grades, with first generation immigrants showing the largest gap. Further, comparing the results between first and second generation immigrant students suggests that the significant gap observed in the first generation is mainly due to the negative performance of immigrant children newly arrived in Italy. That is, for first generation students, closing the gap with second generation ones seems to be, for the most part, a matter of time. At the same time, the gap between natives and second generation immigrants remains significant in all grades. Finally, when we compare the results across the different years, it turns out that interventions at younger ages are likely to be more effective.

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1. INTRODUCTION

"In order to close the achievement gap, institutional changes must be made at the school level, including changes in language teaching… Proficiency in the language of instruction is a major tool and precondition for learning."

OECD (2010)

Since the last decade of the 20th century European countries have experienced large waves of migration flows from both within the EU and from outside it. As a consequence, the integration of third-country nationals has been identified as a priority at European level and migration-related issues are a central part of the Stockholm Programme, adopted by the EU Member State governments at the December 2009 European Council.

Among the proposed indicators of migrant integration, language skills and educational attainments are identified as crucial. Low skilled workers are more at-risk of poverty or social exclusion and young people with a migrant background are found to be at greater risk of dropping out of school and of exiting the education and training system without having obtained an upper secondary qualification. Data are striking: in 2008 regardless of gender, the share of early school leavers with a foreign background was four percentage points higher than that of their counterparts with native-born parents (Eurostat, 2011b). In general, the school performance gap between native and immigrant children is well documented for a number of industrialized countries and it is a real concern for policy makers since it also predicts a gap in labour-market performance and other long-term outcomes.

In this paper we use the standardized test data provided by INVALSI, the Italian institute in charge of evaluating schools' performance, to analyze the gap in reading literacy of young immigrant children in Italy. In particular, we examine if this gap is significantly influenced by pupils' length of stay in Italy and, correspondingly, their age at immigration and their country of origin. Italian data are most suitable for studying these issues. Together with Spain and Greece, Italy

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is a recent migration destination. As of 31st December 2008, in Italy the percentage of foreigners as a share of the total population was 6.5%, of whom 1.9% were citizens of (other) EU Member States and 4.6% were from non-EU countries. With respect to educational levels, according to PISA 2009 results, Italy has some of the largest native-immigrant school performance gaps among OECD countries.[1] In particular, this result holds for second generation students, even after adjusting for socio-economic background (OECD, 2012). Furthermore, the share of early leavers from education and training (aged 18-24) among the subgroup of foreign-born is 46%, compared to 19% observed for the total population.[2] Finally, among the EU countries, Italy has the lowest proportion of foreign citizens with tertiary education and a large one of low educational attainment level (Eurostat LFS, 2008). In sum, migrants have a lower level of income and are at increased risk of poverty and social exclusion in Italy. With its low educational attainments of both migrants and natives, Italy is one of the countries most at risk. [3]

Thus, in this study we investigate the differences in standardized language test scores between immigrant and Italian children conditional on personal, family and school characteristics, distinguishing between first and second-generation immigrants. For first-generation immigrants, we also study whether the age at immigration influences their academic achievements. Indeed, unlike most previous studies in this field, our data enable us to compare the results obtained by children enrolled in the second and fifth year of (primary) school, sixth and tenth year (secondary

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[1] "In 2009, the reading scores of immigrant students were lower than those of non-immigrant students in 23 out of 28 OECD countries with sufficient data. The performance gap reaches 99 score points in Mexico, more than 80 in Iceland and more than 72 in Italy. In Finland, Austria, Belgium, Sweden, Denmark and France, the gap is 60 score points or more, the equivalent of over a year and a half of schooling", OECD (2012).

[2] At the European Union level, the share of foreign-born early school leavers aged 18-24 is higher than the share of early school leavers aged 18-24 from all population. The most marked differences in the shares are in Germany, Greece, Spain, France, Italy and Cyprus, Austria and Finland.

[3] "In 2008, the at risk of poverty or social exclusion rate among foreign-born persons was highest in Greece (45%), followed by Belgium, Italy, France, Sweden, Spain, Austria, Finland and Denmark, where the proportions of migrants at risk of poverty or social exclusion were above 30 %." See European Union (2011).

school).[4] This allows us to study if the educational gap narrows at a different pace in the early or later years of a student's life. We focus on language tests because the lack of language skills plays a crucial role in immigrants' integration processes. Further, we also concentrate on the age of immigrant children and their length of stay in the host country since a large literature suggests that, although people can learn languages at any age, young children have an innate ability to learn the rules of new languages, and this ability tends to decrease by adulthood (Johnson and Newport, 1989).[5]

Our analysis is also related to the growing literature that dates back to the end of the nineties and investigates the role of social distance and social capital on economic outcomes (Helliwell and Putnam, 1999). In general, note that social distance is a very broad concept which refers to the cognitive relationship between two cultures that co-exist within an individual, and it is influenced by many factors including the immigrant's length of residence. Glaeser (1999) argues that, together with education levels, one of the factors that appear to be crucial in creating social capital at the community level is ethnic and linguistic heterogeneity.[6] Moreover, according to linguistic scholars, social distance is one of the socio-cultural factors affecting the second language acquisition by immigrants which, in turn, is crucial for their integration in the host country.[7] Learning conditions may also affect learning processes: with bad learning condition, the host language learners (immigrants) think that their language is more dominant than the target language group (natives), and they will feel little or no need to learn the target language.

This study is structured in five different sections. The next section introduces the literature review, while the third the descriptive analysis.

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[4] We exclude data on the National exam performed by all Italian students at the end of year eight since, they are not comparable with those used in this study.

[5] Moreover, children who learn a language before adolescence are more likely than older learners to attain native-like pronunciation (Patkowski, 1990).

[6] Alesina and La Ferrara (2002) also document the positive effects of homogeneity on social participation across American states. They argue that schools are a primary area where social capital is developed.

[7] According to the Schumann's Acculturation Model, social distance explains the acquisition of second language and it is influenced by many factors such as the equality of native and immigrant groups, assimilation or integration, enclosure, cohesiveness, size, cultural congruence, attitude and length of residence. See Schumann (1976).

The empirical analysis and results are described in the fourth section, and conclusions are in section five.

2. Literature review

Among economist, only few recent studies address the important question of whether the age at arrival and the length of stay in the host country matters for immigrants' educational achievements. Despite that, sociologists have long identified immigrants who arrived as young children as different from those who arrived after and observed that the outcomes of the two groups may significantly differ. Due to this, the former groups has been also called the 1.5 generation.[8]

Among recent studies we include Böhlmark (2008) who considers a stylized fact that second-language learning is negatively related to higher age. Data include a sample of siblings graduating after nine years of schooling (generally at age 16) in Sweden and a grade point averages (GPA) measure that is standardized to be comparable across years, starting from 1988 until 2003. The use of siblings allows him to control for likely neighbourhood effects, which constitute a potential source of bias in his cross-sectional estimation analysis. Indeed, immigrant families can be hardly considered randomly assigned to cities and neighbourhoods, or children to schools, and he exploits the siblings strategy to control for any omitted variables capturing time-invariant, family-specific characteristics. However, in this case he needs to assume that older and younger siblings would have performed equally well in the absence of immigration. Unlike older studies that identify a critical age at seven, Böhlmark (2009) finds that the estimated critical age at immigration is about nine: children arriving in Sweden up to about the third year of school seem to catch up well with their peers who came before preschool age, and this result is stable for both boys and girls.

Above the age of 9, however, there is a strong negative impact on performance. [9] Moreover, he also finds significant differences by geographical origin with an estimated profile clearly steepest for Asian children and flattest for Western children.
Ohinata and Van Ours (2012) investigate the determinants of the observed differences in test scores by both first and second-generation

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[8] On this see for example Myers et al. (2009).

[9] Cahan et al. (2001) suggest that age 7 may represent a critical age. Similarly, using Norwegian data, Bratsberg et al. (2011) find that first-generation immigrant children are especially likely to leave high school early and this effect is stronger the later the age at immigration.

immigrants and native Dutch children, conditional on personal and family characteristics and classroom environment. Their sample includes children aged 9 and 10 and, for the first-generation immigrants, they study whether the age at immigration influences the academic achievements. Their educational attainment outcomes include language, science and math test scores and they find that these are affected by both age at immigration and whether or not one of the parents is native Dutch. However, when exploring whether age at immigration has an effect on the educational attainment of the immigrant children, language results are omitted from the analysis due to shortage of data. Results from science and math test scores suggest that age at immigration is important: the later immigrant children arrived in the Netherlands the lower their educational achievement. Finally, they also find that second-generation immigrants do not have lower language scores compared to native Dutch children irrespective of the origin of their parents. [10]

Among the non-European studies we briefly mention three additional analyses. The first is Cortes (2006) who, using educational performance data of children in San Diego and Miami, finds that the gap in test scores between first-generation and second-generation immigrant children decreases the longer the former reside in the United States. Second, using TIMSS data, Sweetman (2010) finds that, beyond the first year, the following years in the host country have almost no effect on test scores results. Finally, similar to Böhlmark (2008), Corak (2011) analyses high-school dropout rates in Canada and finds that up to age 9 the chances of being a high-school dropout do not vary according to age, but children arriving after that age are more likely not to graduate from high school.

Due to data limitations, cross country analyses represent the exception rather than the rule and none of them focuses specifically on the age at arrival. One exception is provided by Heath et al. (2012) who compare cross-country results based on PISA data and confirm the existence of a late-arrival penalty for immigrant students. However, results are heterogeneous across countries, with Italy, Belgium, Sweden and Ireland being the countries with the largest late-arrival penalties.

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[10] In fact, the datasets employed in this study are the 2006 Progress in International Reading Literacy Study (PIRLS) and the 2007 Trends in International Mathematics and Science Study (TIMSS), and age at immigration information is only available in TIMSS and, therefore, this analysis is only possible for the science and math scores and not for the reading scores.

Finally, to our knowledge, no existing empirical research addresses the question of the age at arrival of immigrants and their educational outcomes for the Italian case. We will therefore investigate this issue in the following sections.

3. Data and descriptives

Our source of data is the database provided by the National Institute for the Evaluation of the Educational System of Instruction and Training (INVALSI henceforth), a government agency that carries out a yearly evaluation of students' attainment in both Mathematics and Language. Since the focus of the paper is on language skills of immigrant students we only use the results on the language test that covers the domains of Italian (reading comprehension, knowledge of the language, grammar).

Moreover, in order to better compare the results for students attending different years, we use the normalized values of the language standardized test. The latter are the test scores for language expressed as percentage of right answers, and values range from 0 to 100. In general, INVALSI tests are similar to the PISA standardized tests since their aim is to measure how far students have acquired the knowledge and skills essential for full participation in the knowledge society. Unlike PISA tests, the INVALSI standardized tests are compulsory for all Italian schools, both public and private, and all students attending specific school grades.

In our analysis we use the 2010-11 school-year data for four stages of schooling: second and fifth grade/year of primary school, sixth grade of lower secondary school and tenth grade upper secondary school. We therefore have four different samples, each consisting of approximately 400 to 500 thousand individuals per year. The Italian school system starts at age six, with five years of primary school (grades 1 to 5) followed by three years of lower secondary school (grades 6 to 8). Upper secondary education starts at year 9 and lasts three to five years depending on the type of school chosen. INVALSI tests were introduced in the 2008-09 school year, but 10th year students were administered these evaluation tests for the first time only in 2010-11 . For this reason, 10th year data need to be interpreted with caution since for this specific first year the language test had been intentionally designed by INVALSI to be easier than normal. [11]

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[11] See INVALSI (2011).

The INVALSI questionnaire is designed to collect detailed information not only on students standardized test results but also about a significant number of student's background and family characteristics. In particular, this information is collected through a separate 'Family Questionnaire' sent to each family before the test, and a 'Student Questionnaire' filled by each student the first day of the test. A general information part on the students is also compiled by school administrative staff. However, one important exception is represented by primary school children attending year two, for whom data on personal characteristics are not collected. Therefore, for this cohort we do not perform any regression analysis and only show some descriptive statistics on the proportion of immigrant students and their school outcomes depending on their age of arrival in Italy and their place of birth.

This dataset enables us to distinguish between Italian and non-Italian students. It is important to note that this classification refers to a pure citizenship criterion and that, unlike other countries, in Italy this follows the *Ius sanguinis* rule according to which individuals' identity (and their citizenship) is determined by family and not territory. [12] Thus, we will use the terms native or Italian as synonyms, implying that a student is native/Italian if at least one of the parent is an Italian citizen whether or not she/he is born in Italy. Conversely, for immigrant students we use a standard approach and separate first generation students, that is, students born abroad of foreign-born parents, from second generation students, that is, Italian-born children of foreign-born parents.

Finally, INVALSI have also collected some information on the place of birth. However, it is only possible to identify immigrant students who are born in another European Union (EU27) country, in a European country outside EU27, or outside Europe. Despite the vast literature that stresses that differences in educational attainments vary significantly across ethnic communities, unfortunately, as is often the case, data disaggregated by country of birth are not available. In this specific case, with the exception of European students, we are not even able to distinguish by continent of birth.

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[12] The Italian citizenship rules follow the Roman law rule of the *Ius sanguinis* that states that citizenship is defined by the family of birth and not the country of birth. In other country studies where the *Ius soli* is applied, that it, is the right of anyone born in the territory of a state to nationality or citizenship we find that the native vs. non-native categorization follows different criteria with respect to the ones described here.

We set the scene with Table 1 that shows the distribution of immigrant students in the traditional three Italian macro areas: North, Centre and South. We observe that the geographic distribution of the total number of students (both natives and immigrants) enrolled in the Italian schools in all years shows over 40% of pupils located in the North, less than 20% in the Centre and around 40% in the South. There are large variations in the geographic distribution of immigrant students. The richer northern areas receive, as expected, the vast majority of migration flows and a much larger share with respect to southern areas, despite similar overall numbers of students. More than 60% of both first and second generation students are located in this area of the country, while in the South the percentage ranges between 9% of second generation immigrants in the 2nd year of school to 21% in the 10th year. [13]

Table 2 shows the distribution of immigrant students in the different school years analyzed here. The overall percentage of immigrant students is broadly similar across the different grades and ranges from 9.6% in year 6 to 8% in the 10th year. Conversely, the distribution of first and second generation immigrant students shows some significant variation across the different grades. In particular, data shows a higher percentage of second generation pupils among younger children (2nd year), while older students in year 10 have a larger proportion of first generation immigrants (5.2% versus 1.6 of 2nd generation). This is a well-known phenomenon in the analysis of migration patterns. In countries with established migration histories, there is a larger proportion of second-generation students than first-generation students. Conversely, in countries like Italy, where immigration is a recent phenomenon, first-generation students are the majority. The 2011 Census data show that the Italian immigrant population is extremely young: the mean age average of the total immigrant population is about 31.[14] Thus, it is likely that the change in pattern between the two components of immigrant students is firstly observed in the earlier years of schooling. [15]

Overall, the distribution of first generation immigrants by place of birth is between 26% and 40% for EU27, 23% and 32% for other European countries, and 36% to 45% for children born in other

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[13] This is well documented also at the country level: immigrants sort across countries and the more developed countries usually host a higher share. See Brunello and Rocco (2012).

[14] Istat (2012).

[15] See OECD (2012).

countries. We observe that EU27 immigrants are more numerous among younger children (40% in 2nd year). Note that the number of EU27 citizens migrating to a Member State other than their own has significantly increased during the last years and peaked in 2007. The largest group was formed by the new-er EU countries: Romanians, followed by Poles and Bulgarians. [16]

Table 3 provides statistical evidence of the differences in the Language test score results between native and immigrant students. In this case, we also separately identify children of mixed parentage, that is, Italian children either born in Italy or abroad with one foreign-born parent. In this case, for both Italian and first generation students, we are able to identify possible differences based on the place of birth. As expected, native students obtain on average a significantly higher score than migrants in all years, and 2nd generation immigrant students perform better than first generation. However, when we take into account the place of birth of first generation students, we observe that the test performance of (non-Italian) European students is better than that achieved by students from other countries and, for primary school only, it is even better than that achieved by second generation students.

Further, we exploit some additional information on first generation immigrants. In fact, in its surveys INVALSI asks these students how old they were when they arrived in the country of assessment. Using this information, in Table 4 we identify how long immigrant students have been living in Italy before starting school and, based on the date of arrival, we include their language test results. In particular, we distinguish between pupils who have lived in Italy: i) one year, ii) between 2-4 years, iii) between 5 and 7 years, and iv) more than 7 years before starting school. These numbers show that the length of stay of first generation immigrants explain to a large extent the observed achievement gap with the second generation immigrants. In particular, after 5 years in the Italian schooling system, at the end of primary school children, the percentage of correct answers of a first generation student is almost identical to that obtained by second generation immigrants. That is, if two immigrant children have attended only the Italian school system, then they get the same test result irrespective to their first or second-generation status.

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[16] On average by 12% per year during the period 2002–08. The EU-27 Member States received 384 000 Romanian citizens, 266 000 Polish citizens and 91 000 Bulgarian citizens. See europeanunione2011.

For upper years of schooling the pattern is similar: the longer their stay in Italy, the lower the achievement gap. However, this time we observe that differences between first and second generation persist even after more than 7 years in the host country. In particular, for school children in year 6, the achievement gap of first generation immigrants is 16%, while for second generation is 13%. And this difference increases to 5% for upper secondary school kids.[17]

Finally, considering also the place of birth of first generation immigrant students, we observe that differences are almost nil for the sub-group of EU27 origins, while the gap is larger for non-European immigrants. Overall, this comparison between second and first generation suggest that for first generation students, closing the gap with second generation ones may (at least for a large part) be a matter of time, but only if immigrant students arrived in Italy when very young and almost exclusively attended the Italian school system. Thus, being born abroad does not seem to cause a permanent disadvantage for first generation immigrant children, while the observed differences across country of origin suggest that other factors, such as cultural features or having attended a different school system, play a role in the observed educational disadvantage.

Otherwise, even considering only the second generation students, the gap between natives and immigrants remains persistent in all years of the Italian school system. In particular, the existing evidence shows that Italy tends to attract immigrants with lower qualifications, and the observed large gap in the educational attainment of Italians versus immigrants, one of the highest across OECD countries, may be due to the socio-economic background of immigrant families. However, this is not the whole story. As shown by Dustmann et al. (2011), the formal skills gap across the two groups is similar, that is, the observed skills of the native labour force are also low compared to other OECD countries. We will further investigate these issues in the following section.

4. Results

We estimate a standard education production function where student test performance in language is modelled as a function of the native vs. immigrant first and second generation status, and a set of additional variables that control for student characteristics (gender, socio-economic

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[17] For children in years 9 and over, the gap of first generation immigrants is 12%, while for second generation is 7%.

background, native/I or II generation immigrants and area of origin), school characteristics (size, school type if in upper secondary school) and catchment area characteristics (macro-area dummies). More precisely, we examine the relationship between the immigrant status and students' outcomes using two alternative regression settings, one of which takes into account the length of stay in the Italian school system. In details:

$$Y_{ij} = \alpha + \beta first_{ij} + \gamma second_{ij} + X_j'\delta + Z_j'\theta + \varepsilon_{ij} \qquad (1)$$

$$Y_{ij} = \alpha + years_{ij}'\beta + \gamma second_{ij} + X_j'\delta + Z_j'\theta + \varepsilon_{ij} \qquad (2)$$

In both specifications, Y_{ij} is the result obtained at the language national standardized test of student i attending school j; *first* and *second* are two dummy variables indicating, respectively, first and second generation immigrants; *X* is a set of individual and family additional characteristics and *Z* are school and area controls. Unlike eq. 1, in model 2 the simple dummy *first* is substituted by $years_{ij}$, a set of dummy variables indicating the length of stay in Italy of first generation immigrants. These dummies separately identify if these students have spent a) one year, b) between 2 to 4 years, c) more than five years in the host country. An exception is found in Table 7, for 10th year students, for whom we have identified four rather than three dummies/categories for *years*: in this case, we distinguish the last category between c) 5 to 7 years in Italy and d) over 7 years.

This analysis is performed using student data for three different stages of schooling: the fifth year (last year of primary school, ISCED 1), the sixth grade in lower secondary (ISCED 2) and the tenth grade of upper secondary school (ISCED 3). Comparing the results of several stages of schooling enables us, even if imperfectly, to disentangle the effect on language performance of students' age at arrival from the effect of how long immigrant children have been in Italy. In particular, we try to identify if pupils are particularly at risk of suffering a long-lasting gap if they joined the Italian school system aged 8 or 14. Note that our year's dummies capture both a) years in Italy before performing the test and b) age at immigration. In fact, they are two sides of the same coin: a first generation immigrant student who has spent one year in Italy and is

attending the fifth year in primary schooling, has arrived in Italy around the age of nine.[18]

We start the analysis in Table 5 where we include the OLS results for fifth year students. This sample includes almost four hundred thousand students attending the 2010-2011 school year. Models from 1 to 4 use the overall dummy for first generation immigrant students, while models from 5 to 8 separately introduce the specific dummies on their length of stay in Italy. These specifications are replicated also in Table 6, for 6th year students, and Table 7 for 10th year students. In all our analysis, we always report in parenthesis robust standard errors, clustered at school level.

Model 1 introduces the results for our most parsimonious specification. Together with immigrants dummies, it includes a series of additional controls for the students main additional characteristics, that is, age, gender, a measure of her/his socio-economic background, if she/he speaks a foreign language at home or an Italian dialect, and the number of students per class. Moreover, in all models we always include macro-area dummies in order to control for local differences.[19] In fact, previous studies show that geographical location is an important determinant of Italian students test scores, with students in the North-East area usually outperforming the others, and those from the South being substantially behind. Our results (available upon request) confirm these territorial patterns.[20]

With rare exceptions, such as the number of students per class that is never significant for younger children, overall we find that our results are largely consistent with the literature. First of all, as expected, estimates confirm that children of immigrants face important gaps in language test results, with first-generation immigrants the most disadvantaged group. Note that our dependent variable, the test scores results for language, is expressed as percentage of right answers. We find that the coefficient on

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[18] This is not true for students that are repeating a year or for students that attend a year lower or higher than the one that correspond to her/hi sage. However, Invalsi data enable us to further control for students who are repeating a year or are behind the standard age that correspond to a specific schooling year.

[19] We identify the following dummy variables: North-East, North-West, Centre, South, South-Islands.

[20] Di Liberto et al. (2013), Cipollone et al. (2010) and Bratti et al. (2007).

first generation immigrant is -5.20, while for second generation is -3.6. Given that the test results are between 0 and 100 the estimated coefficients can be interpreted in terms of decreased test score results: that is, *ceteris paribus*, the percentage of correct answers for first and second generation immigrant student, is on average 5.2% and 3.6% below the natives'.

Second, since our focus is on language skills, we also include two additional dummies. The first, *foreign language*, identifies if the surveyed student speaks a different language from Italian at home, while the second, *dialect*, consider if she/he speaks an Italian dialect at home. In fact, we may expect that students from diverse language backgrounds could encounter difficulty in schools where the language is different from what they speak at home. Note that the percentage of dialect speakers in Italy is significant: between 15 to 16 % across all years. Interestingly, controlling for the family's socio-economic background and other student and school characteristics, both dummies are negative and significant. Therefore, even speaking a dialect at home is negatively related to students' standardized test results.

Third, as expected, the index of socioeconomic background, *escs*, is positive and strongly associated with student achievement. This variable is created by INVALSI on the basis of the occupational and educational level of the student's parents, home educational and cultural resources. This represent an important control in this setting since, in addition to their cognitive abilities, immigrant students sorting is certainly significantly driven by the family background (Brunello et al., 2007). Further, we also control for gender. In general, cross country analysis shows that language gender gaps often results in favour of girls and this is also confirmed by our analysis.[21]

In model 2 we further focus on specific features of the students' socioeconomic background. The dataset enables us to separately identify two important elements of the immigrant students' socioeconomic status, that is, the number of siblings and the number of books there are at home. First of all, statistics show that when we distinguish between Italian and immigrant women, fertility rates are significantly different: respectively, 1.31 for natives and 2.23 for immigrants. Note that, in cross country comparisons, Italy ranks very low for the women fertility rate: in

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[21] For example, PISA 2009 results report higher mean reading performance for girls in most countries.

2011 this rate was 1.42 children per woman.[22] In other words, immigrant families' size is usually larger than that of natives, and this is also confirmed by our INVALSI data. In terms of educational achievements, larger families may imply worse studying conditions at home, such as the absence of a quiet place for studying or less time dedicated from parents to each children. Moreover, international studies also show that, unlike natives, the presence of dependent children among migrants significantly increases the risk of poverty and also of being in a less favourable situation with regard to housing conditions: the proportions of migrants living in overcrowded dwellings is high in almost all EU countries.[23] Thus, our dummy on immigrant student may also capture the effect of children living in overcrowded dwellings. Second, with the number of books at home we try to identify the importance of specific family cultural upbringing, not captured by the *escs* variable.[24] As expected, these coefficients are both significant and with opposite sign, negative for siblings, positive for books, and cause the coefficients of both first and second generation students to decrease. Overall, this evidence suggests that policies directed towards improving school conditions (such as providing adequate study spaces and efficient libraries) may also have large returns for the more disadvantaged students.

Model 3 in Table 5 show that, introducing two important school characteristics, such as the *school size* and the average index of socioeconomic background at school level, *escs_school*, does not change significantly the results seen in the previous models. In fact, for fifth graders, these two variables are never significant. As a final check we also introduce two dummies that identify the countries (area) of origin of first generation students. The reference category is represented by students born in one of the EU27 countries. As also suggested by the descriptive analysis in section three, we find that with respect to the reference category, the schooling performance of immigrant students born outside EU27 countries is worse. In particular, children from non European

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[22] Considering the mothers' citizenship, in 2009 second generation children born in Italy were mainly from Romanian (16,727), followed by Moroccan (14,370), Albanian (9,937), and Chinese mothers (just over 5,000 births). See ISTAT (2011).

[23] The overcrowding indicator relates the number of rooms in the house to the number of people. See Eurostat (2011a).

[24] Hanushek and Woessmann (2011) stress as the number of books at home is the best single predictor of students' performance.

countries who migrate to Italy do show the largest gap in language test outcomes. These results suggest that the country of origin and related cultural factors play a role on immigrant students outcomes. However, the level of aggregation of our dataset does not enable us to further stress this issue here. Once more, we claim the importance of collecting more detailed information on the immigrants' country of origin in the future.

Models from 5 to 8 replicate the previous analysis, substituting the single dummy for first generation students with separate dummies that also take into account their length of stay in Italy. In all these models we observe the same expected pattern: newly arrived children show poorer performance while the gap existing between first and second generation immigrant students seems to depend almost exclusively on how long they have been in Italy. The late-arrival penalty is significant, but after a relatively short period in the Italian school system, the gap with second generation students decreases by approximately two-third: the estimated coefficient drops from -11.3 for late arrival children to -3.8 and -3.4 for, respectively, immigrant children who are enrolled in the Italian school system between two to four years before the test and those that enrolled since the start of primary school (five or more years). These results are almost identically confirmed by models 6 to 8. Again, model 8 suggests that the score disadvantage of immigrant children is likely to depend on the combination of country-of-origin and country-of-destination. Overall, this large gap of late-arrivals is easily explained by the lack of familiarity with the new language, and more precarious living conditions with respect to early-arrivals. Conversely, results confirm that, even after controlling for many important demographic and school characteristics, the gap of long staying first generation and second generation students is still persistent and significant.

The results for year 6 students are reported in Table 6. In terms of students' characteristics, our sixth year students' analysis confirms for the most part the results on primary school children of Table 5. One important exception to this rule is observed for the school characteristics indicators. In Table 6, both the class size and *escs_school* are now positive and significant. The latter indicator should take into account the socio-economic composition of the school and peer effects. This result is consistent with other findings from recent studies that stress how in Italy the inequality of opportunities for students, while almost absent at primary school level, would arise in the early years of secondary school

(years 6-8). [25]   Moreover, in primary schools the influence of family background on achievement is more limited. This evidence could be driven by the presence of a sorting process of best students into best schools that it is likely to be absent or less important at primary school level. Below, we will see that this initial sorting would also translate into a social tracking along the upper secondary's tracks. Overall, these results suggest that, starting from the lower secondary school level, more should be learned with respect to the sorting processes.

When we focus on the length of stay of first generation immigrant students (models from 5 to 8), we observe as before that the estimated coefficient drops from -15.2 for late arrival children to -6.7 and -5.6 for, respectively, immigrant children who have enrolled in the Italian school system between two to four years before the test and those that enrolled in the Italian school system since the start of primary school. Thus, while the pattern is similar to that observed for primary school children, the estimated gap of late-arrivals is significantly larger: considering that the observed mean value of the language test of six graders is 55, we observe a 27% gap for a newcomer in the Italian school system. For five graders at primary school the estimated gap was 16% (their observed mean result at the language test was 69), more than 10 percentage point of difference with lower secondary students.

We now turn our analysis to results on year 10 students in Table 7. Unlike their younger peers, Italian students face, at the start of upper secondary school in year 9, the choice between different possible curricula and we therefore need to include additional variables that identify the school type. Indeed, as said above, previous studies on the Italian case reveal that at this level of schooling the educational track plays a significant role for educational outcomes. Italian students choose schools that specialize in each of these three main curricula: Lyceum, Technical and Vocational. That is, unlike other countries, Italian upper secondary school tracking is not determined by a formal assignment process to academic or vocational courses depending on students' past performance or by any alternative selection processes. The vocational/academic intensity is at its lowest/highest level in the Lyceum (with almost no vocational component) and at its highest/lowest level in Vocational schools. In between these two curricula there is the curriculum offered by Technical schools. Moreover, only Vocational

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[25] See Mocetti (2012) and De Simone (2013).

schools can last for 3 rather than 5 years, even if graduates from all three school types, after five years, may continue to tertiary education. In general, empirical studies show that students in general/academic track in most cases attain higher achievement than those in vocational tracks and this is true also for the Italian case (Cipollone et al., 2010, Di Liberto et al., 2013). This implies that the choice of school is not random, as it is strongly associated with family background, and the significant differences in terms of programs and curricula are associated with the average test scores results of students across the three types of schools.

In sum, for year 10 results we need to take into account two different selecting processes. The first is determined by the school-type differentiation that is expected to control for the relationship between immigrant background and educational outcomes. In fact, both first and second generation immigrant students are more likely to end up in lower-performing Vocational schools, because they often originate from lower social strata. Second, since the drop-out rate in Italy is high after year 9, it is also possible that, at this stage, the more disadvantaged students (those held back one or more years) have already left the school system.

In general, our results on 10th year are very similar to those previously discussed for 6th grade students. With respect to school type, in our regression analysis we use the Technical school dummy as reference and find, unsurprisingly, a positive and significant coefficient for Lyceum and a negative one for Vocational schools. Nevertheless, Table 7 shows a notable difference in the pace at which first generation immigrants close the gap in their first years in Italy. While for both 5th and 6th year, immigrant students who arrived in Italy 2 to 4 years before the test show a gap that is about one-third of that observed for newly arrived students, estimates for year 10 suggest that the gap between the two categories is only reduced by a half: in model 5 the coefficients are, respectively, -13.3 (for new arrivals) and -6.9 for those who declare to have been in Italy for 2 to 4 years. Moreover, the differences in performance between second and first generation students still disappears, but only after approximately 7 years in the host country.

As a final robustness check, we have also replicated our analysis only including a specific sub-sample of schools. Indeed, in the above analysis we have used the entire student population data of selected years at the national level. In addition to this, INVALSI also conduct a specific nationally-representative survey, where the same tests are administered

under the supervision of observers in each class of the sample. This survey is conducted in order to prevent and control for cheating (mainly observed in the southern areas of the country) and facilitate the procedures of data collection available on students' achievements. Despite the possible advantages - first of all the better quality of data - the reduction of the sample size is significant: for example, for year 5 students, the sample reduces from almost four hundred thousand to thirty thousand. Nevertheless, the use of this restricted sample does not change our analysis: results, available upon request, are almost identical for all years.

In sum, our regression results suggest the Italian school system seems unable to close the gap between immigrant students, including both first and second generation students, and natives. Once we separate between first and second generation immigrants we observe a larger gap, as expected, for the first group. However, the gap between these two groups reduces to one third after one year of the host country students attendance, and almost completely closes with time, and the pace at which the gap closes is slower the later the children arrive.

Thus, in terms of policy implications, this result suggests that if the late arrival of foreign children is the result of national migration policies on family reunification, then any potential benefit of delaying immigrant family reunification needs to be compared against the costs of students' remedial assistance.

However, it is fair to say that endogeneity issues may play a role in our OLS analysis and the interpretation of our results in causal terms always need to be taken with caution. Our set of covariates allows us to control for the most likely sources of endogeneity, as we control for many individual and students characteristics, in particular, students socioeconomic background, schooling track and area of residence: Italian students' sorting is considered to be mainly driven by these factors.[26] However, when the focus is on educational outcomes of immigrant students, selection issues are always likely to be at play. In particular, family choices may represent a major issue at this stage of the Italian school system. Indeed, a formal limit of 30% of foreign pupils per class set by the Italian Government came into effect in the school year 2010/2011. However, this rule has been applied only gradually, having been introduced from the first classes of all levels of schooling (year 1, 6

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[26] See Brunello et al. (2007).

and 9). The lack of strict rules on how to assign students to schools and classes implies that principals and school-boards may allocate children according to criteria that do not ensure within-class heterogeneity.

5. Conclusions

Using a standard education production function setting, this paper investigates whether the length of stay in the host country plays a role in the school outcomes of immigrant students in Italy. Data on students' standardized test results in three different stages of school life are examined and compared, namely, end of primary school (year 5), first and later year of secondary (year 6 and year 10). The results obtained are very much consistent with the literature but, due to their cross-sectional nature, these estimations mainly allow for a descriptive interpretation. Further analysis will try to deal with the endogeneity issues.

First of all, we confirm the significant gap between native and immigrant students in school outcomes for all grades, with first generation immigrants showing the largest gap, as expected. Second, comparing the results between first and second generation immigrant students we also find that the significant gap observed on first generation is mainly due to the negative performance of newly arrived (one year of stay in the host country) immigrant children in Italy. In particular, for 5th graders we observe that, controlling for other variables, results in the language test for newly arrived foreign students are approximately 16% lower than average. However, after 2 to 4 years in the Italian school system, this gap is reduced to only 5% and then it approaches that observed for second generation immigrant students. Similar results are found for students enrolled in the 6th and 10th year. That is, our analysis suggest that, for first generation students, closing the gap with second generation ones may be (for the most part) just a question of time.

Moreover, when we compare the results across the different school grades, we see that interventions at younger ages are likely to be more effective. In other words, this study suggests that the estimated gap between first and second generation students takes more time to close for year 10 students than for younger pupils. Note that, if the foreign children's late arrival is the result of national migration policies on family reunification, these results would imply that the possible benefit of delaying immigrant family reunification need to be compared against the possible costs of students' lower school performance.

Finally, results show that in Italy the gap between natives and immigrants remains persistent at all years. Thus, even if results indicate

that new and improved interventions for mitigating disadvantages closely related to the late-arrival problems might be particularly effective, they also confirm that they are not enough for closing the overall native-immigrant performance gap. Since Italy has one of the largest second generation-native students gap observed across OECD countries, this confirms that new and effective integration policies need to be implemented.

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Table 1. Distribution of natives and immigrant students by macro-areas

Macroregions	Natives and immigrants	%		Native students	%	Immigrants 1st generation	%	Immigrants 2nd generation	%
2nd grade primary school									
North	227242	44.0		191725		8490	59.8	19865	68.1
Centre	95144	18.4		81623		3164	22.3	6671	22.9
South	193651	37.5		180243		2545	17.9	2621	9.0
Total	516037	100.0		453591	87.9	14199	2.8	29157	5.7
5th grade primary school									
North	225864	42.9		189701		15084	63.0	13524	66.0
Centre	95671	18.2		81372		5495	23.0	4701	22.9
South	204927	38.9		191410		3350	14.0	2272	11.1
Total	526462	100.0		462483	87.8	23929	4.5	20497	3.9
6th grade lower secondary school									
North	229123	42.5		187340		19943	64.4	12209	66.4
Centre	95950	17.8		81063		7073	22.8	3980	21.6
South	213692	39.7		199284		3940	12.7	2201	12.0
Total	538765	100.0		467687	86.8	30956	5.7	18390	3.4
10th grade upper secondary school									
North	181403	41.8		159830		14881	64.6	4858	58.8
Centre	76147	17.6		68283		5251	22.8	1674	20.3
South	176366	40.7		170308		2911	12.6	1724	20.9
Total	433916	100.0		398421	91.8	23043	5.3	8256	1.9

Table 2. Distribution of immigrant students by place of birth.

Natives and immigrants				Immigrants by place of birth								
	Total No.	%		Italy	%	EU Countries (EU27)	%	Other European (non EU)	%	Non Europe	%	Tot. %
2nd grade primary school												
1st generation	14199	2.8				5728	40.3	3257	22.9	5183	36.5	100.0
2nd generation	29157	5.7		29157	100.0							100.0
Immigrants (all)	43356	8.4		29157	67.3	5728	13.2	3257	7.5	5183	12.0	100.0
Tot. no. of students	516037	100.0										
5th grade primary school												
1st generation	25521	4.9				8777	34.4	6067	23.8	10640	41.7	100.0
2nd generation	21195	4.1		21195	100.0							100.0
Immigrants (all)	46716	8.9		21195	45.4	8777	18.8	6067	13.0	10640	22.8	100.0
Tot. no. of students	526462	100.0										
6th grade lower secondary school												
1st generation	32839	6.4				9868	30.0	8277	25.2	14670	44.7	100.0
2nd generation	19103	3.7		19103	100.0							100.0
Immigrants (all)	51942	9.6		19103	36.8	9868	19.0	8277	15.9	14670	28.2	100.0
Tot. no. of students	538765	100.0										
10th grade upper secondary school												
1st generation	26589	5.2				6962	26.2	8390	31.6	11211	42.2	100.0
2nd generation	8322	1.6		8322	100.0							100.0
Immigrants (all)	34911	8.0		8322	23.8	6962	19.9	8390	24.0	11211	32.1	100.0
Tot. no. of students	433916	100.0										

Table 3. Average test scores: Language test results (by immigrant status and place of birth)

	Average test scores	Place of birth		
		EU Countries (EU27)	Other European (non EU)	Non Europe
2nd grade primary school				
Native	73,2	68,1	65,1	66,4
Immigrants (1st generation)	59,8	63,7	59,7	55,7
Immigrants (2nd generation)	61,6			
Average score	64,9	65,9	62,4	61,0
5th grade primary school				
Native	74,7	71,3	68,4	69,8
Immigrants (1st generation)	64,8	68,7	65,2	61,3
Immigrants (2nd generation)	67,8			
Average score	69,1	70,0	66,8	65,6
6th grade lower secondary school				
Native	62,2	53,0	54,8	56,1
Immigrants (1st generation)	47,8	52,0	49,6	44,1
Immigrants (2nd generation)	54,7			
Average score	54,9	52,5	52,2	50,1
10th grade upper secondary school				
Native	68,3	62,9	62,7	64,3
Immigrants (1st generation)	57,4	60,7	60,1	53,4
Immigrants (2nd generation)	63,8			
Average score	63,2	61,8	61,4	58,8

Notes: The column on Average test scores includes the results obtained respectively by natives, first and second generation, plus the overall average score of all students attending the Italian school system. Natives born abroad identify children of mixed parentage, that is, Italian children either born in Italy or abroad with one foreign-born parent.

Table 4. Language average test scores: immigrants (1st generation) by place of birth and time spent in Italy before the test

	Time spent in Italy before the test			
	1 year	2/4 years	5/7 years	>7 years
2nd grade primary school				
EU Countries (EU27)	61.3	63.3	65.1	
Other European (non EU)	55.4	59.9	60.9	
Non Europe	51.2	55.2	58.0	
All first generation	55.8	59.7	61.5	
5th grade primary school				
EU Countries (EU27)	63.4	70.0	70.1	69.3
Other European (non EU)	58.8	65.6	67.2	67.2
Non Europe	52.8	62.2	64.1	64.5
All first generation	57.6	66.0	67.1	66.5
6th grade lower secondary school				
EU Countries (EU27)	43.5	53.9	55.8	52.6
Other European (non EU)	42.4	50.6	52.6	51.2
Non Europe	35.4	45.2	49.0	46.8
All first generation	39.0	49.4	52.3	49.5
10th grade upper secondary school				
EU Countries (EU27)	47.3	57.2	62.0	62.9
Other European (non EU)	49.3	55.6	60.1	62.7
Non Europe	41.1	48.3	53.3	57.0
All first generation	44.3	52.9	58.0	60.4

Table 5. 5th year - primary school
Dependent variable: standardized National test results in reading

	(1)	(2)	(3)	(4)	first generation: length of stay			
					(5)	(6)	(7)	(8)
gender	0.57***	0.55***	0.55***	0.57***	0.59***	0.58***	0.58***	0.57***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)
escs	2.90***	2.45***	2.45***	2.46***	2.93***	2.48***	2.47***	2.45***
	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)
dialect	-1.55***	-1.40***	-1.39***	-1.36***	-1.50***	-1.36***	-1.34***	-1.35***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
foreign language	-3.24***	-3.06***	-3.06***	-2.86***	-3.43***	-3.22***	-3.22***	-2.95***
	(0.14)	(0.14)	(0.14)	(0.15)	(0.14)	(0.14)	(0.14)	(0.15)
no. stud_class	0.01	0.00	-0.00	-0.01	0.00	0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
other european				-2.91***				-3.39***
				(0.32)				(0.31)
non europe				-5.23***				-5.55***
				(0.30)				(0.28)
n. siblings		-1.02***	-1.02***	-0.97***		-1.01***	-1.01***	-0.97***
		(0.03)	(0.03)	(0.03)		(0.03)	(0.03)	(0.03)
manybooks		2.14***	2.14***	2.11***		2.13***	2.13***	2.11***
		(0.06)	(0.06)	(0.06)		(0.06)	(0.06)	(0.06)
school_size			0.00	0.00			0.00	0.00
			(0.00)	(0.00)			(0.00)	(0.00)
escs_school			0.05	0.10			0.09	0.11
			(0.17)	(0.17)			(0.17)	(0.17)
foreign1st generation	-5.20***	-4.76***	-4.76***	-2.10***				
	(0.18)	(0.18)	(0.18)	(0.24)				
foreign 2nd generation	-3.57***	-3.11***	-3.12***	-3.24***	-3.41***	-2.98***	-2.99***	-3.19***
	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
one_year					-11.32***	-10.88***	-10.89***	-7.95***
					(0.39)	(0.39)	(0.39)	(0.41)
two_4years					-3.80***	-3.43***	-3.44***	-0.83***
					(0.26)	(0.26)	(0.26)	(0.28)
five_more					-3.44***	-3.04***	-3.05***	-0.13
					(0.21)	(0.22)	(0.22)	(0.26)
Constant	74.33***	74.92***	74.78***	74.78***	74.33***	74.93***	74.78***	74.77***
	(0.26)	(0.26)	(0.30)	(0.31)	(0.26)	(0.26)	(0.31)	(0.31)
Macro area dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	410800	379405	379405	368234	399343	368826	368826	368234
R-squared	0.078	0.086	0.086	0.089	0.081	0.089	0.089	0.090
No. clusters	7379	7374	7374	7154	7160	7155	7155	7154

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. 6th year – lower secondary school
Dependent variable: standardized National test results in reading

	(1)	(2)	(3)	(4)	first generation: length of stay (5)	(6)	(7)	(8)
gender	2.94***	2.91***	2.93***	2.92***	2.95***	2.93***	2.94***	2.93***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
escs	4.88***	4.07***	3.80***	3.81***	4.91***	4.11***	3.83***	3.81***
	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)
dialect	-3.44***	-3.16***	-3.06***	-3.04***	-3.37***	-3.10***	-2.99***	-3.01***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)	(0.10)
foreign language	-5.13***	-4.77***	-4.79***	-4.36***	-5.66***	-5.26***	-5.29***	-4.86***
	(0.14)	(0.14)	(0.14)	(0.15)	(0.15)	(0.15)	(0.15)	(0.14)
no. stud_class	0.17***	0.16***	0.13***	0.13***	0.17***	0.16***	0.13***	0.13***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
other european				-1.87***				-3.78***
				(0.32)				(0.31)
non europe				-4.82***				-6.28***
				(0.29)				(0.27)
n. siblings		-1.58***	-1.58***	-1.53***		-1.59***	-1.59***	-1.52***
		(0.03)	(0.03)	(0.03)		(0.03)	(0.03)	(0.03)
manybooks		3.06***	3.10***	3.00***		3.00***	3.03***	3.01***
		(0.08)	(0.08)	(0.08)		(0.08)	(0.08)	(0.08)
school_size			0.00**	0.00**			0.00**	0.00**
			(0.00)	(0.00)			(0.00)	(0.00)
escs_school			1.40***	1.50***			1.49***	1.51***
			(0.18)	(0.19)			(0.19)	(0.19)
foreign1st generation	-8.30***	-7.64***	-7.66***	-5.46***				
	(0.18)	(0.18)	(0.18)	(0.24)				
foreign 2nd generation	-3.74***	-3.02***	-3.05***	-3.33***	-3.42***	-2.73***	-2.75***	-3.04***
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
one_year					-15.23***	-14.57***	-14.61***	-11.01***
					(0.31)	(0.31)	(0.31)	(0.34)
two_4years					-6.67***	-6.05***	-6.09***	-2.98***
					(0.29)	(0.29)	(0.29)	(0.31)
five_more					-5.56***	-4.96***	-4.98***	-1.66***
					(0.22)	(0.21)	(0.21)	(0.26)
Constant	59.91***	60.80***	61.02***	61.02***	59.86***	60.77***	61.01***	60.98***
	(0.36)	(0.36)	(0.36)	(0.37)	(0.37)	(0.36)	(0.37)	(0.37)
Macro area dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	436670	412474	412474	399229	423262	399856	399856	399229
R-squared	0.167	0.178	0.179	0.182	0.170	0.180	0.182	0.183
No. clusters	5666	5666	5666	5581	5585	5585	5585	5581

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. 10th year – lower secondary school
Dependent variable: standardized National test results in reading

	(1)	(2)	(3)	(4)	first generation: length of stay (5)	(6)	(7)	(8)
gender	2.48***	2.43***	2.61***	2.61***	2.48***	2.43***	2.61***	2.61***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
escs	1.35***	0.75***	0.40***	0.38***	1.37***	0.76***	0.40***	0.38***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
dialect	-1.12***	-1.12***	-0.87***	-0.88***	-1.09***	-1.09***	-0.83***	-0.87***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
foreign language	-3.07***	-2.91***	-2.85***	-2.61***	-4.41***	-4.19***	-4.14***	-2.93***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.20)	(0.20)	(0.20)	(0.18)
no. stud_class	0.16***	0.16***	0.09***	0.09***	0.16***	0.16***	0.09***	0.09***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
other european				-0.47				-2.25***
				(0.29)				(0.27)
non europe				-4.55***				-5.91***
				(0.30)				(0.28)
n. siblings		-0.32***	-0.29***	-0.24***		-0.34***	-0.31***	-0.23***
		(0.03)	(0.03)	(0.03)		(0.03)	(0.03)	(0.03)
manybooks		2.24***	2.08***	2.08***		2.28***	2.11***	2.10***
		(0.07)	(0.07)	(0.07)		(0.07)	(0.07)	(0.07)
school_size			0.01***	0.01***			0.01***	0.01***
			(0.00)	(0.00)			(0.00)	(0.00)
escs_school			4.94***	4.95***			4.95***	4.95***
			(0.31)	(0.31)			(0.31)	(0.31)
foreign1st generation	-4.50***	-4.22***	-4.22***	-2.39***				
	(0.17)	(0.17)	(0.17)	(0.24)				
foreign 2nd generation	-2.22***	-1.96***	-2.08***	-2.19***	-1.71***	-1.47***	-1.59***	-2.07***
	(0.19)	(0.20)	(0.20)	(0.20)	(0.19)	(0.20)	(0.19)	(0.19)
one_year					-13.27***	-12.98***	-12.96***	-10.12***
					(0.64)	(0.65)	(0.65)	(0.67)
two_4years					-6.86***	-6.69***	-6.68***	-4.55***
					(0.37)	(0.37)	(0.36)	(0.38)
five_7years					-2.64***	-2.40***	-2.38***	-0.43
					(0.32)	(0.32)	(0.32)	(0.35)
seven_more					-1.47***	-1.14***	-1.12***	1.25***
					(0.25)	(0.25)	(0.25)	(0.31)
Vocational	-9.77***	-9.80***	-8.77***	-8.73***	-9.79***	-9.81***	-8.78***	-8.71***
	(0.28)	(0.28)	(0.29)	(0.29)	(0.28)	(0.28)	(0.29)	(0.29)
Lyceum	9.15***	8.90***	6.50***	6.51***	9.16***	8.91***	6.51***	6.51***
	(0.24)	(0.24)	(0.29)	(0.29)	(0.24)	(0.24)	(0.29)	(0.29)
Constant	65.37***	65.14***	64.78***	64.70***	65.32***	65.10***	64.74***	64.67***
	(0.45)	(0.44)	(0.45)	(0.45)	(0.45)	(0.44)	(0.45)	(0.45)
Macro area dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	388451	371575	371575	371250	388451	371575	371575	371250
R-squared	0.303	0.308	0.316	0.317	0.303	0.308	0.317	0.318
No. clusters	4409	4405	4405	4405	4409	4405	4405	4405

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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