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Second generation adolescents' competencies and the role of integration policies

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# Second-generation adolescents' competencies and the role of integration policies. 

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#### Abstract

Immigration into the OECD countries has seen a sharp increase since the middle of the 1980s, even if not at a constant rate. Integration policies are a fundamental tool to help the newly arrived to integrate and assimilate with the native population. While the literature on the immigrants' integration level is very rich for settlement countries (USA, Canada, Australia and New Zealand) and for the few European countries that have a long tradition of immigration (Germany, UK, France), very little is yet known about other European economies that have only recently become destination countries. Indeed, the availability of data has made difficult to carry out comparative analysis of the integration process of immigrants in most of the EU countries, particularly for the second-generation. This research wants to fill this gap, analysing the role of the socio-economic background in the educational outcome of immigrants. Furthermore, we demonstrate how the effect of the socio-economic background is more or less pronounced in different EU countries that adopt different integration policies and have different education systems. In this work, we concentrate on second-generation adolescents and compare their performances with that of native adolescents and with that of first generation adolescents. The chosen indicator is the score obtained in the 2012 PISA test by each student (native, first and second-generation immigrant) in reading. We compare the results obtained for each of the EU15 member states and for the settlement countries. The results, in line with the prevalent literature, show a strong impact of the socio-economic background on the immigrant adolescents' performances. The effect is weaker in those countries where the integration policies concern disadvantaged children since an early age.


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## 1. Introduction ${ }^{-}$

Immigration into the OECD countries has seen a sharp increase since the mid of 1980s even if not at a constant rate. After a slowdown in flows during the Great Recession that interested most of the western developed countries, preliminary data for 2015 show that migration flows to the OECD area are at their highest level, with a $+10 \%$ with respect to 2014 (OECD, 2016). Immigrants' integration is thus one of the most important goals and one of the most debated political topics for governments of many countries. Some of the interested countries, such as Italy, Ireland, Spain and Greece, are not familiar with such large arrivals of foreigners, having been traditionally emigration countries. For example, in Italy the foreign population has doubled in the last ten years (OECD, 2016). The integration policies are a fundamental tool to help the newly arrived to integrate and assimilate with the local population. Many studies have shown education to be the most important area of intervention to quicken the integration process. Several different aspects of integration can be analysed: economic (the level of income earned by immigrants compared to natives; employment), educational (the highest level of education obtained; school performances; rate of dropouts), social (housing, health, how the free time is spent) and so on. All of them are important but their relevance differs depending on the group of migrants referred to: adults or children; first generation or second generation; workers or students. While the literature is very rich for settlement countries (USA, Canada, Australia and New Zealand) and for few European countries that have long tradition of immigration (Germany, UK, France) very little is known yet about other European economies that have only recently become destination countries. Indeed, the availability of data has made it difficult to carry out comparative analysis of the integration process of immigrants in most of the EU countries particularly for the second-generation.

This research aims to fill this gap, analysing the role of the socio-economic background in the educational outcome of immigrants. Furthermore, we want to stress how the background effect results are more or less attenuated in different EU countries that adopt different integration policies and have different education systems. In this work, we concentrate on second-generation adolescents, i.e. the offspring of foreign-born parents, and compare their performances with that of adolescents with native parents and with that of first generation adolescents, i.e. children born abroad by foreign parents. The chosen indicator is the score obtained in the 2012 PISA test by each student (native, first

[^0]and second-generation immigrant) in reading. We compare the results obtained for each of the EU15 member states and for the settlement countries.

## 2. Previous literature

Studies on immigrants' integration in the host country can be divided into two main strands, one that adopts a sociological approach and the other that follows an economic approach. ${ }^{1}$ The area in which the economic research has mostly concentrated is the integration of immigrants in the labour market. The studies had mainly focused on the wage differential between native and immigrant workers (Chiswick, 1978; Borjas, 1985; Borjas, 1987; Meng, 1987; Dustmann, 1993; Pischke, 1992; Venturini and Villosio, 2008), and on immigrant overqualification (Altorjai, 2013; Chiswick and Miller, 2009; Dell'Aringa and Pagani, 2011). More recently, the literature has also been extended to the second generation (Card et al., 2000; Aydemir et al., 2006; Bean e Brown, 2006; Corak, 2008), and to the education of the immigrants' offspring as well (Chiswick e Deb-Burman, 2004; Aydemir et al., 2008; Meur et al., 2008; Algan et al., 2010; Smith, 2014). Given the scarcity of data, there are only limited studies for the new destination countries (Bonifazi et al, 2008; Dalla Zuanna et al., 2009; Dustmann and Glitz, 2011; Barban and White, 2011). The variables mostly taken under consideration are the highest level of education obtained, the type of education followed (academic or vocational), the dropout rate compared to that of the natives, the score obtained at the end of the education cycle (primary, secondary, tertiary) or the score obtained at some national or international educational evaluation test.

Education is clearly the most important mean by which an immigrant person can integrate into the society and thus increase her opportunity to obtain an intergenerational socio-economic "upgrade". This has also been affirmed in the recent OECD report (2015), being particularly true for immigrant offspring and for immigrants arrived in the host country as children. Generally speaking, obtaining good results at school is often a premise for success in the labour market. The reason for good or bad school performances of immigrant children might sometimes coincide with those of their native peers. Nonetheless, reasons strictly linked to their immigrant status might prevail. It is therefore important to better understand which aspects might prevent immigrant children from obtaining the same results of their native counterparts. The language spoken at home, if different from that spoken in the residence country, is important (Chiswick and Miller, 1996; Bleakley and Chin, 2004a,b; Esser, 2006; NESSE, 2008; Alba and Waters, 2011), but as demonstrated by Borjas (1992) also the ethnic capital plays an important role. Indeed, the culture, religion, openness towards the society and the importance

[^1]assigned to education with respect to an early work life, all have strong influences on the convergence of the education results of immigrant children towards the average results of the native population (Card et al., 2000; Corak, 2008; Gang and Zimmermann, 2000; Alba and Waters, 2011; De Heus and Dronkers, 2012; Azzolini and Barone, 2013).

Different school systems also have their bearing on the integration and assimilation ${ }^{2}$ process of immigrant students. Some authors have concentrated their attention on the characteristics of the education institutions, such as early tracking vs late tracking, age of start of compulsory education and partial tracking, namely dividing the students on the basis of their ability but only for some subjects (Dustmann, et al. 2011; Schneeweis, 2011; Crul et al. 2012; Crul and Mollenkopf, 2012; Hanushek and Woessmann, 2006; Bauer and Riphaln, 2013). Other aspects that interfere with the immigrant children integration process are the length of time spent in the host country (Schnepf, 2007), school segregation (NESSE, 2008; OECD, 2015), self-selection in the migration decision, immigration policy and others. However, it has been regularly shown that socio-economic capital plays a crucial role in the likelihood of school success of immigrant students (van Ewijk and Sleegers, 2010). Several OECD studies have reported that among all the obstacles that alien students face, the socio-economic disadvantage with respect to their native peers is the one that has the strongest responsibility for the worst school performances (OECD, 2012a,b; OECD, 2015). Socio-economic capital has more influence on the school life of foreign children. Indeed, a parent with low (or high) education attainment might have a different impact on the education performance of the child if the child is an immigrant rather than a native (Schneeweis, 2011).

This work contributes to this last strand of research trying to uncover how much economic, social and cultural differences between native and immigrant populations are transmitted to the next generations. To this end we make use of the results of the PISA test. Indeed, given the still relatively low availability of data, not many studies have been carried out comparing old and new immigrant destination countries. For the same reason, studies that comparatively analyse the socio-economic background of immigrant and native households have been performed mainly for the settlement countries and for those of north Europe (Schnepf, 2007; van Ewijk and Sleegers, 2010).

## 3. The dataset and the empirical model

### 3.1. The dataset

[^2]The Programme for International Student Assessment (PISA) is a survey made by the OECD every three years, starting from 2000, on secondary school students' cognitive skills. The aim is to assess the abilities of students that are going to face the tertiary level of education or the labour market. The survey also collects information on personal characteristics, family background and educational institutions. The need for comparable data and the numerous differences in schooling systems prevents the conducting of the survey among students of the same school year and for that reason a target age has been set. In fact, the programme includes 15 -years-old students, independently from the school year, course or orientation. However, it excludes individuals that are not enrolled in any educational institution (OECD, 2001).

The PISA survey uses a paper-based test on reading, mathematics and science to assess student's cognitive skills. In our analysis we only focus on reading results. Because of the linguistic barrier, this is the subject in which the main learning difficulties of immigrant students emerge. ${ }^{3}$ Furthermore, the survey does not use a point estimate but a method called plausible values. ${ }^{4}$ The variable produced is continuous, with mean and standard deviation respectively equal to 500 and 100. It is important to stress that the programme does not take into consideration the simple knowledge of school subjects, because, in this case, the outcomes would represent only the educational institutions efficiency. Rather, the survey wants to investigate students' comprehension on learned concepts and the ability to use them in solving problems of every-day life. For that reason the PISA dataset fits well to the analysis of immigrant students integration, because it reflects the result of a continuous learning process that takes place at home, in the school environment and with peers.

In 2012, 34 OECD countries and 31 partner countries/economies participated to the programme. Among them we have taken into account the following OECD nations: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Great Britain, Greece, Ireland, Italy, Norway, New Zealand, Portugal, Spain, Sweden, Switzerland and United States of America. With different features, they have been the main destination countries of migration flows in the last two decades and FIG. 1 shows the composition of their population by immigrant status.

Italy, Portugal, Greece, Spain, Ireland and Finland have become only recently immigration countries and therefore first generation group is still larger than the second generation one (OECD, 2012b).

[^3]

### 3.2. The empirical model

In this work, we estimate three different models:

- Model 1 measures the differences in reading scores by migration status (first generation, second generation or native), controlling for personal and environmental variables (gender, age and school group composition). This basic model is useful as a benchmark for the subsequent estimations.
- Model 2 adds the socio-economic background of family of origin and the language spoken at home as independent variables.
- Model 3 further investigates the effect of three education policies on students' outcomes the nursery school, the tracking, and the grade repetition.
Model 1 is given by the following equation:
$Y_{i, t}=\alpha+\beta Z_{i, t}+\boldsymbol{\delta} \boldsymbol{C}_{i, t}+\varepsilon_{i}$
where $Y_{i, t}$ is the reading test score of student $i$ belonging to generation $t$. Variable $Z_{i, t}$ represents the migration status. More precisely, PISA survey distinguishes between three status: native, who are born by at least one parent born in the country of residence (students born abroad by at least one parent born in the country of residence are included in this category); second generation, who are born in the country of residence by both parents born abroad; first generation, who are born abroad by parents born abroad. Vector $\boldsymbol{C}_{i, \boldsymbol{t}}$ controls for personal characteristics (i.e. gender and age) and for those of school environment - the mean value and the standard deviation of the Economic, Social and

Cultural Status (ESCS) $)^{5}$ index per school, and the percentage of first and second generation students enrolled in the same school. These variables give a measure of the composition of the peer-group and they allow us to control for and to analyse the effect of enrolment policies. Estimation technique is the standard OLS.

As previously mentioned, the outcome of Model 1 regression is useful to know the mean differences in PISA reading scores between the three population groups. To understand the family background effect on student's cognitive results, we need to compare the outcome of Model 1 with the outcome of the following equation:
$Y_{i, t}=\alpha+\beta_{1} Z_{i, t}+\beta_{2} X_{i, t-1}+\beta_{3} X_{i, t-1} * Z_{i, t}+\beta_{4} U_{i, t}+\beta_{5} U_{i, t} * Z_{i, t}+\boldsymbol{\delta} \boldsymbol{C}_{i, t}+\varepsilon_{i}$

With respect to Model 1, variables $Y_{i, t}, Z_{i, t}, \boldsymbol{C}_{i, t}$ uphold the same meaning. We are convinced that part of the disadvantage of immigrant students is due to family background and this is why we further introduce the independent variable $X_{i, t-1}$, which represents the family background of student $i$ measured by the ESCS index. Thanks to the information included, the ESCS index represents the general quality of family background and so it has been preferred to wealth index and to educational level of parents. Indeed, the aim of the study is to know the family background effect on educational level to depict the adjustment pattern of immigrant population in the very long-run and ESCS index is the most suitable variable for this purpose. Like other OECD indexes, ESCS is built to have mean equal to 0 and a standard deviation equal to 1 .
While the family background effect on second generation immigrants has already been studied in countries with a long history of migration, and more generally in Anglo-Saxon nations (Borjas, 1992; Card et al., 2000; Corak, 2004; Crul and Mollenkopf, 2012), similar analyses for recent receiving countries, such as Mediterranean nations of EU15, ${ }^{6}$ are very scarce. With this aim, we interact variable $X_{i, t-1}$ with variable $Z_{i, t}$, so that we can explore the difference in the family background effect between the three population groups and through it their pattern of integration.

[^4][^5]Among the elements that affect cognitive results in a different manner between the three population groups there is obviously the language spoken at home and in the model it is represented by the dichotomous variable $U_{i, t}$. It assumes value 1 if student $i$ speaks at home the test language or 0 otherwise. As we previously said, students who speak at home a language different from that of instruction face a learning obstacle not only in reading but also in science and mathematics, even though the universality of the mathematical language let these disparities to be less conditioning (NESSE Network, 2008; Schneeweis, 2011). Nonetheless, a wrong use of the language may still produce a disadvantage for the student. Therefore, we interact the language variable with the migration status. A negative coefficient of this interaction suggests the extension of language support policies also to the students' families.

The final aim of our analysis is indeed to give some policies suggestions to enhance the long-run integration of the foreign population. With this in mind, we estimate Model 3, in which we explicitly take into account three well-known elements of the education policies - access to the nursery school, the grade repetition and the tracking system. They are represented by vector $\boldsymbol{P}$ and so the complete model is the following:

$$
Y_{i, t}=\alpha+\beta_{1} Z_{i, t}+\beta_{2} X_{i, t-1}+\beta_{3} X_{i, t-1} * Z_{i, t}+\beta_{4} U_{i, t}+\beta_{5} U_{i, t} * Z_{i, t}+\boldsymbol{\gamma} \boldsymbol{P}_{i, t}+\boldsymbol{\delta} \boldsymbol{C}_{i, t}+\varepsilon_{i}
$$

The nursery school is of particular importance for students with an immigrant background. They can receive linguistic and cultural inputs able to produce long-run consequences from the hosting society at an age when the learning process is very reactive (Corak, 2004). Therefore, we expect to find a positive effect of the nursery school attendance on reading rest scores.
While the grade repetition can be considered endogenous to the model, we have built a variable that is equal to 1 if the 15 -years-old student is enrolled to a lower grade with respect to the modal grade of the residence country, but he has never been rejected during the school carrier. In our opinion, this variable capture the exogenous effect to fail and to attend school with younger mates. Furthermore, this is a specific problem to immigrant children because they are put into lower classes only for reason of compatibility between education systems. This makes students less stimulated in learning and it can prevent integration. For these reasons we expect to measure a negative impact on cognitive outcomes, which can confirm the results produced by the literature (Corak, 2004).

Finally, we introduce the tracking variable, which measures the impact of dividing students in separated curricula or schools during the secondary level of education. Previous researches show this policy to be associated with a greater disparity in cognitive outcomes between native and immigrant students (Crul et al., 2012). Indeed, student with an immigrant background tend to choose vocational
and technical schools for an early entrance into the labour market. The probability to find a job can increase, but foreign students with an under-average background are prevented to climb the social ladder and to develop their talents. The result is to leave them at the margin and to loose part of the human capital that the school system should develop.
The relevant coefficient of the model, in our opinion, is that of the interaction between immigration status and family background, $\beta_{3}$. It represents the mean difference in cognitive results between foreign and native students with the same level of socio-economic and cultural background. This means that $\beta_{3}$ coefficient must be interpreted with respect to $\beta_{2}$ coefficient, which represents a measure of the transmission of socio-economic inequality in the whole population (Becker and Tomes, 1994; Roemer, 2004). In other words, $\beta_{3}$ gives important information about the integration pattern of immigrants group and it helps us to understand if the foreign population tends to stay at the margin or to assimilate to the mean of the natives. This comprehension is the objective of the present analysis.

## 4. Descriptive analysis and empirical results

First and second-generation students show different cognitive outcomes in the various sample nations, as illustrated in FIG. 2, where mean reading scores by migration status are reported. Almost in every country we can observe a rank according to which first generation is the worst performing group, second generation students present intermediate results and natives obtain higher scores. Canada, New Zealand and Australia are exceptions to this pattern: differences between the three groups are less pronounced and first generation results are higher than the PISA sample mean and more similar to those of natives. This can be due to selection policies that support high-skilled migration, as is obvious by looking at FIG. 3 showing ESCS mean values by migration status. Indeed, we can observe that first generation in Canada, New Zealand and Australia is the most advantaged group. Conversely, in the new receiving countries, with the exception of Ireland, affected especially by high-skilled migration flows, first generation group is characterized by lower levels of socioeconomic background. This is also the case of United States, due to family-reunification policies. Instead, in Belgium, Germany, Switzerland and Denmark, nations that have employed guest-workers during the previous century, second generation students are the most disadvantaged group.

The spurious correlation emerging from the two figures is further analysed through the regression models described in the previous section in order to establish a causal relationship. The outputs are illustrated below.

Fig. 2: PISA Reading scores by migration status


Source: PISA 2012 data processing (http://oecd.org/pisa/home).


Source: PISA 2012 data processing (http://oecd.org/pisa/home).

### 4.1. Empirical outputs

Tables 1, 2 and 3 (A and B) show the outcomes of the three regression models. For every country, the first column refers to the estimation of the basic model, and the second one reports the results for the model including the ESCS index and the language spoken at home. The comparison between the two, and the variation of the migration status coefficients passing from one model to the other, allow us to understand how much of the disadvantage affecting immigrant students is captured by these conditions. Because some governments in Europe and North-America have well-designed system to address heterogeneity at school, while others are just beginning to establish policies and practices necessary to meet the needs of the growing foreign population, we try to examine the effectiveness of some national policies in reducing the achievement gaps by the estimation of the full model reported in the third column.
In particular, TAB. 1A and 1B include European countries of recent immigration. For the majority, they are Southern-Europe countries that have been hit by the ongoing refugees crisis and they need urgent analyses and policy suggestions in order to manage the new challenge. Because they were country of net emigration in the last century, the share of the first generation students is greater than that of the second generation. On average, everywhere second-generation students outperform the newly arrived, but their results remain under natives' mean.
Ireland is an exception to this pattern. There, in the year prior to April 2012, the migration inflows were more than offset by the migration outflows for the first time in the last two decades. Furthermore, returning Irish nationals were the single largest constituent of immigration. This simply translates in a reduced disadvantage for immigrant students whose background makes them very close to the culture of the residence country. This result is reinforced by Ireland's Visa programme announced in May 2011, which is intended to be very selective and to favour immigration from UK (OECD, 2013). In the rest of the nations included in the sample of TAB. 1 A and 1 B , permanent immigration remains at high levels. In 2011 residence permits granted to non-EU citizens decreased by almost an half with respect to the previous year, but temporary permits granted because of coastal landing related to the "Arab Spring" increased enormously. On average, arrived children are the most vulnerable and this reflects on their educational achievements. The gaps with natives are in the order of more than 30 points in every country. They strongly reduce, becoming not significant, when we account for the family background and the language spoken at home. It indicates that immigrant students would benefit from language-support practices and policies targeting more broadly less socio-economically advantaged students. This last point is very important in the sub-sample under analysis because the transmission of socio-economic disadvantages from one generation to another is the same in the three
population groups. Indeed, the $\beta_{3}$ coefficient is most cases not significant. Policies enhancing equality of opportunities are mainly those included in the full model, which we are going to discuss later.
Proficiency in the language of teaching is a major instrument and precondition for learning. Language competencies are essential for students to understand contents and interact with teachers and peers. Those who do not master the language of instruction will face significant difficulties and it is evident looking at the regression outputs. Students who speak at home the language of education get on average a 30 points greater score at PISA test. As expected, the advantage of speaking at home the language of the residence country disappears for students with an immigrant background. It is witnessed by the negative coefficient of the interaction between the language and the migration status. Likely, foreign parents have no proficiency in the host country language. So,language-support policies extended to the families and not only to the children, would be beneficial for immigrant students.

In TAB. 2A and 2B, results for the European countries with a long history of immigration are reported. Again, the group that obtained the lowest results is the first-generation one. As in the previous sub-sample, in the baseline model second-generation students perform more likely to students born abroad than to natives. Past migration policies, which have favoured temporary and low-skilled workers, together with the absence of educational integration interventions (OECD, 2016), are the main causes of this results.

Accounting for the family background and the language makes the disadvantage of second-generation adolescents not significant in almost every country. Differently to previous outputs, the interaction between ESCS index and the second-generation status is negative everywhere, with the exception of the Austria. It indicates that the advantage of coming from a privileged family is reduced and immigrants' children tend to integrate at the lower margin of the education (and income) distribution, independently from socio-economic background. This is not true for the first generation group, which composition is deeply different from that of the second generation. A fairly consistent pattern shows national governments to progressively tighten up admission conditions. At the same time, asylum seekers increased with the result of polarized recent flows (OECD, 2013). The positive coefficient of the interaction between the ESCS index and the first-generation status represents, indeed, a segmented integration model, favoured by the tighter and more selective immigration policies adopted in recent years.

What we said for the previous group of countries about the language is true also for these. The exception is Belgium, where the interaction of language spoken at home and the migration status is positive. Actually, the language of PISA test in Belgium is French and France is the second main
immigrants' country of origin. That is why speaking at home the test language gives to first- and second-generation students a further advantage.

Let us discuss now to regression outputs for settlement countries, which are shown in TAB. 3A and 3B. Australia, New Zealand, Canada and Great Britain, all have restrictive migration policies that favour high-skilled migrants (a skill-stream system or a Point-Based-System "PBS"). These policies influence the very small gap, whenever significant, between native and immigrant students and the relative better results of first generation with respect to second generation as shown in the baseline model.

USA has a family-reunification immigration system, which is going to change the face of the American immigrant population. Nonetheless, when we account for the family background immigrants' gap turns significantly positive, in USA and in the rest of the sub-sample - apart from France. In these countries, indeed, the family background plays a very important role in the education of adolescents. In general, the intergenerational education mobility is the lowest among Western OECD countries. Notable is the negative coefficient of the interaction between ESCS index and the second generation in Australia, which represents that immigrants' children integrate at the top of the education distribution.

The most difficult situation from the integration point of view is that of France. The gap between natives and students with an immigrant background remain negative also in the full model, meaning that the French government has still a lot to do. The Act on Immigration, Integration and Nationality (LIIN in French), adopted in the middle of 2011, has introduced several changes. In particular, the legislation provides for stricter measure with regard to the expulsion of undocumented immigrants. In addition, the procedure for naturalization has been clarified, and more restrictive language requirements imposed (OECD, 2013). Missing the creation of a common sense of belonging, the legislation has surely failed in producing the intended effect on integration and social stability.
The analysis of the composition of migration flows give us a valuable insight on the educational performances and on the integration patterns. Students' background and language spoken at home are the main causation of revealed advantages or disadvantages. Implemented policies are intended to mitigate this causal relationship and give to the entire population the same opportunities.

In our model, variables indicating the effect of national policies on educational outcomes reveal a clear significance. Nursery school positively stimulates pupils and the benefits reverberate in the long run as well. In our sample, all the adolescents that have attended the nursery school when kids show a significant advantage in developing the skills evaluated by PISA test. These results appear to be emphasised in most of the analysed countries for second-generation children. The same analyses cannot be implemented for first generation students because most of them arrived in a later stage of
the education program. On the contrary, students that have been downgraded at the arrival in the residence country were surely penalized. Who is attending a lower grade with respect to the modal grade without having been rejected has significantly worse performances. This school delay can have, indeed, an important adverse effect on self-esteem and on the integration with peers.
Similarly, impacts on social stratification can be produced by the tracking systems. Education policies that impose an anticipated choice between different curricula of the secondary school, and divide students in separate schools based on their preferences, reduce intergenerational mobility and prevent immigrants in achieving the same educational results of natives. This is a well-established result of the literature (Hanushek and Woessmann, 2006; Crul et al., 2012) and here it is confirmed by the negative coefficient of the tracking variable reported in all the sample nations. Heterogeneity is not a hindrance for efficient educational system, as the positive coefficient of the standard deviation of ESCS index by school shows. For the same reason, it is important to calibrate the number of foreign students in the classes. Adolescents with an immigrant background need to stay with their native peer the most in order to feel a sense of belonging to the hosting society. School is the main policy tool in the policy maker hands to achieve an integrated and cohesive society and the analyses presented wants to confirm, as it does, the already known answers to the migration challenge for countries that are facing it as a new one.

## 5. Conclusions and policy suggestions

In this paper we analysed the impact of socioeconomic background of students on the educational outcome on the educational outcome of adolescents. We considered the EU15 countries dividing them depending on whether they are new or old immigration countries and compared them with the other OECD settlement countries, namely Australia, Canada, New Zeeland and USA. We included France and UK in this last group being countries with a very old history of immigration.

The PISA scores are used as a measure of student competencies. The regression outcomes show that almost everywhere the second generation performs better than the first generation of immigrant students even if both are still far behind their native peers. Results also show that in those countries where the immigration policy is not highly skill selective and the school system does not make provision for adequate resources to support children with migration background, they fare notably worse than their native peers, even more so if they have a low ESCS status. Results worsen when there is high concentration of students with low ESCS at school level. A high concentration of immigrant peers in the same class gives a counterintuitive result for Canada, New Zealand and

Australia. Those outcomes are easily explained by the high selectivity of those countries' immigration policies.

We used as explanatory variables, characterizing the education path of students, three dummies that take value 1 respectively if the student has gone to nursery school in the host country, if he is in a grade lower than the modal grade for students of his age, and if the school system of the host country is based on early tracking.
With the exception of the USA in all other countries for which data are available, having gone to a nursery school increases the school ability of a child and this effect is stronger if the student has an immigrant background. While the early tracking system and being in a lower grade negatively affect the adolescent results in the PISA test for each country.
We think that policies generally oriented towards students with low ESCS that increase the time they spend at school with their peers are particularly beneficial for those with an immigrant background. Investing in education can be helpful to all disadvantaged students to which immigrants often belong. Nursery school for the second generation, but also for the first-generation students that arrive in the host country as babies, is very important. Nursery school should be made available to all immigrant children to expose them to the local language and culture since their earliest age.
The provision of host countries language classes for this last category of students can improve their ability to study. Similar classes should be offered to parents of immigrant students considering that the language spoken at home has a strong influence on the host country language proficiency of the student himself. Finally, afterschool extra time offered to help with the homework could strongly improve the achievement of ESCS disadvantaged students even more so if a first or second-generation immigrant.

To conclude, more resources should be invested in the education system in order to increase the integration of immigrants since the early stage of their education career and to reduce the gap with their native peers. This is also important for "equality of opportunity" consideration. The actions suggested would be beneficial not only to students with an immigration background but also to all students from disadvantaged families, where children cannot possibly have the same support the more privileged children can receive from their parents.

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| TAB. 1A: Regression Outputs for OECD Countries of Recent Immigration |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | ITA |  |  | FIN |  |  | GRC |  |  |
|  | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 |
| Second | -30.14*** | 4.63 | -15.02 | -67.51*** | -27.16*** | -48.33 | -11.07* | 32.75 | 27.39 |
| First | -38.96*** | -13.36** | -7.41 | -109.69*** | -53.17*** | -45.27*** | -15.43** | 20.38 | 24.15 |
| ESCS |  | 6.34*** | 5.47*** |  | 26.32*** | 25.01*** |  | 16.90*** | 15.16*** |
| ESCS*Second |  | 7.69 | 6.53 |  | -10.84** | -9.95** |  | -1.72 | -0.09 |
| ESCS*First |  | 7.22* | 5.14 |  | 6.55 | 4.06 |  | -24.99*** | -23.71*** |
| Language |  | 21.57*** | 20.97*** |  | 36.00*** | 34.86*** |  | 46.19*** | 46.87*** |
| Language*Second |  | -31.61*** | -32.73*** |  | -4.93 | -0.39 |  | -40.17 | -50.95* |
| Language*First |  | -11.03 | -12.44 |  | -8.34 | -10.93 |  | -42.92** | -39.57** |
| Nursery |  |  | 15.09*** |  |  | 9.17*** |  |  | 10.33*** |
| Nursery*Second |  |  | 7.80 |  |  | 7.54 |  |  | 5.85 |
| ISCED |  |  | -18.09*** |  |  | (omitted) |  |  | -72.79*** |
| Late |  |  | 1.24 |  |  | -26.57*** |  |  | 5.39 |
| Male | -29.69*** | -28.73*** | -24.43*** | -57.70*** | -56.93*** | -55.73*** | -43.28*** | -43.75*** | -37.33*** |
| Age | 12.18*** | 14.05*** | 13.16*** | 8.89** | 9.17** | -4.44 | 6.03 | 6.00 | 3.92 |
| Mean ESCS | 92.05*** | 81.91*** | 71.24*** | 48.37*** | 31.03*** | 27.27*** | 71.78*** | 56.49*** | 37.42*** |
| SD ESCS | $-18.87^{* * *}$ | -14.96*** | -22.41*** | 19.36** | 16.55* | 13.09 | 16.68* | 22.05** | 6.14 |
| \% First | -39.15*** | -44.71*** | -46.42*** | 9.15 | -4.13 | 0.60 | -43.72*** | -57.16*** | -77.11*** |
| \% Second | 33.97 | 39.32 | 54.69** | 16.42 | 0.10 | -6.63 | -35.04 | -6.50 | -11.44 |
| Cons. | 339.20*** | 289.32*** | 272.79*** | 388.46*** | 347.25*** | 545.35*** | 401.28*** | 351.53*** | 376.09*** |
| N | 30208 | 27628 | 27474 | 8621 | 8551 | 8375 | 5022 | 4839 | 4815 |
| R2 | 0.32 | 0.32 | 0.33 | 0.15 | 0.20 | 0.20 | 0.26 | 0.28 | 0.34 |

TAB. 1B: Regression Outputs for OECD Countries of Recent Immigration

|  | IRL |  |  | ESP |  |  | PRT |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 |
| Second | -4.09 | 42.92 | 50.83 | -39.19*** | -38.09*** | -10.92 | -19.07** | 25.47 | -30.63 |
| First | 0.46 | 27.60 | 30.14 | -46.26*** | -42.23*** | -36.54*** | -30.75*** | -7.56 | 3.70 |
| ESCS |  | 28.79*** | 28.79*** |  | 23.65*** | 22.76*** |  | 21.02*** | 16.94*** |
| ESCS*Second |  | -6.86 | -6.11 |  | -3.78 | -3.62 |  | 0.15 | -2.88 |
| ESCS*First |  | -0.73 | 0.19 |  | 1.28 | -1.38 |  | 16.08** | 6.94 |
| Language |  | 33.23* | 34.93* |  | -2.62 | -2.95 |  | 12.33 | 12.21 |
| Language*Second |  | -45.84 | -50.25 |  | 11.87 | 12.54 |  | -44.21 | -27.41 |
| Language*First |  | -27.33 | -30.13 |  | 13.10** | 10.86* |  | -5.28 | -21.28 |
| Nursery |  |  | -4.14** |  |  | 14.37*** |  |  | 8.16*** |
| Nursery*Second |  |  | -1.93 |  |  | -9.64 |  |  | 17.17 |
| ISCED |  |  | -76.32*** |  |  | -79.98*** |  |  | -8.53** |
| Late |  |  | -4.68 |  |  | -9.32 |  |  | 4.07 |
| Male | -28.18*** | -27.73*** | -27.61*** | -28.62*** | -29.08*** | -27.81*** | -36.62*** | -36.97*** | -30.24*** |
| Age | 23.26*** | 21.96*** | 22.66*** | 11.34*** | 11.21*** | 11.87*** | -2.75 | -1.47 | 5.47 |
| Mean ESCS | 73.06*** | 47.73*** | 46.32*** | 46.14*** | 25.10*** | 23.92*** | 51.32*** | 31.24*** | 25.13*** |
| SD ESCS | 14.76 | 17.38* | 16.14* | -3.16 | 0.27 | -1.38 | 52.45*** | 51.62*** | 44.33*** |
| \% First | -80.23*** | -72.01*** | -73.19*** | 42.59*** | 37.17*** | 34.82*** | -58.94** | -60.08*** | -67.93*** |
| \% Second | 32.07 | 24.30 | 6.90 | 11.74 | 9.39 | -2.49 | -104.89*** | -95.84*** | -56.43** |
| Cons. | 158.84** | 144.24** | 143.53** | 337.04*** | 339.34*** | 290.19*** | 533.82*** | 503.27*** | 380.56*** |
| N | 4898 | 4803 | 4764 | 24762 | 24299 | 24006 | 5545 | 5415 | 4887 |
| R2 | 0.17 | 0.23 | 0.24 | 0.12 | 0.17 | 0.18 | 0.23 | 0.28 | 0.24 |


|  | AUT |  |  | BEL |  |  | DNK |  |  | DEU |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 |
| Second | -37.42*** | -14.41 | -78.45** | -31.18*** | -36.50*** | -44.98 | -43.57*** | 12.99 | 56.07** | -21.43*** | -8.53 | -4.94 |
| First | -42.77*** | -30.49** | -27.49* | -40.46*** | -37.43*** | -23.37*** | -68.01*** | -0.22 | 14.59 | -40.89*** | -19.67 | -12.61 |
| ESCS |  | 12.22*** | 11.53*** |  | 17.68*** | 13.49*** |  | 31.03*** | 29.01*** |  | 10.58*** | 9.78*** |
| ESCS*Second |  | 6.73 | 6.38 |  | -13.60*** | -8.56** |  | -12.54*** | -10.86*** |  | -0.22 | -1.34 |
| ESCS*First |  | -0.70 | -0.84 |  | -4.31 | -2.61 |  | -11.01** | -12.85** |  | 15.06 | 14.62 |
| Language |  | 9.29 | 9.43 |  | 9.06*** | 4.45* |  | 38.51*** | 38.91*** |  | 14.46 | 13.01 |
| Language*Second |  | 0.44 | -1.10 |  | 24.04*** | 21.46*** |  | -30.54* | -31.02* |  | 3.88 | 8.67 |
| Language*First |  | 25.01 | 23.01 |  | 18.50** | 17.74* |  | -50.76*** | -48.66** |  | 12.00 | 7.85 |
| Nursery |  |  | 4.07 |  |  | 24.92*** |  |  | 27.72*** |  |  | 16.85*** |
| Nursery*Second |  |  | 22.32* |  |  | 3.37 |  |  | -15.75** |  |  | -2.27 |
| ISCED |  |  | -2.24 |  |  | -47.48*** |  |  | (omitted) |  |  | -18.18** |
| Late |  |  | -15.04*** |  |  | -29.43*** |  |  | -20.55*** |  |  | -71.47*** |
| Male | -28.63*** | -30.71*** | -29.87*** | -23.12*** | -24.95*** | -21.83*** | -30.24*** | -30.73*** | -27.15*** | -37.87*** | -37.46*** | -36.15*** |
| Age | 13.19*** | 15.02*** | -1.15 | 18.63*** | 19.54*** | 20.41*** | 8.09** | 7.26* | -2.08 | 24.20*** | 23.84*** | 24.27*** |
| Mean ESCS | 100.84*** | 85.61*** | 83.46*** | 115.65*** | 99.88*** | 68.66*** | 66.27*** | 42.41*** | 39.87*** | 98.20*** | 87.64*** | 83.99*** |
| SD ESCS | -8.16 | 3.03 | 5.86 | 34.63*** | 42.02*** | 36.62*** | 24.13** | 25.86*** | 25.78*** | -6.46 | -6.56 | -5.82 |
| \% First | 40.40 | 26.42 | 17.04 | -27.85** | -33.38*** | -42.79*** | 9.71 | 0.74 | 1.62 | -71.12* | -75.74* | -72.36* |
| \% Second | 48.44*** | 39.13*** | 37.12*** | 31.46** | 28.20** | -34.98*** | 46.75*** | 34.62*** | 35.43*** | 10.95 | 8.24 | 7.30 |
| Cons. | 293.37*** | 252.32*** | 502.09*** | 190.57*** | 165.00*** | 117.78** | 342.12*** | 312.38*** | 384.93*** | 142.71** | 134.14** | 81.98 |
| N | 4666 | 4306 | 4289 | 8288 | 7770 | 7641 | 7216 | 6682 | 6615 | 3948 | 3800 | 3751 |
| R2 | 0.35 | 0.34 | 0.35 | 0.40 | 0.42 | 0.45 | 0.15 | 0.22 | 0.24 | 0.41 | 0.41 | 0.42 |

TAB. 2B: Regression Outputs for OECD Countries of Old Immigration

|  | CHE |  |  | NOR |  |  | SWE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 |
| Second | -41.60*** | -11.25* | -56.14*** | -45.54*** | 5.53 | -19.78 | -47.77*** | 1.67 | -14.97 |
| First | -56.87*** | -25.16*** | -20.88*** | -64.96*** | -14.21 | -10.24 | -85.08*** | -31.11* | -18.45 |
| ESCS |  | 19.96*** | 20.14*** |  | 24.74*** | 24.24*** |  | 29.55*** | 28.73*** |
| ESCS*Second |  | -2.03 | -2.80 |  | -3.31 | -10.91 |  | -9.83 | -8.72 |
| ESCS*First |  | 3.30 | 1.90 |  | 3.14 | 2.24 |  | -3.56 | -3.03 |
| Language |  | 21.88*** | 23.37*** |  | 34.64*** | 34.47*** |  | 31.42** | 31.32** |
| Language*Second |  | -11.50 | -13.14* |  | -31.77* | -32.88** |  | -34.08* | -30.59* |
| Language*First |  | -14.12 | -17.43* |  | -17.38 | -17.42 |  | -31.92 | -41.56* |
| Nursery |  |  | -2.67 |  |  | 7.29*** |  |  | 12.15*** |
| Nursery*Second |  |  | 16.76*** |  |  | 10.12 |  |  | 5.55 |
| ISCED |  |  | 29.99*** |  |  | (omitted) |  |  | -21.59 |
| Late |  |  | -43.70*** |  |  | -25.19 |  |  | -43.33*** |
| Male | -30.75*** | -31.23*** | -31.53*** | -43.19*** | -43.55*** | -43.21*** | -46.13*** | -45.93*** | -44.48*** |
| Age | 16.74*** | 17.06*** | 5.36 | 14.60*** | 13.87*** | 13.06*** | 13.61*** | 13.86*** | 13.59*** |
| Mean ESCS | 83.32*** | 66.03*** | 67.45*** | 71.06*** | 56.02*** | 54.93*** | 61.45*** | 41.53*** | 40.71*** |
| SD ESCS | -3.55 | -3.62 | 0.39 | -42.43*** | -36.35*** | -37.35*** | -21.99** | -7.69 | -4.88 |
| \% First | 5.71 | -4.69 | 14.66 | 43.88* | 34.33 | 30.72 | 9.15 | 11.42 | 9.72 |
| \% Second | -7.21 | -13.01 | -20.38** | 79.56*** | 68.95*** | 67.54*** | 58.50*** | 52.19*** | 55.05*** |
| Cons. | 260.47*** | 234.78*** | 420.60*** | 295.90*** | 265.21*** | 259.28*** | 300.71*** | 253.52*** | 223.46*** |
| N | 10904 | 10372 | 10239 | 4537 | 4437 | 4416 | 4562 | 4256 | 4196 |
| R2 | 0.26 | 0.29 | 0.30 | 0.12 | 0.15 | 0.15 | 0.15 | 0.18 | 0.19 |


|  | AUS |  |  | NZL |  |  | CAN |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 | MOD. 1 | MOD. 2 | MOD. 3 |
| Second | 5.96** | 53.55*** | 28.82** | -14.51** | 46.73*** | 48.26** | -14.76*** | 26.68*** | 18.14 |
| First | -1.49 | 23.40*** | 22.73*** | -11.55** | 40.77*** | 44.20*** | -12.90*** | 7.59 | 12.48** |
| ESCS |  | 26.93*** | 26.60*** |  | 37.45*** | 36.10*** |  | 23.46*** | 21.82*** |
| ESCS*Second |  | -7.55** | -8.62*** |  | 0.16 | -0.73 |  | -8.39*** | -7.17** |
| ESCS*First |  | 5.01 | 3.96 |  | -2.65 | -7.48 |  | 5.44 | 3.53 |
| Language |  | 31.25*** | 28.64*** |  | 72.13*** | 64.94*** |  | 23.93*** | 24.70*** |
| Language*Second |  | -45.46*** | -42.50*** |  | -44.15*** | -40.64*** |  | -33.70*** | -35.19*** |
| Language*First |  | -20.34** | -18.49** |  | -38.60*** | -32.66*** |  | -11.09 | -13.62* |
| Nursery |  |  | 3.15* |  |  | 16.35*** |  |  | 11.53*** |
| Nursery*Second |  |  | 8.98* |  |  | -1.98 |  |  | 3.85 |
| ISCED |  |  | -18.67*** |  |  | (omitted) |  |  | (omitted) |
| Late |  |  | -24.00*** |  |  | -29.09*** |  |  | -4.46 |
| Male | -32.03*** | -32.67*** | -31.39*** | -29.22*** | -29.92*** | -28.11*** | -32.51*** | -32.51*** | -31.07*** |
| Age | 21.01*** | 19.01*** | 14.27*** | 18.36*** | 15.88*** | 9.62* | 11.65*** | 11.51*** | 9.59*** |
| Mean ESCS | 76.66*** | 54.75*** | 52.61*** | 86.80*** | 50.24*** | 48.70*** | 59.05*** | 40.78*** | 39.04*** |
| SD ESCS | -13.58** | -5.19 | -6.08 | -52.17*** | -40.04*** | -43.79*** | -3.44 | 3.59 | 1.93 |
| \% First | 23.47** | 23.82** | 22.51** | 23.39* | 25.91** | 26.91** | 41.27*** | 33.43*** | 32.42*** |
| \% Second | 92.50*** | 83.36*** | 76.61*** | -32.88* | -32.33* | -29.80* | $36.44^{* *}$ | 28.23*** | 20.27*** |
| Cons. | 179.64*** | 174.56*** | 249.58*** | 277.52*** | 239.00*** | 303.23*** | 330.39*** | 303.79*** | 309.72*** |
| N | 13427 | 13089 | 12947 | 4128 | 4059 | 3985 | 20689 | 20077 | 19637 |
| R2 | 0.18 | 0.22 | 0.23 | 0.17 | 0.25 | 0.27 | 0.11 | 0.16 | 0.16 |

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## COMITATO SCIENTIFICO

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[^1]:    ${ }^{1}$ For a review of the literature on the economic approach see Arango (2000), Castles and Miller (2009), Kurekova (2010), Massey (1993), Piore (1993). For the sociological approach see Crul and Mollenkopf (2012), cap. 3

[^2]:    ${ }^{2}$ The terms integration and assimilation are often used in an interchangeable way, especially in the economic literature (Spencer, 2011, pag. 202). However, it needs to be clarified that in the sociological literature they imply different meanings. See Barban and White (2011), Brubacker (2001) for an extensive discussion under what acceptation they can be used indifferently.

[^3]:    ${ }^{3}$ Results on mathematic and science can be provided by the authors on request
    ${ }^{4}$ For an extensive exposition on plausible values see Wo (2005)

[^4]:    ${ }^{5}$ ESCS index is obtained by OECD on the basis of the following information: home possessions index (HOMEPOS) - which comprises all items on the family wealth index (WEALTH), for example the number of rooms at home or the ownership of a car, the presence at home of cultural objects (CULTPOS), such as classical novels, and educational resources at home (HEDRES), for example a desk - as well as books in the home recoded into a four-level categorical variable (fewer than or equal to 25 books, 26-100 books, 101-500 books, more than 500 books); the highest parental occupation (HISEI); and the highest parental education expressed as years of schooling (PARED).

[^5]:    ${ }^{6}$ We have excluded from the analysis Netherland, because of the missing participation to the programme, and Luxembourg, due to the shortage of immigrant students in the sample.

