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Cultural persistence or change? Gender differences in educational expectations of first and second-generation immigrants in Italy

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Abstract

This paper analyzes whether cultural heritage determines gender differences in educational expectations to go to university of first- and second-generation immigrants in Italy. The analysis relies on the “Integration of Second-Generation Survey” (INTEG2GEN) carried out by the Italian Institute of Statistics (ISTAT) in 2015. INTEG2GEN is a national representative survey of students living in Italy and attending lower and upper secondary school. Our findings suggest that parents’ cultural background plays a non-negligible role for their daughters’ and sons’ expectations. Nevertheless, there is a gender difference in the way they react to it. Males are more sensitive to cultural orientations towards education. Females are more responsive to gender inequality issues and tend to conform to gender roles deemed appropriate according to their cultural tradition. Nevertheless, females seem more open to changes and opportunities they face in the new country.

Keywords: Educational expectations, Gender, Ethnic background

Introduction

In Italy, migration is a relatively recent phenomenon compared to other countries with longer immigration tradition as it has become a country of destination since the beginning of the 1980s. This phenomenon has caused an increase of students from ethnic minorities enrolled in school at the compulsory level (pre-, primary, lower secondary school) and at higher levels of education (Azzolini et al., 2019). For this reason, extensive interest of social scientists has turned towards immigrants’ integration in education. They have primarily focused on the effects of socio-economic background and generation status on primary and secondary education. Their evidence shows similarities between Italy and traditional destination countries: with respect to natives, first-generation youths are the most disadvantaged as they are skewed towards secondary education and are more likely to enroll in vocational and technical education. While second-generation youths tend to close the gap with natives in upper-secondary education by enrolling in lyceum (Azzolini & Barone, 2013; Mariani et al., 2021). Educational choices of second-generation youth in other European

countries are not dissimilar (Jonsson & Rudolphi, 2011). Immigrants' educational aspirations seem to reflect this pattern, in fact, lower ambitions characterize first-generation youths compared to natives and second-generation immigrants (Minello & Barban, 2012; Minello & Dalla Zuanna, 2014). Moreover, the latter show no significant differences from natives as to the aspirations to go to university (Minello & Barban, 2012).

A relevant aspect is some heterogeneity in educational attainment and expectations among immigrants determined by country of origin and by gender with females having higher expectation than males (Azzolini & Barone, 2013; Minello & Barban, 2012).

Overall, the above contributions detect a disparity between natives and first-generation youths, who are concentrated in vocational and technical education, along with differences in immigrants' educational performance also driven by countries of origin. Nevertheless, gender differences remain largely unexplored while further analysis would help to understand immigrants' integration in the dimension of education in Italy. This is of utmost importance since major drawbacks of poor educational performance are labor market vulnerability and low social mobility with the risk of downward assimilation, which is particularly present in Italy (Minello & Dalla Zuanna, 2013). Thus, we explore the factors that drive gender differences among first- and second-generation immigrants in the enrollment in tertiary education. We focus on the expectations to go to university as they are a significant predictor of educational attainments over other determinants of schooling (Jacob and Wilder, 2010). Furthermore, our study extends the literature by explicitly analyzing the effects of cultural beliefs and preferences in source countries on the formation of expectation. In fact, in Italy, male and female immigrants and their descendants from different groups face the same socio-economic and institutional setup, and likely gender differences in socio-economic outcomes can also depend on cultural heritage as reflected in their parents' country of origin. Though, we are aware that different migrant communities may preserve their cultural heritage in various degrees, which could affect especially the performance of younger generations. Thus, we consider university enrollment and gender inequality in parents' country of origin when they were at the age to start university. The strength of cultural influence can fade away across generations as home culture is no longer transmitted through the influence of society at large but mostly through the influence of parents. Integration fosters this process. The distinction between first and second generation allows considering this aspect. Moreover, young individuals, if born outside of Italy, can still be responsive to contemporary culture in their countries of origin, hence, enrollment and gender inequality are also measured in respondents' birthplaces when they were interviewed. Importantly, by introducing parents' education, we can single out the influence of parents as to the importance they individually give to education, and of their background culture as to the relevance of education in society at large.

The remainder of the paper is organized as follows: the subsequent section contains a review of the theoretical background. It is followed by the description of the empirical model, data and variables in "[The empirical model, data, and variables](#)". "[Results](#)" sections presents our results and is followed by their discussion in "[Discussion](#)" section, "[Conclusion](#)" section concludes.

Background: source country culture and gender roles

The debate on whether observed gender differences are determined by nurture or nature has recognized that they can be culture specific and that cultural values matter for gender gaps in dimensions such as education, family formation, fertility, and work (Giuliano, 2020).

The role of culture is relevant especially for immigrants who when enter a new country, tend to bring lifestyle, attitudes, and values with them, which sometimes may be not congruous with the culture of the new homeland. While children born in the new country can grow up and socialize through schooling and the transmission of their background culture occurs mostly through parents and ethnic networks. This makes their acculturation process far easier and may cause an acculturation gap between first and later generations (Birman & Trickett, 2001). In fact, the strength of the effects of source country culture weakens over time since it is no longer transmitted by society at large besides parents and because of social learning driven by the adjustment to the new socio-economic context (Giuliano, 2020; Autiero and Nese, 2023).

The transmission of cultural norms and beliefs across generations fosters the socialization of gender role expectations which shapes educational and occupational choices of adolescent and young adult females (Eccles, 1987). In fact, values and norms prescribe behavioral requirements reflecting roles expected by society. An important implication is that cultural differences defining gender role expectations can determine gender differences in integration. They may undermine girls' achievement motivations in school when based on traditional cultures. Expectations may maintain the role of women as bearers of tradition, which often forces them to mediate their own and parents' expectations based on traditional culture (Anthias and Yuval-Davis, 1992). On the other hand, it is possible that differences between males and females tend to fade away due to the integration into the culture of the receiving society (Autiero and Nese, 2023).

A host of empirical studies have recently assessed the impact of beliefs and expectations concerning the appropriate role of women in society on their work, education, and fertility. They tend to isolate cultural influence from the one of the external environment by using variables measured in parents' source countries. Antecol (2000) finds that labor force participation in countries of ancestry influences inter-ethnic gender gap in labor force participation of first-generation in the United States, though individual variables on education and family background are missing. Fernández and Fogli (2009) show that female labor force participation and total fertility rates in the country of ancestry affect both work and fertility outcomes of women born in the US. Blau et al. (2013) use the information on the characteristics of both immigrant parents' source countries and confirm the intergenerational transmission of women's roles as to education, fertility, and labor supply on to the second generation of the US-born women. Brettmann and Otten (2022) extend the analysis to the labor supply of first- and second-generation female immigrants in Europe. The results support the influence of preferences and beliefs about gender roles in source countries only for the first generation.

A major concern of the extant literature on migration and the influence of culture on the variation in outcomes across different immigrant groups is that immigrants are not randomly selected from the population of source countries. Considerable research has developed the seminal contribution of Borjas (1987), where individuals differ by their

skills and countries differ by returns to skills. Thus, differences in the rate of returns to skills can significantly affect the sorting of migrants across countries depending on the transferability of human capital. The developments of the literature acknowledge that several factors may affect the costs and benefits of migration besides differences in earning opportunities. Significantly, the cost of migration in terms of geographical distance and poverty limits the selection of low skilled; on the other end, cultural similarity captured by linguistic proximity helps the transfer of human capital (Belot & Hatton, 2012). Krieger et al. (2018) show that higher levels of cultural distance/long-term relatedness measured by genetic distance between two countries makes low-skilled less willing to migrate, whereas the effect on high-skilled migrants is not relevant. Relatedly, selection along cultural traits can play a significant role, the cultural traits that immigrant parents transmit to their descendants, may not reflect the distribution of cultural traits in source countries. In this respect, Docquier et al. (2020) consider self-selection along the religiosity and gender-egalitarian attitudes of individuals who intend to migrate to OECD countries from the Middle East and North Africa. They find that migrants and host-country citizens culturally are more similar than source and destination countries' overall populations. Personal traits like attitudes towards risk can be an important driver of migration as well (Gibson & McKenzie, 2011; Jaeger et al., 2010).

Self-selection can also be driven by the effect of migration networks as immigrants clustered in close geographic areas tend to develop social networks, which reduce skill-specific migration costs (Beine et al., 2011; Massey, 1999; McKenzie & Rapoport, 2010). Shared colonial heritage can favor stronger migration networks, which lead to negative selection of less-skilled migrants (Belot & Hatton, 2012; Grogger & Hanson, 2011).

The aspects outlined above bring to the forefront the relevance of cultural background for the transmission of gender roles and the implications of selection in the transmission, which ultimately affect the integration of immigrant males and females. As previously specified, we address this issue by considering the effect of source countries characteristics on the expectations to go to university of immigrants by gender and generation status.

The empirical model, data, and variables

Data

The analysis relies on cross-sectional data drawn from the "Integration of Second-Generation Survey" (INTEG2GEN) carried out by the National Institute of Statistics (ISTAT) in 2015. INTEG2GEN is a national representative survey of students living in Italy and attending lower and upper secondary school in 2015. The data were collected through a questionnaire that students filled out online in a scholastic room under the supervision of an interviewer. Schools were randomly chosen among those including at least 5 foreign-born students. The sample was drawn from 1400 schools located in 821 municipalities on the national territory and contains observations on 68,127 individuals: 32,700 attending lower secondary school and 35,427 attending upper secondary school.

Our dependent variable is the expectations to go to university. Part of the literature has considered expectations and aspirations interchangeably as they capture related aspects (Feliciano, 2006). Nevertheless, some scholars have highlighted that they correspond to different concepts as aspirations are ideal preferences while expectations

derive from individual assessment of what will happen in the future in the light of experience. Differently from aspirations based on abstract desires, expectations are grounded on a more realistic appraisal of future achievements in response to constraints like, for instance, family socio-economic conditions and ethnicity (Feliciano, 2006; Minello & Barban, 2012; Berrington et al., 2016; Perron, 1996). In this respect, we focus on students enrolled in upper secondary school aged 18 and more.¹ Starting from the age 18 onwards, individuals are most likely to be in the last year of upper secondary school when they must decide whether stay on in education. Moreover, at this age they tend to become more aware of the goals they intend to achieve and generally decide whether to stay on in education and start university.² At this stage, they are more aware also of the constraints they are faced with including the cultural conditioning of their home background. Thus, we believe that respondents' self-assessment of whether they intend to continue their studies at university is more realistic than aspirations, though a clear-cut distinction between expectations and aspirations is rather difficult.

The final sample includes 9713 individuals: 4996 foreign-born individuals with at least one foreign-born parent (first generation), 864 individuals born in Italy with at least one foreign-born parent (second generation), as well as 3853 natives with both parents born in Italy (Italians).

Considering that interracial partnering may affect the transmission of cultural background, in further analyses we also focus on the sample of immigrants with both parents born abroad.

A main limitation of the empirical analysis is that the cross-sectional data do not allow to observe individual choices in education over the years. Selection problems might affect our results since the decisions of remaining in school after compulsory education³ and of attending university are likely to depend on same factors; hence to detect possible selection problems, later in the paper ("Checks for robustness" section), we report further evidence about the decision to attend upper secondary school from the subsample of teens enrolled in lower secondary school.

The model

We assess how parents with immigrant background influence teens' expectations to go to university through their socio-economic characteristics and culture of origin.

Since parental influence may differ between boys and girls, the empirical analysis focuses on gender.

Each respondent's expectations are modeled as an unobserved y^* such that:

$$y^* = \alpha'x + \beta'z + \varepsilon.$$

The observed dependent variable is a binary indicator, y , equal to 1 if respondent plans to go to university in the future, 0 otherwise. The question sampled individuals were asked is about what they are going to do after completing upper secondary school.

¹ The dataset reports the age groups 13/14, 15/17, 18 and more.

² Similarly, previous studies in this context (Authors, year; Patt and Person, 2017) focus on teens when they are about to choose whether to continue their studies. In preliminary estimates, we considered the whole sample of students in upper secondary school and did not report significant patterns.

³ In Italy, compulsory schooling ends at the age of sixteen.

The results are based on probit estimates, with standard errors robust to heteroskedasticity.⁴

We estimate a series of probit models focusing on several subsamples. First, we consider the whole sample and interact females with generation status, each parent's education and source country characteristics, which we believe could be responsible for gender differences; second, we consider only immigrant-origin teens, and females and males separately in order to detect any gender differences. Third, we focus on educational expectations of first-generation girls and boys.

Vector x contains gender, generational status, parents' education, other socio-demographic characteristics. Generational status is a crucial aspect in our analysis as it reflects the influence not only of migrants' cultural background, but also of their selectivity on later descendants (Abramitzky and Boustan, 2017). In the latter respect, people who move for better opportunities are generally characterized by a strong motivation to succeed and to achieve social mobility in the country of destination. For this reason, they might put a great emphasis on their children's education to climb up the social ladder (Berrington et al., 2016). These two types of influence on later generations may become weaker over time. Therefore, in the following we compare first with second-generation students and analyze first generation alone.

Family socio-economic background also includes whether parents have a job (**Working mother**, **Working father**) and **Family wealth**, which correspond to the economic constraints conditioning a realistic appraisal of future goals.

We include **School year** as when the school leaving age becomes closer, teens tend to become more focused and self-conscious as to the decision to stay on in education. Importantly, school can decide to place immigrant children in lower grades than the other students of the same age on the base of their adaptation difficulties like poor language skill, which slows down academic performance (Mussino and Strozza, 2011, 2012). About 80% of the sample was attending the fourth or the last year of upper school, some teens (about 15%) the third year; grade repetition may be due to teens' ability, family background as well as to migration status, which may increase teens' problems in school.

As city-living may erode gender inequality by promoting a growing flexibility in gender division of labor (Evans, 2019), it is introduced **BigMun** among the variables, in addition to dummies for geographical area. The choice of the place to live is usually made by parents, so we consider the relative variables as exogenous.

Previous research, mostly in the United States, has demonstrated that the traits of classmates and teachers other than parents may influence adolescent decisions, school achievement, and college enrollment (Fletcher, 2010; Summers & Wolfe, 1977). In turn, parental choices (e.g., residence choices, private school enrollment) may endogenously determine classmates and teachers. However, due to a lack of information on the school students attend in our dataset, we cannot use school-level fixed effects to adjust for unobserved school-level variables.

⁴ The data used in the analysis do not contain information on respondents' schools, thus, the errors cannot be clustered at school level.

Finally, vector z includes cultural attitudes towards education and gender roles in source countries. In this respect, we follow the epidemiological approach chosen by Fernandez (2010) and use the information on the characteristics of parents' source countries (Blau et al., 2013; Fernández & Fogli, 2009). In fact, we consider aggregate information on enrollment in tertiary education in parents' country of origin when they were at the age to start university (ENR). It embodies cultural orientations molding the decision of parents' generation to stay on in education and their vertical transmission within the family. The indicator captures the role of education not only as an opportunity for social mobility, but also as expressing entrenched social norms in the family. These norms have changed over time due to the general increase in the level of education of populations and have led to lower discrimination against girls (Vincent-Lancrin, 2008). For instance, in Egypt the low correlation between education and fertility (Al Zakak and Goujon, 2018) is likely to arise from the fact that female participation in higher levels of education is a source of respect and esteem for the family independently from labor-market performance.

To develop the analysis of cultural influence, we use a more specific indicator (GII) embracing aspects of gender inequality in achievement and of the perception of women's role in society; it covers reproductive health, empowerment and the labor market. Analogously to enrollment in tertiary education, the indicator is measured in parents' country of origin when they were at the age to start university.

Vector z additionally includes source country's GDP to account for socio-economic factors that make educational enrollment difficult to varying degrees.

One could argue that other unobservable factors at source country level may be important. Differences in outcomes, for example, could be due to norms and attitudes active within migrant communities; migrants from different countries in fact may retain norms and attitudes from their home countries to varying degrees, which could drive differences in educational trajectories of the younger generation, even if cultural settings in the countries of origin are similar.⁵

As a result, we present additional results based on multilevel models to disentangle any variability in outcome correlated with teens' origins that is not captured by the variables included in the model (see Snijders and Bosker, 2012). In our multilevel model, individuals are nested according to their origins, and the random intercept permits the mean level of the outcome variable to fluctuate throughout the source countries.

Finally, it is likely that first-generation teens born outside of Italy can still be responsive to contemporary culture in their countries of origin and to assess this effect, we consider enrollment in tertiary education and gender inequality in their birthplace in the same year when they were interviewed.

Empirical specification of the model

Table 1 describes the variables used in the empirical model grouped in respondents' generational status and time of arrival, family characteristics and geographical factors.

⁵ We thank one of the two anonymous referees for this suggestion.

Table 1 Variables in the empirical model

Expectations to go to university	Dummy equal to 1 if respondent intends to continue his/her studies at university after high school, 0 otherwise
North-east, North-west, Center, South, Isles	Dummies for geographical area of residence
Italians	Dummy equal to 1 if respondent was born in Italy and both parents were born in Italy, 0 otherwise
Second generation	Dummy equal to 1 if respondent was born in Italy and at least one parent was born abroad, 0 otherwise
First generation	Dummy equal to 1 if respondent was foreign-born, 0 otherwise
Arrived before 2003	Dummy equal to 1 for first-generation students arrived in Italy before 2003, 0 Otherwise
Arrived in 2003/2007	Dummy equal to 1 for first-generation students arrived in Italy between 2003 and 2007, 0 otherwise
Arrived in 2008/2014	Dummy equal to 1 for first-generation students arrived in Italy between 2008 and 2014, 0 otherwise
Arrived in 2015	Dummy equal to 1 for first-generation students arrived in Italy in 2015, 0 otherwise
Family wealth	Wealth conditions of respondent's family (1 = very rich...4 = very poor)
Working father/mother	Dummy equal to 1 if his/her father/mother works, 0 otherwise
BigMun	Dummy equal to 1 if respondent lives in a big municipality (more than 250.000 inhabitants in Northern and Central Italy or in Naples), 0 otherwise
School year	Year of school
Father/mother education	Father/mother education level (1 = no schooling, ...0.5: bachelor or more)
ENRmale-90 and ENRmale-15	Measure the ratio of total enrollment of males in tertiary education, regardless of age, to the population of the age group that officially corresponds to tertiary education in 1990 and 2015, respectively. ENRmale-90 refers to fathers' source countries, ENRmale15 to sampled individuals' birthplaces
ENRfemale-90 and ENRfemale-15	Measure the ratio of total enrollment of females in tertiary education, regardless of age, to the population of the age group that officially corresponds to tertiary education, in 1990 and 2015, respectively. ENRfemale-90 refers to mothers' source countries, ENRfemale15 to sampled individuals' birthplaces
ENR-90	Has been obtained as average between ENRmale-90 and ENRfemale-90
ENR-15	Has been obtained as average between ENRmale-15 and ENRfemale-15
GII-95	The Gender Inequality Index—is a composite measure reflecting inequality in achievement between women and men in the dimensions of reproductive health, empowerment and the labor market, taken in 1995. GII-95 refers to parents' birthplaces (if these are different, GII-95 is the average). Higher values, on a range 0–1, indicate more disparities between females and males
GII-15	The Gender Inequality Index—is a composite measure reflecting inequality in achievement between women and men in the dimensions of reproductive health, empowerment and the labor market, taken in 2015. GII-15 refers to sampled individuals' birthplaces. Higher values, on a range 0–1, indicate more disparities between females and males
GDP-90	Gross domestic product per capita (current US\$) in 1990; refers to parents' source countries
GDP-15	Gross domestic product per capita (current US\$) in 2015; refers to sampled individuals' birthplaces

Sampled individuals answered the survey question "When you complete upper secondary school, what are you going to do?"

We included not only generation status, but also age upon arrival because cultural influence can change depending on generation status and the stage of life—childhood, adolescence, adulthood—immigrants spend in their home and destination countries. First-generation immigrants arrived as children spend their formative years in receiving countries and in comparison to older immigrants tend to develop more easily the skills needed to adapt to host society like language. Those arrived later, on the other hand, have a longer exposure to socio-cultural influences in their home countries probably entailing stronger links with their cultural heritage. Therefore, as in previous works (Minello & Barban, 2012), we identify various groups of first-generation teens: those who arrived in Italy before 2003 (presumably in preschool age, given that they were at least 18 in 2015), those who arrived between 2003 and 2007 (presumably in primary-school age, between the ages of six and ten), those who arrived between 2008 and 2014 (adolescent immigrants, arriving at the age of 11 or older), and those who arrived in 2015 (young adult immigrants). The latter group is separate from the others as it considers most recent arrivers facing the first impact of adjusting to the new country.

As previously specified, it is used information about source countries of respondents and of their parents. The gross enrollment ratios for tertiary education, separately for males and for females (**ENRfemale-90** and **ENRmale-90**), are drawn from the World Bank database and refer to source country of respondent's mother and father; they reflect attitudes towards education in the generation of parents. Parents in the sample were aged about 45 in 2015, thus, in the nineties they were at the age to start university.

The Gender Inequality Index (henceforth **GII**) is drawn from the UNDP Human Development Reports in parents' country of ancestry in 1995⁶ (parents' generation—**GII-95**). It refers to inequality in achievement between women and men in the dimensions of reproductive health, measured by maternal mortality ratio and adolescent birth rates; empowerment, measured by proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education; economic status, expressed as labor market participation and measured by labor force participation rate of female and male populations aged 15 years and older.

As pupils may have parents with different cultural backgrounds, the above indicators related to each parent's country of origin allow considering multi-cultural families.

To evaluate the effect of contemporary culture on first-generation teens, we consider the gross enrollment ratios for tertiary education for males—(**ENRmale-15**)—and for females—(**ENRfemale-15**), and the Gender Inequality index (**GII-15**) in respondents' birthplaces in 2015 when they were interviewed (teens' generation).

Since enrollment ratios for tertiary education and gender disparities may be correlated with countries' socio-economic conditions, we add per capita **GDP** in 1990s and 2015 (**GDP-90** and **GDP-15**) from the World Bank database.

Descriptive statistics

Table 2 reports main descriptive statistics.

⁶ The GII is available only starting in 1995.

Table 2 Summary statistics—students in upper secondary school

Variables	Second and first generation		First generation		Italians	
	Female students	Male students	Female students	Male students	Female students	Male students
	%	%	%	%	%	%
Univ. expectations	48.64	24.85	48.62	25.34	51.97	33.15
North-east	29.77	26.02	31.26	38.32	31.37	32.30
North-west	59.58	36.08	31.24	24.16	26.32	21.73
Center	28.33	24.69	25.33	24.35	25.10	26.29
South	9.84	9.15	9.17	19.05	3.54	5.46
Isles	2.25	4.06	3	4.15	3.54	4.60
Second generation	35.67	37.56				
First Generation						
Arrived before 2003	15.14	15.64	23.53	25.05		
Arrived in 2003/2007	26.50	23.33	41.18	37.36		
Arrived in 2008/2014	21.67	22.70	33.68	36.35		
Arrived in 2015	1.03	0.77	1.60	1.23		
Working father	80.24	79.99	78.58	79.49	88.93	88.93
Working mother	66.38	61.21	66.33	58.76	69.17	69.17
BigMun	23.47	15.36	23.02	14.86	15.58	15.58
Mixed Couples ^a	9.96	11.87	5.02	5.36		
	Mean (std. er.)	Mean (std. er.)	Mean (std. er.)	Mean (std. er.)	Mean (std. er.)	Mean (std. er.)
School year	4.103 (0.031)	3.855 (0.034)	3.987 (0.030)	3.678 (0.034)	4.386 (0.011)	4.349 (0.027)
Family wealth	3.082 (0.019)	3.071 (0.022)	3.086 (0.026)	3.126 (0.017)	2.940 (0.019)	2.937 (0.018)
Father's education	3.665 (0.031)	3.722 (0.032)	3.773 (0.035)	3.799 (0.027)	3.568 (0.031)	3.624 (0.029)
Mother's education	3.756 (0.029)	3.765 (0.039)	3.822 (0.032)	3.757 (0.051)	3.649 (0.027)	3.687 (0.027)
ENRmale-90	19.756 (0.635)	17.603 (0.426)	16.002 (0.407)	13.984 (0.297)	30.1	30.1
ENRfemale-90	17.958 (0.522)	18.238 (0.999)	15.711 (0.358)	13.614 (0.436)	29	29
ENRmale-15			42.559 (0.482)	39.398 (0.485)	51.6	51.6
ENRfemale-15			53.432 (0.686)	48.738 (0.704)	70.8	70.8
GDP-90	6192 (0.390)	5994 (0.387)	2,570 (0.185)	2,236 (0.166)	20,825	20,825
GII-95	0.498 (0.004)	0.525 (0.006)	0.501 (0.004)	0.522 (0.005)	0.198	0.198
GDP-15			6838 (0.391)	6331 (0.404)	30,230	30,230
GII-15			0.328 (0.004)	0.349 (0.004)	0.086	0.086

Variables are defined in Table 1. Our elaborations on Istat data. Weighted means

^a Percentage of teens with only one parent born abroad

Youth with an immigrant background especially if males have lower expectations to go to university, which is probably due to lower family wealth with respect to natives.

Enrollment ratios in tertiary education (**ENRFemale90**, **ENRmale90**) in parents' generation display noticeable differences between Italians and first- and second-generation

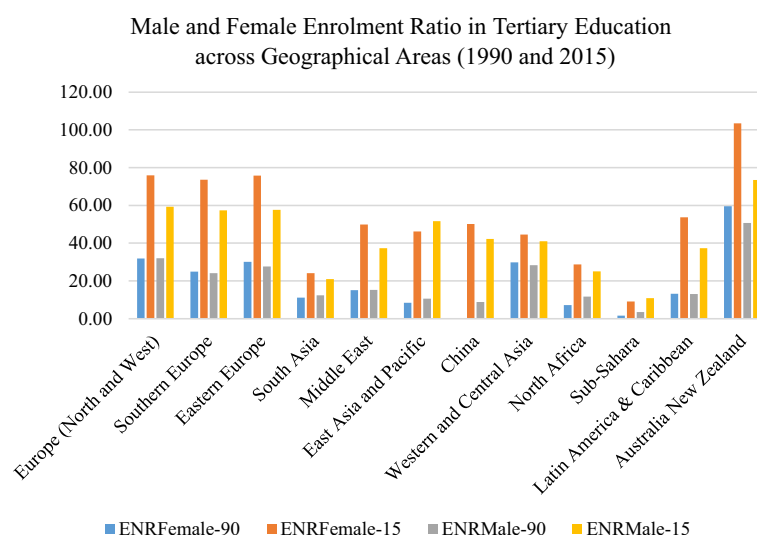


Fig. 1 Enrolment ratio in tertiary education

students, which reinforces the motivation for our study aimed to detect possible gender differences.

This distance appears again with the Gender Inequality Index (parents' generation-**GII-95**). When considering the gross enrollment ratios for tertiary education for males and females (**ENRmale-15**, **ENRfemale-15**), and the Gender Inequality index (**GII-15**) in teens' generation, the gap between respondents' countries of birth and Italy remains.

Table 3 provides further information on the country of birth of first-generation students; the data are grouped by the geographic area j from where the highest number of sampled teens (N_i) comes (in parentheses: $N_j = \sum N_i$). The geographic areas and countries of origin in descending order are Eastern Europe (in particular, Romania), Southern Europe (Albania), Latin America (Ecuador and Peru), North Africa (Morocco), Sub-Saharan (Senegal) and South Asia (mainly Pakistan, India and Bangladesh).⁷

In the nineties, we note that females are less likely to enroll at university than males in South Asia, East Asia and Pacific, China, Northern Africa, Sub-Saharan. However, female enrollment rate increases from 1990 to 2015 and becomes remarkably higher than that of males, except for East Asia and Sub-Saharan. Similarly, in the same period gender inequality decreases everywhere. In North Africa, South Asia, Middle East, East Asia and Pacific, the **GII-15** is higher than that of Europe in 1990 (Figs. 1 and 2).

In Table 4, we consider the percentages of students⁸ by parents' source countries and by first and second generation and detect differences both by country and generation status. The relatively largest shares regard Romania, Moldova and Albania mainly for the first-generation. For the second generation, China and the Philippines along with Morocco followed by Tunisia show a non-negligible percentage.

⁷ The data are consistent with overall statistics on immigration provided by the National Institute of Statistics (ISTAT) showing that in 2015, the main countries of origin were in descending order Romania, Albania, Morocco, China, Ukraine, the Philippines, India, Moldova, and Bangladesh. Only the share from China seems lower confirming the evidence of Minello and Barban (2012).

⁸ The percentages are above 5% to protect sensitive information.

Table 3 Source country's indicators—first-generation students in upper secondary school

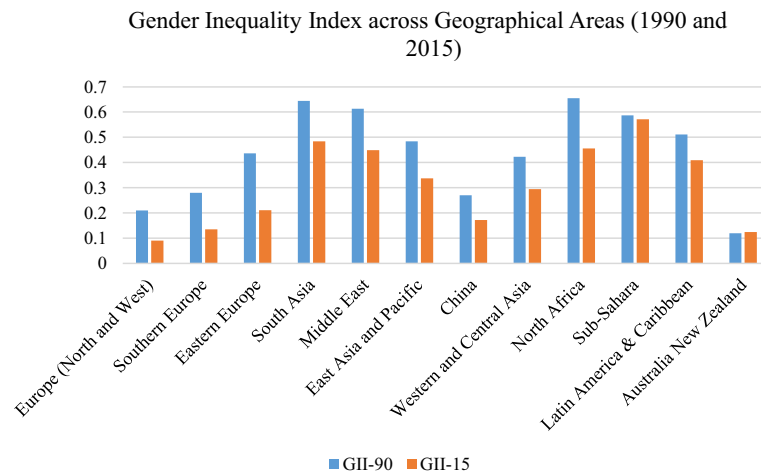
Geographical area					
	%	ENRFemale-90 Mean (st. err.)	ENRMale-90 Mean (st. err.)	GII-90 Mean (st. err.)	GDP-90 Mean (st. err.)
a					
North and West- ern Europe	2.11	31.875 (1.535)	31.965 (1.316)	0.21 (0.034)	24,877.23 (4181.883)
Southern Europe	16.25	24.875 (2.800)	24.15 (2.645)	0.280 (0.009)	8268.637 (1741.202)
Eastern Europe	37.88	30.136 (5.013)	27.618 (4.508)	0.436 (0.004)	2403.318 (246.915)
South Asia	6.68	11.111 (8.617)	12.378 (6.355)	0.644 (0.013)	3053.067 (2605.47)
Middle East	0.02	15.1 (2.547)	15.185 (1.856)	0.613 (0.030)	5609.25 (1333.154)
East Asia and Pacific	2.77	8.446 (1.776)	10.575 (2.486)	0.484 (0.007)	2988.246 (1030.151)
China	2.03	5.8	8.8	0.27 (0.004)	3417.1
Western and Central Asia	0.54	29.79 (3.979)	28.34 (3.144)	0.423 (0.055)	2019.73 (875.771)
North Africa	10.47	7.257 (1.764)	11.714 (2.072)	0.655 (0.010)	1910.129 (808.397)
Sub-Saharan	7.38	1.554 (0.268)	3.483 (0.356)	0.587 (0.017)	913.654 (185.28)
Latin American and Caribbean	13.42	13.230 (1.138)	13.004 (1.116)	0.511 (0.009)	2745.461 (433.400)
Australia New Zealand	0.23	59.6 (20.218)	50.7 (15.415)	0.119 (0.023)	17,774.23 (2250.051)
b					
	Main source coun- try (Ni/Nj)%	ENRFemale-90 Mean (st. err.)	ENRMale-90 Mean (st. err.)	GII-90 Mean (st. err.)	GDP-90 Mean (st. err.)
North and West- ern Europe	Germany (47.2)	75.96 (4.873)	59.27 (3.01)	0.09 (0.01)	58,473 (9642)
Southern Europe	Albany (72), North Macedonia (9.2)	73.54 (5.04)	57.306 (5.247)	0.135 (0.011)	16,669.2 (3264.903)
Eastern Europe	Romania (56), Moldova (18.9), Ukraine (14.5)	75.781 (5.869)	57.618 (4.927)	0.211 (0.019)	8989.236 (1609.756)
South Asia	Pakistan (30.2), India (29.1), Bang- ladesh (23)	24.144 (10.177)	21.011 (7.093)	0.484 (0.044)	8668.367 (6079.642)
Middle East	Iran (23.8), Iraq (19)	49.933 (4.634)	37.28 (4.180)	0.449 (0.044)	15,391.86 (4380.057)
East Asia and Pacific	Philippines (85.8)	46.252 (4.442)	51.576 (5.191)	0.337 (0.025)	10,302.02 (2498.727)
China	China (100)	50.2	42.3	0.172	8033
Western and Central Asia	Turkey (58)	44.49 (9.716)	41.04 (7.29)	0.294 (0.024)	6901 (2129)
North Africa	Morocco (70)	28.688 (5.288)	25.088 (3.791)	0.456 (0.048)	3127.275
Sub-Saharan	Senegal (33.4), Ghana (18.7)	9.126 (1.302)	10.837 (0.911)	0.571 (0.011)	2091.041 (413.673)
Latin America and Caribbean	Ecuador (34.4), Peru (25)	53.667 (4.440)	37.348 (3.209)	0.409 (0.012)	9364.345 (1086.382)
Australia New Zealand	Canada (83.3)	103.467	73.467	0.124	46,270

Our elaborations on Istat data. Panels a and panel b report the main indicators concerning parents' source countries in 1990 and respondents' source countries in 2015, respectively. The second column (in a) reports the percentage of respondents born in each of the geographical areas indicated in the first column; the second column (in b) reports the *i*th country (or countries) for each geographical area *j* from where the highest number of sampled teens (*Ni*) comes (in parentheses: $N_j = \sum N_i$)

Table 4 First- and second-generation students in upper secondary school: main countries of origin

Source country	Second generation			
	Female students		Male students	
	Mother's source country	Father's source country	Mother's source country	Father's source country
Albania	6.80	6.31	5.09	5.53
China	7.28	7.04	5.75	5.75
Morocco	8.01	7.52	7.96	8.19
Philippines	8.74	8.74	7.08	7.08
Tunisia	3.4	3.88	5.09	5.87
	First Generation			
	Mother's source country		Father's source country	
	Mother's source country	Father's source country	Mother's source country	Father's source country
Albania	13.70	13.55	15.29	15.33
Moldova	8.49	8.41	6.33	5.65
Romania	25.72	24.73	18.96	17.91
Morocco	5.94	6.01	6.76	6.76
Ukraine	6.51	5.44	4.35	4.05

Our elaborations on Istat data. For brevity, we report parents' countries of origin when at least 5% of the sampled teens have parents from those countries

**Fig. 2** Gender Inequality Index

Results

Columns I–IV in Table 5 based on the whole sample allow comparing first and second generations with natives, detecting whether parents' education makes the expectations of females different from the ones of males (column III) and comparing immigrants' females with natives (column IV). Marginal effects are reported to highlight the impact of the variables of interest, parent's education, and cultural values in source countries (Fig. 2).

Females show higher expectations than males, coherently with the pattern shown in Table 2 and the results for Italy found by Minello and Barban (2012). Looking at marginal effects, mother's education counts more than father's education; results remain

Table 5 Expectations to go to university (Probit estimates)—students in upper secondary school

Variables	Whole sample ^a (Italians, first and second generation)				Immigrants ^b (first and second generation)	
	Coeff. (std. errs.) I	Coeff. (std. errs.) II	Coeff. (std. errs.) III	Coeff. (std. errs.) IV	Coeff. (std. errs.) V	Coeff. (std. errs.) VI
Female	0.482*** (0.053)	0.485*** (0.052)	0.248** (0.126)	0.510*** (0.066)	0.429*** (0.066)	0.714*** (0.109)
North-East	0.054 (0.077)	0.048 (0.078)	0.050 (0.078)	0.047 (0.078)	− 0.027 (0.105)	− 0.037 (0.104)
North-West	− 0.138* (0.079)	− 0.144* (0.08)	− 0.140* (0.079)	− 0.145* (0.080)	− 0.113 (0.106)	− 0.103 (0.105)
Center	− 0.109 (0.079)	− 0.119 (0.081)	− 0.117 (0.080)	− 0.118 (0.081)	− 0.159 (0.110)	− 0.158 (0.110)
Isles	− 0.169 (0.122)	− 0.168 (0.122)	− 0.162 (0.123)	− 0.170 (0.122)	− 0.007 (0.174)	− 0.022 (0.175)
BigMun	0.231*** (0.058)	0.237*** (0.058)	0.235*** (0.058)	0.238*** (0.058)	0.267*** (0.076)	0.246*** (0.074)
Second generation ^c	0.092 (0.083)	0.105 (0.083)	0.102 (0.083)	0.204* (0.115)		
First generation ^c	− 0.062 (0.051)	− 0.037 (0.054)	− 0.042 (0.054)	− 0.015 (0.068)	− 0.048 (0.090)	− 0.051 (0.09)
School year	0.255*** (0.032)	0.258*** (0.032)	0.258*** (0.032)	0.258*** (0.032)	0.264*** (0.030)	0.260*** (0.03)
Father's education	0.255*** (0.041)	0.241*** (0.041)	0.244*** (0.045)	0.241*** (0.041)	0.108** (0.048)	0.114** (0.048)
Mother's education	0.294*** (0.041)	0.283*** (0.041)	0.247*** (0.046)	0.282*** (0.041)	0.216*** (0.047)	0.215*** (0.047)
Family wealth		− 0.129** (0.051)	− 0.127*** (0.051)	− 0.127** (0.051)	− 0.155** (0.066)	− 0.154** (0.067)
Working father		0.025 (0.079)	0.023 (0.079)	0.026 (0.080)	− 0.007 (0.090)	− 0.012 (0.090)
Working mother		0.026 (0.059)	0.027 (0.059)	0.026 (0.059)	− 0.022 (0.072)	− 0.022 (0.071)
Female * Second generation				− 0.204 (0.163)		
Female*First generation				− 0.043 (0.094)		
Female *Father's education			− 0.0004 (0.035)			
Female*Mother's education			0.707* (0.038)			
ENR90					0.007* (0.004)	0.014** (0.005)
Female *ENR90						− 0.015** (0.006)
MARGINAL EFFECTS						
Father's education	0.098***	0.093***	0.094***	0.093***	0.041***	0.043**
Mother's education	0.113***	0.109***	0.095***	0.109***	0.081***	0.081***
ENR90					0.006*	
No. of observations	9713	9713	9713	9713	5860	5860
Wald (parameters)	407.70 (13)	418.36	421.66	449.80	303.39	314.44
LL	− 202,951.62	− 202,217.44	− 201,979	− 202,134.72	− 49,671.439	− 49,451.678
Pseudo-R2	0.11	0.11	0.11	0.11	0.11	0.11

Variables are defined in Table 1. ^aColumns I, II, III, IV concern the whole sample, including Italians, First and Second generation teens; ^bcolumns V and VI include only first- and second-generation teens; ^cin columns I, II, III, IV, the excluded dummy is Italians; in columns V and VI, the excluded dummy is "Second Generation". * Statistically significant at 10% level; **statistically significant at 5% level; *** statistically significant at 1% level. Robust standard errors. Weighted analyses

substantially the same controlling for family wealth in column II. Interactions in column III indicate that females more than males are affected by mother's education. First- and second-generation girls do not behave differently from natives (column IV).

The last two columns display the results for the subsample of first and second generation to examine the influence of attitude towards tertiary education in parents' source countries and generation (ENR-90). As specified in Table 1, ENR-90 has been obtained as average between ENRmale-90 (in father's source countries) and ENRfemale-90 (in

mother's source countries).⁹ We consider the average because of the high correlation between the two ratios (about 0.70); however, in a parallel analysis we consider separately the effects of the two indicators (Table 9 in the Appendix). The coefficients on **ENR90** (columns V and VI) and on the interactive term (column VI) highlight that source country culture only matters for males and positively influences their expectations with respect to females.

To further investigate gender differences detected in Table 5, we proceed to split the sample of immigrants in males and females (Tables 6 and 7).

Table 6 focuses on first and second generation and allows the comparison of first-generation cohorts by arrival period (respectively, in 2002, 2003–2007, 2008–2014, 2015) with second generation. Table 7 only focuses on first generation.

The comparison of first-generation individuals (arrived before 2003 and, respectively, in 2003–2007, 2008–2014, 2015) with second generation shows that male teens of the first two waves seem to find adaptation more difficult than second generation, since the coefficients on the dummies “**arrived before 2003**” and “**arrived in 2003/2007**” are negative and significant (column V). The coefficients on the dummies “**arrived in 2008–2014**”, “**arrived in 2015**”, however, are not statistically significant, which could be due to the ethnic composition of the different cohorts and to the low number of observations of the 2015 wave.¹⁰

Strong evidence concerns intergenerational transmission of parents' education (**Father's education**, **Mother's education**) for all males (Tables 6 and 7) and for females belonging to the first generation (Table 7); when including second-generation girls, only mother's education counts (Table 6). Marginal effects reveal that overall mother's education matters more than father's education and to a greater extent for girls than for boys—respectively, about 0.09 and 0.06 in Table 6.

As expected, family socio-economic situation—represented by the variables **Family wealth**, **Working mother**, **Working father** other than parents' education—constrains expectations, particularly for males (Tables 5 and 6).

Consistent with the results in Table 5, participation in tertiary education in parents' country of origin and generation (**ENR-90**) significantly and positively affects only males' educational expectations. This result is particularly noticeable for first generation and is also robust to the inclusion of GDP per capita in 1990.

As mentioned above, to highlight gender role transmission from mother to daughter and from father to son, in further estimates (Table 9 in the Appendix), we plugged the enrollment rate of females in tertiary education in mother's birthplace—**ENRfemale-90**—and the enrollment rate of males in tertiary education in father's birthplace—**ENR-male-90**—separately in the model. No new patterns emerged in that, once again, males seem more affected by source country's culture; this confirmed our decision to rely on the average **ENR-90** in final estimates.

⁹ The very high correlation (about 0.98) between female and male enrollment rates in the same country makes the inclusion of both unnecessary.

¹⁰ A further analysis of male sample reveals that about 60% of respondents living in Italy since 2008 came from Southern and Eastern Europe, and only 13% came from Africa; instead, considering the cohort arrived between 2008 and 2014, the percentage of teens from Eastern and Southern Europe is much lower (about 40%), and the percentage from Africa is higher (about 30%). While the number of observations in the first three cohorts is remarkable (582, 902 and 853 respectively), the number of teens arrived in 2015 is only 65.

Table 6 Expectations to go to university (Probit estimates)—first and second-generation students in upper secondary school by gender

Variables	Females ^a				Males ^b			
	Coeff. (std. errs.) I	Coeff. (std. errs.) II	Coeff. (std. errs.) III	Coeff. (std. errs.) IV	Coeff. (std. errs.) V	Coeff. (std. errs.) VI	Coeff. (std. errs.) VII	Coeff. (std. errs.) VIII
North-East	− 0.106 (0.140)	− 0.112 (0.140)	− 0.139 (0.143)	− 0.120 (0.142)	0.022 (0.153)	0.039 (0.150)	0.054 (0.149)	0.062 (0.148)
North-West	− 0.044 (0.152)	− 0.048 (0.153)	− 0.065 (0.154)	− 0.06 (0.155)	− 0.230 (0.148)	− 0.153 (0.145)	− 0.124 (0.144)	− 0.103 (0.143)
Center	− 0.163 (0.150)	− 0.162 (0.151)	− 0.169 (0.151)	− 0.159 (0.151)	− 0.155 (0.160)	− 0.124 (0.157)	− 0.101 (0.156)	− 0.116 (0.154)
Isles	0.07 (0.189)	0.065 (0.191)	0.081 (0.195)	0.099 (0.193)	− 0.075 (0.257)	− 0.047 (0.254)	− 0.071 (0.266)	− 0.052 (0.256)
Arrived before 2003 ^c	0.047 (0.134)	0.032 (0.137)	− 0.093 (0.146)	− 0.125 (0.149)	− 0.221* (0.133)	− 0.115 (0.133)	− 0.022 (0.141)	− 0.028 (0.141)
Arrived in 2003/2007 ^c	0.081 (0.122)	0.066 (0.125)	− 0.076 (0.138)	− 0.117 (0.138)	− 0.316** (0.115)	− 0.213* (0.118)	− 0.124 (0.129)	− 0.118 (0.128)
Arrived in 2008/2014 ^c	0.029 (9.125)	0.019 (0.124)	− 0.144 (0.139)	− 0.186 (0.138)	− 0.093 (0.119)	− 0.023 (0.12)	0.073 (0.133)	0.098 (0.133)
Arrived in 2015 ^d	0.233 (0.344)	0.236 (0.345)	0.091 (0.343)	0.050 (0.347)	0.055 (0.336)	0.083 (0.348)	0.171 (0.353)	0.209 (0.349)
School year	0.307*** (0.048)	0.313*** (0.048)	0.315*** (0.047)	0.306*** (0.048)	0.232*** (0.042)	0.213*** (0.041)	0.207*** (0.040)	0.204*** (0.040)
Family wealth	− 0.096 (0.097)	− 0.102 (0.098)	− 0.119 (0.102)	− 0.137 (0.098)	− 0.170** (0.082)	− 0.195** (0.079)	− 0.195*** (0.079)	− 0.195** (0.079)
Working father	0.097 (0.126)	0.075 (0.128)	0.083 (0.130)	0.071 (0.129)	− 0.092 (0.125)	− 0.129 (0.121)	− 0.132 (0.119)	− 0.144 (0.118)
Working mother	− 0.047 (0.100)	− 0.039 (0.101)	− 0.047 (0.102)	− 0.076 (0.106)	0.051 (0.098)	0.014 (0.097)	0.004 (0.095)	− 0.001 (0.096)
Father's education	0.099 (0.063)	0.099 (0.064)	0.093 (0.063)	0.086 (0.063)	0.119* (0.069)	0.140** (0.068)	0.146** (0.068)	0.159** (0.068)
Mother's education	0.235*** (0.064)	0.242*** (0.065)	0.243*** (0.065)	0.244*** (0.065)	0.207*** (0.065)	0.175*** (0.064)	0.181** (0.064)	0.177*** (0.062)
BigMun	0.06 (0.102)	0.052 (0.100)	0.023 (0.098)	0.030 (0.097)	0.544*** (0.115)	0.512*** (0.104)	0.525*** (0.104)	0.525*** (0.104)
ENR-90		− 0.002 (0.004)	0.004 (0.005)	0.003 (0.004)		0.011*** (0.005)	0.008 (0.006)	0.006 (0.006)
GDP-90			− 0.019** (0.009)	− 0.015 (0.015)			0.012 (0.69)	− 0.0003 (0.01)
GII-95				− 0.583 (0.391)				− 0.559 (0.351)
MARGINAL EFFECTS								
Father's education	0.039	0.039	0.037	0.034	0.039*	0.047**	0.049**	0.053**
Mother's education	0.094***	0.096***	0.097***	0.095**	0.069***	0.058***	0.060**	0.059**
ENR-90			0.001	0.001		0.004***	0.002	0.002
No. observations	3040	3040	3040	3040	2820	2820	2820	2820
Wald (no. parameters)	118.40 (19)	123 (22)	132.58 (23)	140.53 (26)	145.74 (19)	148.12 (22)	149.63 (23)	152.73 (26)
LL	− 25,601.833	− 25,545.367	− 25,421.34	− 25,332.213	− 23,690.064	− 23,443.465	− 23,385.627	− 23,282.973
Pseudo-R2	0.07	0.08	0.08	0.083	0.11	0.12	0.12	0.12

Variables are defined in Table 1. ^aColumns I, II, III, IV concern female students; ^bcolumns V, VI, VII, VIII concern male students; ^cthe excluded dummy is "Second Generation"

* Statistically significant at 10% level; **statistically significant at 5% level; *** statistically significant at 1% level. Robust standard errors. Weighted analyses

Table 7 Expectations to go to university (Probit estimates)—first-generation students in upper secondary school by gender

Variables	Females ^a				Males ^b			
	Coeff. (std. errs.) I	Coeff. (std. errs.) II	Coeff. (std. errs.) III	Coeff. (std. errs.) IV	Coeff. (std. errs.) V	Coeff. (std. errs.) VI	Coeff. (std. errs.) VII	Coeff. (std. errs.) VIII
North-East	− 0.121 (0.098)	− 0.121 (0.098)	− 0.102 (0.098)	− 0.103 (0.103)	− 0.149 (0.105)	− 0.162 (0.106)	− 0.174* (0.106)	− 0.142 (0.116)
North-West	− 0.045 (0.103)	− 0.046 (0.103)	− 0.019 (0.103)	− 0.035 (0.104)	− 0.134 (0.107)	− 0.144 (0.107)	− 0.165 (0.109)	− 0.192* (0.116)
Center	− 0.188* (1.023)	− 0.186* (0.102)	− 0.189* (0.102)	− 0.170* (0.103)	0.059 (0.116)	− 0.067 (0.116)	− 0.068 (0.117)	− 0.085 (0.126)
Isles	0.231 (0.172)	0.238 (0.173)	0.233 (0.172)	0.254 (0.166)	− 0.009 (0.241)	0.053 (0.223)	0.051 (0.217)	0.078 (0.242)
Arrived in 2003/2007 ^c	0.015 (0.100)	0.012 (0.099)	0.011 (0.098)	0.008 (0.099)	− 0.122 (0.102)	− 0.119 (0.101)	− 0.119 (0.101)	− 0.124 (0.102)
Arrived in 2008/2014 ^c	− 0.074 (0.108)	− 0.078 (0.106)	− 0.072 (0.104)	− 0.092 (0.106)	0.056 (0.105)	0.038 (0.106)	0.026 (0.105)	0.050 (0.106)
Arrived in 2015 ^c	0.093 (0.332)	0.091 (0.33)	0.101 (0.331)	0.077 (0.325)	0.115 (0.339)	0.11 (0.336)	0.107 (0.336)	0.085 (0.333)
School year	0.246*** (0.042)	0.245*** (0.041)	0.239*** (0.041)	0.247*** (0.043)	0.188*** (0.038)	0.187*** (0.038)	0.190*** (0.038)	0.188*** (0.037)
Family wealth	0.039 (0.096)	0.038 (0.098)	0.033 (0.093)	0.034 (0.097)	− 0.077 (0.067)	− 0.082 (0.068)	− 0.080 (0.069)	− 0.089 (0.067)
Working father	0.251** (0.099)	0.252** (0.099)	0.237** (0.098)	0.259** (0.097)	− 0.049 (0.104)	− 0.046 (0.103)	− 0.049 (0.103)	− 0.057 (0.104)
Working mother	0.084 (0.086)	0.082 (0.086)	0.051 (0.088)	0.084 (0.088)	0.084 (0.085)	0.071 (0.085)	0.091 (0.088)	0.136 (0.086)
Father's education	0.169*** (0.063)	0.169** (0.063)	0.173** (0.063)	0.168** (0.063)	0.146** (0.064)	0.142** (0.064)	0.141** (0.064)	0.139** (0.064)
Mother's education	0.206*** (0.062)	0.207*** (0.062)	0.198*** (0.062)	0.194*** (0.194)	0.21*** (0.059)	0.206*** (0.058)	0.207*** (0.058)	0.222*** (0.057)
BigMun	0.111 (0.082)	0.111 (0.082)	0.120 (0.081)	0.111 (0.081)	0.412*** (0.093)	0.406*** (0.093)	0.404*** (0.092)	0.439*** (0.093)
ENR-90	− 0.003 (0.003)	− 0.003 (0.004)	− 0.003 (0.004)		0.009** (0.004)	0.012*** (0.004)	0.013*** (0.004)	
GDP-90		− 0.027 (0.01)	− 0.005 (0.012)			− 0.019 (0.013)	− 0.02 (0.012)	
GII-95			− 0.649** (0.338)				0.412 (0.328)	
ENR15				0.003 (0.003)				0.009*** (0.003)
GDP-15				0.400 (0.453)				− 0.02 (0.012)
GII-15				− 0.005(0.005)				1.251** (0.441)
MARGINAL EFFECTS								
Father's education	0.067**	0.067**	0.069**	0.067**	0.045**	0.043**	0.043**	0.043**
Mother's education	0.082***	0.082***	0.079***	0.077***	0.064***	0.063***	0.063***	0.068***
ENR-90	− 0.001	− 0.001	− 0.001		0.003**	0.004**	0.004**	
GII-95			− 0.259**				0.125	
ENR-15				0.001				0.003***

Table 7 (continued)

Variables	Females ^a				Males ^b			
	Coeff. (std. errs.) I	Coeff. (std. errs.) II	Coeff. (std. errs.) III	Coeff. (std. errs.) IV	Coeff. (std. errs.) V	Coeff. (std. errs.) VI	Coeff. (std. errs.) VII	Coeff. (std. errs.) VIII
GII-15				0.159				0.382**
LL	− 16,339.391	− 16,338.766	− 16,339.391	− 16,303.674	− 13,982.436	− 13,957.469	− 13,927.74	− 13,942.295
Pseudo-R2	0.08	0.08	0.081	0.082	0.09	0.09	0.093	0.09
Wald	134.84 (21)	134.92 (22)	134.84 (25)	138.48 (25)	129.41 (21)	129.39 (22)	135.12 (25)	140.90 (25)
No. observations	2628	2628	2628	2628	2368	2368	2367	2367

Variables are defined in Table 1. ^aColumns I, II, III, IV concern female students; ^bcolumns V, VI, VII, VIII concern male students; c) the excluded dummy refers to the cohort of first-generation immigrants arrived before 2003. * Statistically significant at 10% level; **statistically significant at 5% level; *** statistically significant at 1% level. Robust standard errors. Weighted analyses

Since expectations are probably influenced by gender disparities in source countries, we include the Gender Inequality Index in parents' country of origin and generation (**GII-95**). Higher inequality influences only first-generation females with a negative effect (Table 7). This may mean that females bear the burden of traditional gender roles in education, which undermines their expectations. Interestingly **GII-95** does not matter when second-generation girls are included in the sample which may hint to their integration (Table 6). One could argue that this result is due to the percentage of mixed couples, which is high among second-generation students (45.35% among males, 41.50% among females) but negligible among first-generation teens (about 5% for both males and females). To better investigate the transmission of cultural background without the mediation of interracial partnering,¹¹ in the Appendix, respectively, in Tables 10 and 11, we provide further results considering first- and second-generation teens with i) both parents born abroad or ii) only one foreign-born parent. The findings reveal that **GII-95** remains negative and statistically significant only among first-generation girls, even when mixed couples are considered.¹²

When considering first-generation alone (Table 7), we add the enrollment rate (**ENR-15**) and the Gender Inequality Index (**GII-15**) in respondents' birthplace when they were interviewed to analyze the effects of contemporary culture in their homeland. The coefficient of **ENR-15** is positive and statistically significant only for males when the **GII-15** is included in the model, moreover higher gender inequality (**GII-15**) raises their expectations.

Finally, Table 8 presents additional estimates based on multilevel models to identify any variability in outcome that relates to teenagers' country of origin but is not captured by the observable variables included in the model (e.g., **ENR-15**, **GII-15**). Estimated values suggest using a hierarchical data structure solely when the male sample is analyzed,¹³

¹¹ Excluding mixed couples from the sample, the other results in Tables 5, 6 remain substantially the same.

¹² Unfortunately, the results from the subsamples of teens born from mixed couples should be considered with caution because of the low number of observations.

¹³ The last row in Table 8 reports the estimates of the random intercept at regional level—var(const). Considering immigrant boys, the estimate of the variance in the random intercept is about twice larger than its standard error; being significant at ten percent level. The reported likelihood-ratio test shows that there is enough variability to favor a multilevel model over an ordinary probit regression.

Table 8 Expectations to go to university (Probit multilevel model)—first-generation students in upper secondary school by gender

Variables	Females ^a			Males ^b		
	Coeff. (std errs) I	Coeff. (std errs) II	Coeff. (std errs) III	Coeff. (std errs) IV	Coeff. (std errs) V	Coeff. (std errs) VI
North-East	0.04 (0.079)	0.04 (0.079)	0.054 (0.08)	0.116 (0.09)	0.112 (0.09)	0.129 (0.089)
North-West	0.147* (0.085)	0.146* (0.085)	0.152* (0.085)	0.075 (0.095)	0.071 (0.095)	0.058 (0.095)
Center	0.038 (0.087)	0.038 (0.088)	0.044 (0.087)	0.029 (0.095)	0.027 (0.095)	0.022 (0.095)
Isles	0.122 (0.138)	0.121 (0.138)	0.136 (0.139)	− 0.018 (0.147)	− 0.023 (0.147)	− 0.032 (0.146)
Arrived in 2003/2007 ^c	− 0.039 (0.069)	− 0.039 (0.069)	− 0.043 (0.068)	− 0.008 (0.075)	− 0.007 (0.075)	0.001 (0.075)
Arrived in 2008/2014 ^c	− 0.115 (0.074)	− 0.115 (0.074)	− 0.121 (0.073)	0.02 (0.081)	0.022 (0.081)	0.033 (0.082)
Arrived in 2015 ^c	0.184 (0.236)	0.183 (0.237)	0.184 (0.235)	0.138 (0.276)	0.124 (0.278)	0.14 (0.275)
School year	0.205*** (0.028)	0.205*** (0.029)	0.211*** (0.029)	0.211*** (0.029)	0.212*** (0.029)	0.214*** (0.029)
Family wealth	− 0.033 (0.055)	− 0.033 (0.055)	− 0.034 (0.055)	− 0.079 (0.052)	− 0.076 (0.052)	− 0.085* (0.051)
Working father	0.130* (0.069)	0.13* (0.069)	0.127* (0.068)	0.010 (0.081)	0.012 (0.081)	0.019 (0.079)
Father's education	0.143*** (0.041)	0.143*** (0.041)	0.141*** (0.041)	0.187*** (0.047)	0.186*** (0.047)	0.188*** (0.046)
Working mother	0.007 (0.06)	0.007 (0.06)	0.019 (0.059)	− 0.018 (0.065)	− 0.014 (0.066)	− 0.011 (0.065)
Mother's education	0.215*** (0.04)	0.215*** (0.041)	0.205*** (0.04)	0.171*** (0.043)	0.172*** (0.043)	0.172*** (0.043)
BigMun	− 0.076 (0.059)	− 0.075 (0.059)	− 0.085 (0.059)	0.141** (0.069)	0.142** (0.069)	0.149** (0.069)
ENR-90	− 0.003 (0.003)	− 0.003 (0.004)		0.008* (0.004)	0.006 (0.0046)	
GII-95	− 0.087 (0.293)	− 0.082 (0.307)		0.574 (0.381)	0.667* (0.401)	
GDP-90		0.008 (0.013)			0.001 (0.001)	
ENR-15			0.003 (0.002)			0.004 (0.003)
GII-15			0.649* (0.390)			1.047** (0.44)
GDP-15			− 0.0004 (0.00005)			0.0006 (0.0005)
Var. (constant)	0.012 (0.015)	0.012 (0.016)	0.009 (0.014)	0.045 (0.025)	0.046 (0.025)	0.038 (0.022)
LR test vs. probit: χ^2 (1)	1.65	1.53	0.89	9.70	9.81	8.24
LL	− 1697.549	− 1697.548	− 1693.0682	− 1351.824	− 1351.524	− 1350.969
Wald	206.17 (24)	206.10 (25)	209.16	173.41 (24)	173.83	173.55
No. observations	2628	2628	2628	2368	2368	2368

Variables are defined in Table 1. ^aColumns I, II, III, IV concern female students; ^bcolumns V, VI, VII, VIII concern male students; ^c the excluded dummy refers to the cohort of first-generation immigrants arrived before 2003. *Statistically significant at 10% level; **statistically significant at 5% level; *** statistically significant at 1% level. Var (constant): estimated variance of the random intercept at the source country level. Robust standard errors. Weighted analyses

confirming that teenagers' country of origin influences males and females differently. Furthermore, in Table 8 the coefficients on the selected indicators of cultural background—ENR90 and GII95, in the fifth column, and GII15—are still significant.

The above results can be summarized as follows:

Result 1: Immigrant girls show higher expectations than males.

Result 2: Mother's education matters more than father's education especially for females.

Result 3: Enrollment in tertiary education in parents' country of origin and generation especially counts for first-generation male teens and raises their expectations. They also positively respond to the enrollment ratio and gender inequality in their birthplace when they were interviewed.

Result 4: Gender inequality in parents' country of origin and generation lowers mainly first-generation females' expectations.

Checks for robustness

We use Oaxaca–Blinder decomposition to attribute the observed gender differences in the outcomes to different individual characteristics or behavior (Table 12 in the Appendix). The focus is on immigrants with both parents born abroad to evaluate the effects of the transmission of cultural background without the possible mediating role of mixed marriages.¹⁴ Oaxaca decomposition (Table 12 in the Appendix) shows that culture in home countries—**ENR-90**, **GII-95** and **ENR15**—influences the expectations of boys and girls in a different way. Men compared to women are more reactive to contemporary enrollment ratio and to enrollment in their parents' generation and respond positively to gender inequality in their parents' generation. It also shows that males have lower expectations than females because of less educated parents, in particular their mothers. This implies that more educated parents determine females' higher educational expectations.

Since we suspected sample selection problems, as underlined in "Data" section, we performed a further analysis on the subsample from the same survey of teens enrolled in lower secondary school. The survey question is about what respondents are going to do after completing lower secondary school.¹⁵ The sample should not be affected by sample selection since teens usually attend lower secondary school until the age of 14, while compulsory school ends at the age of 16.

Main statistics and results- Tables 13 and 14, respectively, are reported in the Appendix.

Table 13 shows that immigrant parents are less educated than Italian parents, whereas the evidence in Table 2 suggests that immigrant students remaining in school after compulsory education have more educated parents. This seems to confirm our suspect of sample selection. Parents' education fosters children's expectations. With respect to natives, marginal effects¹⁶ indicate that the probability of expecting to stay on in school is lower by 2.6% for second-generation students, 5.55% for the cohort arrived in 2003/2007, 9% for the cohort arrived in 2008/2014 and 9.6% for late movers.

As to effects of source country culture, we chose the same indicators of culture in parents' generation and contemporary culture. We believe that the importance given to

¹⁴ The results on the full sample—available on request— are substantially the same. However, when we include mixed couples the coefficient on ENR15 in Table 11 is no longer significant.

¹⁵ The data do not contain information about the expectations to go to university.

¹⁶ Marginal effects are not reported in our tables, but are available on request.

tertiary education in parents' generation embodies the same attitudes towards education in general. Enrollment in tertiary education in parents' country of origin (**ENR-90**) counts for first-generation male teens.¹⁷ The coefficient on **GII-95** reveals that higher gender discrimination in parents' birthplaces enhances teens' educational expectations, particularly if males. For girls the coefficient on **GII-95** is significant only at 10 percent level; however, one could argue that at lower levels of education they express their ideal preferences and oppose conservative background culture. When it comes to the choice of tertiary education, they are conditioned by gender roles expected in their home culture. Consistent with the results in Table 7, solely males are influenced by contemporary cultural values in their country of birth in that high enrollment rates in tertiary education and high gender inequality foster males' aspirations to continue their studies.

Discussion

Our findings highlight the crucial role of parents' education in molding their sons' and daughters' expectations. Educated parents tend to stimulate them to pursue higher education by serving as role models and transmitting behavioral norms (Abada et al., 2018).

When one looks at the influence of culture in parents' countries of origin, differences between males and females emerge.

Transmission of background culture related to the importance of education (**ENR**) concerns only males. In fact, first and second generations whose parents come from countries with higher enrollment in tertiary education show higher expectations and vice versa. The same result holds for first generation exposed to contemporary culture in birthplaces.

The finding of a non-significant coefficient on **ENR** for females also hints to the possibility that their mothers represent a selected sample along the importance given to education. This ultimately affects the cultural attitudes transmitted to their daughters. In this respect, it is useful to recall that for females' higher expectations compared to males are also due to more educated mothers (Oaxaca decomposition), mother's education counts more than father's education and females are more influenced than males by mother's education.

One may hold that the enrollment rate in tertiary education measured in 1990 and 2015 may reflect social and political turmoil in parents' country of origin and respondents' birthplaces in these periods. A major concern is that, as reported in Table 4, a relatively significant share of immigrant parents for first generation mostly came from Romania, followed by Albania and Moldova, which went through a political transition in 1989 (Romania) and 1990/1991 (Albania and Moldova) with subsequent reforms of the education system. However, the fact that the reform process took time (Marga, 2002; Sota, 2014) mitigates our concern. A non-negligible share concerns parents from China and the Philippines mainly for second generation and parents from Morocco for first and second generation. Only China experienced a change in the education system with the implementation of 9-year compulsory education in the 1990s, however it affected later generations (Wu and Zhang, 2010). Another concern is related to Libya, where civil war started in 2014 led to lack of security affecting enrollment, nevertheless, the percentage of Libyan immigrants in our sample is very low. Overall, as specified above, the inclusion of GDP in

¹⁷ When including mixed couples, the enrollment ratio in parents' country significantly matters also for females.

1990 and 2015 accounts for socio-economic factors that affected enrollment. Finally, the estimates of multilevel models considering any unobserved factors at source country level are substantially consistent with our main results.

When looking at the effects of different sides of gender inequality (**GII**), for boys it is important contemporary culture in their birthplaces. Presumably they tend to maintain gender disparities by aspiring to higher education when affected by conservative orientations expressed by contemporary culture in their country of birth. On the other hand, cultural transmission within the family plays a key role mostly for first-generation girls, as their expectations conform to gender roles deemed appropriate in their parents' source country. Adding that first- and second-generation females are not influenced by contemporary culture in their birthplace, meanwhile especially second-generation seems more open to the opportunities and necessities of education in the new country result is in line with Bolzendahl and Myers (2004) who show that when individuals become part of societies with different attitudes towards gender roles, they may become more responsive to gender equity issues. The greater ability of females to adjust to the new environment (Portes & Rumbaut, 2001) can foster this change.

Thus, males' expectations independently from generation status seem more constrained by their cultural background. This is true also for first-generation females, while cultural conditioning appears to fade away as a likely consequence of integration differently from males. Such differences cannot neglect the role of educated mothers in fostering their daughters' ambitions regardless of cultural heritage.

Overall, our evidence is consistent with the transmission of cultural norms shaping the socialization of gender role expectations (Eccles, 1994; Platt & Parsons, 2017) from parents to children. As immigrants often come from countries culturally diverse, this may fuel gender disparity across generations if integration into host countries and social learning do not curb this effect for the following generations. In this respect, expectations based on conservative culture may weaken female teens' educational attainment. On the other hand, the results point to the possibility that also male teens tend to be bearer of their heritage culture in line with Isajiw (1990) and to preserve traditional gender roles. Thus, both males and females seem to maintain gender difference in educational attainment though for different reasons.

Conclusion

Our findings suggest the importance of parents' education in fostering children's expectations. Mother's education plays a prominent role especially for females. Nevertheless, there is a gender difference in the way males and females react to their cultural background and adjust to the host country, which is reflected in their expectations. While both are affected by cultural attitudes in their parents' country of origin, males are more sensitive to the enrollment rate in tertiary education, whereas for females there is no influence, which may also be due to self-selection of their mothers along the importance given to education. In addition, the higher the gender inequality in countries of birth, the higher the expectations of male students. Instead, females tend to conform to gender roles deemed appropriate according to their parents' tradition, particularly when first-generation teens are considered. Despite this aspect, younger generations of females seem more open to the changes and opportunities they face in Italy by adjusting to the new environment.

An implication of our results is that the persistence of inequality across generations is not only related to limited resources, poor socio-economic background, and individual abilities. It may also be due to cultural persistence fueled by socialization inside the family and seems to penalize especially first-generation women with the risk of slowing down their integration process. In this respect, their choices could be affected by men through the roles they play in the family and immigrant communities. This suggests that any public discourse and policy on the issues of integration and gender equality should also recognize the potential role of men in leading cultural and social changes.

Appendix

See Tables 9, 10, 11, 12, 13 and 14.

Table 9 Expectations to go to university (probit estimates)—first- and second-generation students in upper secondary school by gender

First and second generation (18-year-old and older students)		
Variables	Females	Males
Model 1-coefficients [marginal effects]		
ENRmale-90	0.003 [0.001]	0.012** [0.004]
ENRfemale-90	− 0.002 [− 0.001]	0.006 [0.002]
Mother's education	0.249*** [0.099]	0.193*** [0.065]
Father's education	0.093 [0.037]	0.148** [0.05]
LL	− 26,643.99	− 24,623.308
No. observations	3040	2820
Model 2-coefficients (marginal effects)		
ENRmale-90	0.005 [0.002]	0.017** [0.006]
ENRfemale-90	0.002 [0.0006]	0.005 [0.002]
LL	− 27,474.223	− 25,131.568
No. observations	3040	2820
First generation (18-year-old and older students)		
Variables	Females	Males
Model 1-coefficients [marginal effects]		
ENRmale-90	0.004 [0.00002]	0.013** [0.004]
ENRfemale-90	0.001 [− 0.001]	− 0.004 [− 0.001]
Mother's education	0.230*** [0.092]	0.228*** [0.071]
Father's education	0.164** [0.065]	0.157** [0.049]
LL	− 16,906.959	− 14,483.714
No. observations	2628	2368
Model 2-coefficients (marginal effects)		
ENRmale-90	0.0007 [0.0002]	0.014** [0.005]
ENRfemale-90	0.004 [0.001]	0.002** [0.0008]
LL	− 17,698.908	− 15,005.623
No. observations	2628	2368

Variables are defined in Table 1. *Statistically significant at 10% level; **statistically significant at 5% level; *** statistically significant at 1% level. Robust standard errors. Weighted analyses. We do not include family background and location of residence in order to observe the full effect of parents' education. The variables concerning migratory status are included but not reported

Table 10 Expectations to go to university (probit estimates)—first- and second-generation students in upper secondary school with both parents born abroad

Variables	Females			Males		
	Coeff. (std. errs.) I	Coeff. (std. errs.) II	Coeff. (std. errs.) III	Coeff. (std. errs.) IV	Coeff. (std. errs.) V	Coeff. (std. errs.) VI
North-East	− 0.104 (0.119)	− 0.111 (0.112)	− 0.092 (0.121)	− 0.137 (0.103)	− 0.131 (0.104)	− 0.119 (0.104)
North-West	− 0.025 (0.123)	− 0.028 (0.124)	− 0.008 (0.125)	− 0.202** (0.104)	− 0.292** (0.104)	− 0.179* (0.106)
Center	− 0.226* (0.129)	− 0.240* (0.132)	− 0.246* (0.131)	− 0.141 (0.111)	− 0.138 (0.111)	− 0.137 (0.111)
Isles	0.067 (0.156)	0.040 (0.158)	0.049 (0.160)	0.067 (0.225)	0.130 (0.207)	0.140 (0.207)
Arrived before 2003 ^a	− 0.199 (0.169)	− 0.183 (0.180)	− 0.184 (0.169)	0.137 (0.161)	0.123 (0.162)	0.105 (0.159)
Arrived in 2003/2007 ^a	− 0.164 (0.161)	− 0.149 (0.163)	− 0.145 (0.161)	0.064 (0.148)	0.051 (0.149)	0.037 (0.147)
Arrived in 2008/2014 ^a	− 0.248 (0.162)	− 0.218 (0.335)	− 0.218 (0.163)	0.263* (0.152)	0.245* (0.153)	0.244* (0.151)
Arrived in 2015 ^a	− 0.134 (0.356)	− 0.141 (0.364)	− 0.124 (0.364)	0.351 (0.353)	0.352 (0.349)	0.348 (0.349)
School year	0.262*** (0.042)	0.260*** (0.042)	0.253*** (0.042)	0.206*** (0.037)	0.208*** (0.038)	0.205*** (0.037)
Family wealth	− 0.072 (0.099)	− 0.079 (0.092)	− 0.085 (0.095)	− 0.106 (0.07)	− 0.110* (0.070)	− 0.105 (0.07)
Working father	0.136 (0.099)	0.123 (0.095)	0.124 (0.098)	− 0.054 (0.103)	− 0.051 (0.103)	− 0.05 (0.103)
Working mother	− 0.039 (0.096)	− 0.034 (0.094)	− 0.079 (0.098)	0.092 (0.092)	0.093 (0.092)	0.073 (0.095)
Father's education	− 0.190*** (0.063)	0.183*** (0.062)	0.184*** (0.063)	0.148** (0.064)	0.146** (0.063)	0.156** (0.063)
Mother's education	0.193*** (0.064)	0.190*** (0.063)	0.189*** (0.063)	0.150** (0.057)	0.150** (0.057)	0.146** (0.056)
BigMun	0.123 (0.094)	0.143 (0.094)	0.131 (0.094)	0.526*** (0.089)	0.520*** (0.089)	0.518*** (0.089)
ENR-90	− 0.0003 (0.004)	− 0.003 (0.003)	− 0.004 (0.004)	0.006* (0.004)	0.008* (0.004)	0.007* (0.004)
GDP-90		0.03** (0.017)	0.03* (0.02)		− 0.02 (0.01)	− 0.02* (0.01)
GII-95			− 0.618* (0.349)			− 0.388 (0.351)
Marginal effects						
Father's education	0.076*** (0.025)	0.073*** (0.025)	0.073** (0.025)	0.044** (0.019)	0.043** (0.019)	0.047** (0.019)
Mother's education	0.077*** (0.025)	0.076*** (0.025)	0.075*** (0.025)	0.044** (0.017)	0.045** (0.017)	0.044** (0.017)
ENR'90	− 0.0001 (0.001)	− 0.001 (0.001)	− 0.246* (0.139)	0.002* (0.001)	0.002* (0.001)	− 0.116 (0.105)
No. observations	2737	2737	2737	2485	2485	2485
Wald (no. parameters)	128.49 (22)	132.21 (23)	137.55 (26)	151.26 (22)	151.27 (23)	632.02 (26)
LL	− 18,203.812	− 18,154.384	− 18,112.512	− 15,806.16	− 15,787.789	− 15,769.864
Pseudo-R2	0.079	0.081	0.083	0.092	0.093	0.094

Variables are defined in Table 1. *Statistically significant at 10% level; **statistically significant at 5% level; *** statistically significant at 1% level. Robust standard errors. Weighted analyses. ^aThe excluded dummy is "Second Generation"

Table 11 Expectations to go to university (probit estimates)—students in upper secondary school with one parent born abroad

Variables	Females			Males		
	Second generation ^a	First generation ^b		Second generation	First generation	
		Coeff. (std. errs.) II	Coeff. (std. errs.) III		Coeff. (std. errs.) V	Coeff. (std. errs.) VI
North-East	− 0.170 (0.408)	0.021 (0.560)	− 0.167 (0.547)	0.526 (0.411)	− 0.48 (0.485)	− 0.541 (0.528)
North-West	− 0.217 (0.522)	0.460 (0.548)	− 0.089 (0.519)	0.1134 (0.442)	− 0.203 (0.481)	− 0.08 (0.481)
Center	− 0.156 (0.395)	0.587 (0.482)	0.697 (0.497)	− 0.027 (0.445)	0.031 (0.472)	− 0.334 (0.505)
Isles		0.635 (0.633)	0.921 (0.629)	− 0.477 (0.632)	− 0.063 (0.596)	− 0.232 (0.593)
Arrived in 2003/2007 ^c		0.211 (0.373)	− 0.139 (0.361)		0.168 (0.397)	− 0.043 (0.391)
Arrived in 2008/2014 ^c		0.27 (0.463)	− 0.093 (0.478)		− 0.483 (0.475)	− 0.346 (0.455)
Arrived in 2015 ^c		–	–			–
School year	0.644*** (0.199)	0.407** (0.186)	0.264 (0.239)	0.289* (0.170)	0.098 (0.178)	0.176 (0.168)
Family wealth	− 0.519* (0.304)	0.475 (0.34)	0.472 (0.373)	− 0.483** (0.221)	− 0.297 (0.265)	− 0.467* (0.271)
Working father	− 0.419 (0.486)	1.469** (0.513)	0.885** (0.415)	− 0.567 (0.406)	0.845 (0.57)	1.346** (0.662)
Working mother	− 0.027 (0.28)	− 0.498 (0.320)	0.048 (0.313)	− 0.221 (0.273)	− 0.836** (0.383)	− 0.717* (0.392)
Father's education	− 0.281 (0.222)	− 0.220 (0.220)	− 0.129 (0.226)	0.157 (0.169)	− 0.211 (0.232)	− 0.351 (0.228)
Mother's education	0.408* (0.216)	0.75*** (0.245)	0.507** (0.257)	0.346 (0.217)	0.747*** (0.232)	0.89*** (0.247)
BigMun	− 0.264 (0.415)	− 0.0016 (0.375)	− 0.023 (0.355)	0.389 (0.333)	0.842* (0.484)	0.853* (0.475)
ENR-90	0.018 (0.016)	0.024 (0.03)		− 0.004 (0.013)	0.041** (0.021)	
GDP-90	− 0.00003 (0.00004)	− 0.0003 (0.0006)		− 0.00002 (0.00003)	0.000015 (0.22)	
GII-95	0.864 (3.106)	− 11.894*** (3.045)		− 3.5 (2.63)	8.415** (3.55)	
ENR-15			− 0.014 (0.012)			0.004 (0.011)
GDP-15			− 0.003 (0.001)**			0.00001 (0.00001)
GII-15			− 3.163* (1.745)			3.907** (1.989)
No. observations	166	122	130	206	122	126
Wald (n. parameters)		46.74	56.43	465.86	46.74	36.84
LL	− 5189.581	− 616.657	− 884.539	− 5824.725	− 616.657	− 685.939
Pseudo-R2	0.18	0.369	0.36	0.19	0.37	0.31

Variables are defined in Table 1. *Statistically significant at 10% level; **statistically significant at 5% level; *** statistically significant at 1% level. ^aColumns I and IV refer to second-generation teens; ^bcolumns II, III, V and VI refer to first generation only; ^cthe reference dummy is “arrived before 2003”. Robust standard errors. Weighted analyses

Table 12 Oaxaca–Blinder decomposition—students (males and females) in upper secondary school with both parents born abroad

Variables	First and Second generation-5222 observations			First generation-4737 observations		First generation-4732 observations	
	Coeff. (std. err.)			Coeff. (std. err.)		Coeff. (std. err.)	
Difference	− 0.255*** (0.019)			− 0.233*** (0.019)		− 0.233*** (0.019)	
Endowments	− 0.051*** (0.005)			− 0.052*** (0.011)		− 0.056*** (0.010)	
Coefficients	− 0.198*** (0.013)			− 0.185*** (0.019)		− 0.187*** (0.019)	
Interaction	− 0.005 (0.005)			− 0.004 (0.011)		0.010 (0.010)	
	Endowments I	Coefficients II	Endowments III	Coefficients IV	Endowments V	Coefficients VI	
North-East	− 0.002 (0.003)	− 0.0007 (0.017)	0.003 (0.002)	0.0004 (0.015)	0.003 (0.003)	0.006 (0.016)	
North-West	− 0.0002 (0.0003)	− 0.014 (0.018)	− 0.0009 (0.0008)	− 0.008 (0.016)	− 0.001 (0.003)	− 0.006 (0.017)	
Center	− 0.0009 (0.002)	0.0124 (0.015)	− 0.0003 (0.002)	− 0.019 (0.013)	− 0.00006 (0.002)	0.018 (0.013)	
Isles	0.0001 (0.0005)	0.0008 (0.002)	0.0002 (0.0003)	− 0.0004 (0.002)	0.0002 (0.0004)	− 0.0002 (0.002)	
Arrived before 2003 ^a	− 0.001 (0.002)	0.018 (0.013)	−	−	−	−	
Arrived in 2003/2007 ^a	0.002 (0.003)	0.021 (0.025)	− 0.0004 (0.002)	− 0.017 (0.019)	− 0.0002 (0.002)	− 0.014 (0.020)	
Arrived in 2008/2014 ^a	− 0.001 (0.002)	0.044 (0.021)	− 0.0005 (0.001)	0.018 (0.017)	− 0.0007 (0.001)	0.024 (0.017)	
Arrived in 2015 ^a	0.0002 (0.0005)	0.0021 (0.002)	− 0.0003 (0.0005)	0.0009 (0.002)	0.00002 (0.0004)	0.001 (0.002)	
Scholastic year	− 0.031*** (0.006)	− 0.145** (0.072)	− 0.026*** (0.006)	− 0.098 (0.068)	− 0.027*** (0.006)	− 0.117* (0.069)	
Family wealth	0.004 (0.001)	0.022 (0.114)	0.00003 (0.0006)	− 0.056 (0.113)	0.0001 (0.0007)	− 0.078 (0.123)	
Working father	0.0004 (0.0008)	− 0.048 (0.036)	0.0008 (0.002)	− 0.069* (0.037)	0.0004 (0.0006)	− 0.079** (0.037)	
Working mother	0.0016 (0.0014)	0.028 (0.030)	0.0002 (0.002)	0.006 (0.028)	0.0008 (0.001)	0.001 (0.028)	
Father's education	− 0.026** (0.011)	− 0.064 (0.079)	− 0.03** (0.012)	− 0.061 (0.081)	− 0.029** (0.011)	− 0.060 (0.081)	
Mother's education	− 0.042*** (0.015)	− 0.082 (0.084)	− 0.04** (0.015)	− 0.062 (0.065)	− 0.036*** (0.014)	0.034 (0.028)	
BigMun	− 0.005 (0.004)	0.031*** (0.012)	− 0.004* (0.002)	0.018* (0.010)	− 0.004* (0.0024)	− 0.01 (0.083)	
ENR 90	0.003 (0.003)	0.058** (0.021)	0.006* (0.004)	0.087** (0.030)			
ENR-15					− 0.003 (0.002)	0.121* (0.070)	
GII-95	− 0.003 (0.002)	0.060 (0.078)	− 0.002 (0.002)	0.155** (0.073)			
GDP-90	− 0.002 (0.002)	− 0.026* (0.013)	− 0.002 (0.002)	− 0.006 (0.013)			
GII-15					0.0032(0.0039)	0.097(0.070)	
GDP-15					− 0.002 (0.001)	− 0.013 (0.018)	

Variables are defined in Table 1. *Statistically significant at 10% level; **statistically significant at 5% level; ***statistically significant at 1% level. ^aIn columns I, II the excluded dummy is "Second Generation"; in columns III, IV, V, VI, the excluded dummy is "Arrived before 2003"

Table 13 Summary statistics—students attending lower secondary school

Variables	First and second generation		First generation		Italians	
	Female students	Male students	Female students	Male students	Female students	Male students
	%	%	%	%	%	%
Upper secondary school ^a	81.45	75.11	77.32	69.86	88.96	85.25
North-East	35.57	30.40	35.12	30.99	32.81	31.98
North-West	25.51	28.01	25.17	27.48	22.93	25.29
Center	23.28	25.48	23.42	26.21	24.25	24.44
South	11.07	10.62	11.38	10.86	13.56	11.56
Isles	4.57	5.50	4.91	4.45	6.45	5.68
Second generation	56.41	50.73				
First Generation						
Arrived before 2003	3.13	3.54	7.19	7.18		
Arrived in 2003/2007	14.53	17.54	33.34	35.59		
Arrived in 2008/2014	23.10	25.19	52.99	51.12		
Arrived in 2015	2.82	3.01	6.48	6.10		
Working father	85.31	86.12	83.19	83.28	93.06	94.20
Working mother	62.78	64.71	60.10	57.59	71.33	72.40
BigMun	16.33	15.25	17.21	16.26	16.62	12.65
Mixed couples ^b	14.66	13.13	7.38	7.18		
	Mean (std. er.)	Mean (std. er.)	Mean (std. er.)	Mean (std. er.)	Mean (std. er.)	Mean (std. er.)
Family wealth	2.941 (0.020)	2.847 (0.014)	2.944 (0.015)	2.892 (0.014)	2.826 (0.013)	2.872 (0.007)
Father's education	3.537 (0.039)	3.595 (0.031)	3.561 (0.037)	3.619 (0.028)	3.741 (0.021)	3.693 (0.012)
Mother's education	3.619 (0.035)	3.635 (0.030)	3.554 (0.035)	3.559 (0.029)	3.850 (0.020)	3.795 (0.011)
ENR90	16.598 (0.350)	15.617 (0.341)	13.628 (0.313)	12.338 (0.210)		
ENR15			45.879 (0.589)	43.968 (0.459)		
GDP-90	6.446 (340.231)	5.509 (275.340)	2.667 (0.160)	2.143 (0.092)		
GDP-15			7.584 (0.358)	6.600 (0.186)		
GII-15			0.327(0.004)	0.337(0.003)		

Our elaborations on Istat data. ^aDependent variable equal to 1 if the individual will attend the upper secondary school, 0 otherwise. ^bPercentage of teens with only one parent born abroad. Among second-generation teens the percentages of mixed couples are, respectively, 38% among females and 35% among males. Variables are defined in Table 1

Table 14 Expectations to go to upper secondary school (probit estimates)—female and male students attending lower secondary school

Variables	Whole sample		Females with both parents born abroad				Males with both parents born abroad			
			1st–2nd generation		1st generation		1st–2nd generation		1st generation	
	Coeff. (std errs) I		Coeff. (std errs) II		Coeff. (std errs) III	Coeff. (std errs) IV	Coeff. (std errs) V		Coeff. (std errs) VI	Coeff. (std errs) VII
Females	0.172*** (0.048)	–				–	–			–
North-East	– 0.019 (0.061)	– 0.062 (0.111)	– 0.008 (0.095)	– 0.026 (0.097)	– 0.117 (0.076)	– 0.186** (0.080)	– 0.152* (0.082)			
North-West	– 0.166** (0.066)	– 0.061 (0.130)	– 0.092 (0.124)	– 0.077 (0.123)	– 0.212** (0.085)	– 0.182** (0.093)	– 0.156* (0.093)			
Center	– 0.038 (0.068)	– 0.133 (0.118)	– 0.095 (0.097)	– 0.107 (0.098)	– 0.060 (0.076)	0.006 (0.086)	0.017 (0.086)			
Isles	– 0.032 (0.089)	0.049 (0.134)	0.087 (0.129)	0.062 (0.137)	0.008 (0.098)	0.082 (0.108)	0.087 (0.108)			
Second generation	– 0.117** (0.057)	–	–	–	–	–	–			
Arr. before 2003 ^a	– 0.115 (0.118)	– 0.004 (0.162)	–	–	– 0.053 (0.09)	–	–			
Arrived 2003/2007 ^a	– 0.249*** (0.061)	– 0.209* (0.105)	– 0.229 (0.183)	– 0.169 (0.179)	– 0.123 (0.082)	– 0.069 (0.178)	– 0.086 (0.181)			
Arrived 2008/2014 ^a	– 0.415*** (0.052)	– 0.332*** (0.084)	– 0.353** (0.174)	– 0.309* (0.170)	– 0.336*** (0.075)	– 0.291* (0.176)	– 0.296* (0.162)			
Arrived 2015 ^a	– 0.437*** (0.096)	– 0.040 (0.143)	0.017 (0.215)	– 0.094 (0.200)	– 0.594*** (0.059)	– 0.556*** (0.062)	– 0.575*** (0.207)			
Family wealth	– 0.029 (0.046)	– 0.013 (0.095)	– 0.157* (0.093)	– 0.018 (0.209)	– 0.062 (0.058)	– 0.056 (0.062)	– 0.055 (0.062)			
Working father	0.230*** (0.073)	0.109 (0.113)	0.105 (0.124)	0.152* (0.091)	0.021 (0.115)	0.019 (0.091)	0.055 (0.095)			
Working mother	– 0.099** (0.050)	– 0.069 (0.082)	– 0.007 (0.099)	0.009 (0.094)	0.087 (0.072)	– 0.041 (0.076)	0.029 (0.074)			
Father's education	0.053*** (0.014)	0.163** (0.056)	0.038 (0.069)	– 0.051 (0.072)	0.079** (0.039)	0.041 (0.047)	0.031 (0.053)			
Mother's education	0.184*** (0.031)	– 0.109*** (0.021)	0.100*** (0.025)	0.318 (0.064)	0.055** (0.017)	0.061** (0.019)	0.097* (0.048)			
BigMun	0.233*** (0.062)	0.166* (0.090)	0.229** (0.111)	0.221** (0.111)	0.201** (0.081)	0.200** (0.090)	0.157* (0.091)			
ENR-90		0.007 (0.006)	0.006 (0.005)		0.006 (0.076)	0.007* (0.004)				
GDP-90		0.007 (0.01)	0.00004 (0.00003)		0.011 (0.076)	0.0003 (0.0015)				
GII-95		0.489* (0.272)	0.229 (0.349))	0.659** (0.260)	0.732** (0.272)				
ENR-15				– 0.001 (0.003)			0.007** (0.003)			
GII-15				– 0.067 (0.49)			1.417** (0.379)			
GDP-15				0.0003 (0.005)			– 0.0003 (0.045)			
MARGINAL EFFECTS										
Father's education	0.012***	0.042**	0.012	0.015	0.026**	0.014	0.01			
Mother's education	0.041***	0.029***	0.029***	0.092***	0.018**	0.021**	0.033*			
ENR-90		0.001	0.002		0.002	0.002*				
GII-95		0.128*	0.065		0.214**	0.254***				
ENR-15				0.0004			0.003**			
GII-15				0.019			0.491***			
LL	– 193,437.47	– 18,495.087	– 11,653.399	– 12,712.523	– 26,548.378	– 17,518.831	– 17,487.748			
Wald test (param.)	411.51 (19)	142.11 (23)	112.34 (23)	74.38 (23)	166.11 (23)	93.47 (23)	91.63 (23)			

Table 14 (continued)

Variables	Whole sample Females with both parents born abroad				Males with both parents born abroad		
	Coeff. (std errs) I	1st–2nd generation	1st generation	1st generation	1st–2nd generation	1st generation	1st generation
		Coeff. (std errs) II	Coeff. (std errs) III	Coeff. (std errs) IV	Coeff. (std errs) V	Coeff. (std errs) VI	Coeff. (std errs) VII
Pseudo-R ²	0.065	0.078	0.07	0.061	0.055	0.045	0.045
N. observations	16,404	3650	2434	2434	4495	3111	3111

Dependent variable: dummy equal to 1 if respondent intends to stay on in education after lower secondary school, 0 otherwise. The other variables are defined in Table 1. ^aIn column I, the excluded dummy is “Italians”; in columns II, and V, the excluded dummy is “Second Generation”; in columns III, IV, VI, VII, the excluded dummy is “Arrived before 2003”. *Statistically significant at 10% level; **Statistically significant at 5% level; ***Statistically significant at 1% level. Robust standard errors. Weighted analyses

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Declarations

Competing interests

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