



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

WORKING PAPERS IN ECONOMICS

No 575

**Investing in childrens' education:
Are Muslim immigrants different?**

Andreea Mitrut and Francois-Charles Wolff

October 2013

**ISSN 1403-2473 (print)
ISSN 1403-2465 (online)**

Investing in children's education: Are Muslim immigrants different?#

Andreea Mitrut and François-Charles Wolff

Abstract: Using a unique data set on immigrants living in France in 2003, we investigate whether Muslims invest differently in their children's education compared to non-Muslims. In particular, we want to assess whether educational inequalities between the children of Muslim and non-Muslim immigrants stem from differences between or within families. After controlling for a broad set of individual and household characteristics, we find no difference in education between children of different religions. However, we do find more within-family inequality in children's educational achievements among Muslims relative to non-Muslims. The within-family variance is 15% higher among Muslims relative to Catholics and 45% higher relative to immigrants with other religion, but the intra-family inequality remains difficult to explain. Overall, our results suggest that Muslim parents tend to redistribute their resources more unequally among their children.

Keywords: Immigrants, religion, education, intra-household inequality, France

JEL classification: J15, D13, Z12

* We would like to thank our editor Klaus F. Zimmermann, two anonymous referees, Christian Dustmann and seminar participants at the Conference in Economics of the Family in the honor of G. Becker, Paris for their very helpful comments and suggestions. Andreea Mitrut gratefully acknowledges support from Jan Wallanders and Tom Hedelius Fond and from the Scientific Council of Sweden and the European Research Council (through Mikael Lindahl's) ERC 2009 starting grant 24116. Any remaining errors are ours.

Andreea Mitrut: corresponding author, Department of Economics, Uppsala University, Sweden & UCLS & Department of Economics, University of Gothenburg, Sweden. E-mail: Andreea.Mitrut@economics.gu.se

François-Charles Wolff: LEMNA, Université de Nantes, France and INED, Paris, France. E-mail: francois.wolff@univ-nantes.fr
<http://ideas.repec.org/e/pwo132.html>

1. Introduction

The ability of immigrants to adapt and to integrate into their host country has been the subject of intense political and academic discussions (see Constant and Zimmermann, 2013, for the most recent developments in migration economics). After the al-Qaida-linked attacks in Europe (Madrid in March 11, 2004; London in July 7, 2005), the United States (September 11, 2001) and the teen riots in Copenhagen, Stockholm or Paris suburbs during the recent years, a controversial debate has raged over Muslim immigration. In particular, many European countries are becoming increasingly uneasy about different social changes in their country that are often related to the presence of an increasing number of Muslim immigrants.¹

In this context, a few recent studies have attempted to explore the determinants of religious identity and the integration of Muslim and non-Muslims immigrants into the host countries. Using data from the UK, Bisin et al. (2008) find that Muslims integrate less and more slowly than non-Muslims,² while in Germany, Constant et al. (2006) show that Christian immigrants adapt more easily than Muslims to German society. In this paper, we extend this line of research and concentrate on the intergenerational transmission of human capital among immigrants living in France. We consider the case of France because it is one of the largest immigrant countries in Europe. Our paper contributes to this literature in an attempt to shed light on possible differences in educational attainments among Muslim and non-Muslim children of immigrants.³

Understanding how immigrant parents raise their children and, particularly, how they invest in their children's human capital, is an important question as higher education leads to better labor market integration and higher wages (see Dustmann and Glitz, 2011; Heckman et al., 2006; Card, 1999). For immigrants, human capital investment is likely to have further important consequences. For instance, more highly educated children of immigrants are expected to achieve better integration and assimilation in the host country, which could, in turn, improve the attitudes of the host country population and even shape more favorable immigration policies (see Algan et al., 2010; Bisin and Verdier, 2011; Constant et al., 2012; Gang and Zimmermann, 2000; Dustmann and Frattini, 2011).

In our effort to compare the educational attainments of the Muslim and non-Muslim children of immigrants, we draw on several strands in the literature. First, our paper relates to the growing literature on the intergenerational transmission of culture. Cultural transmission plays an important role in the formation of educational investment, attitudes toward family, fertility or attitudes in the

¹ Different sources cited in Garcia-Muñoz and Neuman (2013) indicate that the share of Muslim religious group in the European population is expected to grow from a current 6% to 8% of the population over the next twenty years. The demographic trend of a growing share of the Muslim populations in Europe is expected to result in a further increase in anti-Moslem taste-based discrimination (Adida et al., 2011).

² These results are subject to controversy (see Arai et al., 2011; Bisin et al., 2011).

³ One study that investigates the relationship between religion and education is Hajj and Panizza (2009). Looking at the gender gap in education between Muslims and Christians households (not immigrants) in Lebanon, these authors find no support that Muslims discriminate against female education.

labor market (see Bisin and Verdier, 2011, for a survey of this literature). Most of the recent empirical and theoretical studies in this field are largely motivated by persistent evidence of the resilience of ethnic and religious traits across generations. In particular, some studies suggest that Muslim immigrants face more difficulties in adapting within their host countries than other immigrant groups (see Constant et al., 2006; Bisin et al., 2008; Ozyurt, 2009).⁴

Secondly, our work also provides a window into the larger literature on inter- and intra-generational human capital investment. In most countries, intergenerational correlations in schooling attainment are between 0.3 and 0.4, whereas, for instance, same-gender sibling correlations in schooling in the US are about 0.5 and can be as high as 0.8 for identical twins (Altonji and Dunn, 1996). In addition to their parents' level of education, the educational achievements of children of immigrants may also depend on the migration history, including the place of birth and age at arrival (Böhlmak, 2008; Chiswick, 1988), age at migration and language proficiency (Schaafsma and Sweetman, 2001) among other factors (see also Dustmann et al., 2012). Although differences between families may explain as much as 40-50% of the total variation in children's educational attainment (Picard and Wolff, 2010; Ejrnaes and Pörtner, 2004), a large literature surveyed by Behrman (1997) suggests that the intra-family resource allocation varies greatly among children.⁵

The main contribution of this paper is to assess whether Muslim immigrants living in France invest differently in their children's education compared to non-Muslim immigrants. To answer this question, we first document whether, compared to Muslims, children of non-Muslim immigrants (Catholics and other religion) tend to achieve different levels of education. Subsequently, we investigate possible inequalities in education among siblings and ask whether parental religion may have an influence on the educational differences among their children.

We take advantage of a unique data set on immigrants living in France in 2003 that collected extensive demographic and socio-economic individual and household characteristics, including religion. An important strength of the data is that, for each respondent, we have information about the education of all of their children, including those who are no longer living with their parents at the date of the survey. We estimate ordered Probit models to explain educational attainment and consider a random effect specification to control for unobserved heterogeneity at the family level. We then implement a variance decomposition following the methodology described in Picard and

⁴ A recent stream of literature, the so-called "epidemiological approach" summarized in Fernandez (2011), is trying to isolate the cultural traits from the countries of origin that affect the behavior of immigrants in the host countries. The main idea is that culture measured through the persistence of religious traits has an effect on women's fertility and labor supply (Fernandez and Fogli, 2006a; 2006b) as well as on the living arrangements of 18-30-year-olds (Giuliano, 2007).

⁵ For example, differences within family allocations may result in lower outcomes for girls than for boys (when, for instance, the capital markets are incomplete), for higher relative to lower birth-order children (if prices for schooling depend on family size), or for larger than for smaller sibship size.

Wolff (2010) to assess whether educational inequalities between children of Muslim and non-Muslim immigrants stem from differences between or within families.

Our analysis produces some interesting results. The raw statistics show that educational achievement is much higher for the children of non-Muslims compared to the children of Muslims immigrants. However, this gap may only suggest that the Muslim and non-Muslim immigrants have very different socio-economic characteristics. Indeed, after controlling for family characteristics, the difference in education between Muslims and the other two religious groups is no longer significant. Yet, we do find much more within-family inequality in children's educational achievements among Muslim than among non-Muslim immigrants. Although difficult to explain, the within-family variance is 15% higher among Muslims relative to Catholics and about 42% higher relative to immigrant families with other religion, meaning that siblings in Muslim immigrant families are significantly more likely to achieve different levels of educational achievements. Interestingly, a similar pattern is observed for private financial transfers. Overall, our results suggest that Muslim parents tend to redistribute their resources more unequally among their children.

The remainder of our paper is organized as follows. Section 2 describes the French data along with our educational measures. Section 3 presents the empirical framework, highlights our main empirical concerns and explains the way that we deal with these concerns in this paper. Section 4 describes results from ordered Probit regressions and variance decomposition. Section 5 compares the intra-household allocation of education and financial transfers between Muslim and non-Muslim families. Finally, Section 6 concludes the paper.

2. Description of data

To explore inequality in education between Muslim and non-Muslim families, we use a unique data set on immigrants living in France, the Passage to Retirement of Immigrants (PRI) survey.⁶ This survey samples respondents born between 1932 and 1957 in a foreign country and living in France at the date of the survey.

Our data is representative of the different nationalities of the first generation of immigrants whose age was between 45 and 70 in 2003 (Attias-Donfut et al., 2006; Domingues Dos Santos and Wolff, 2011). Because the focus of the PRI survey is on older migrants, we have no information on the first-generation immigrants 35 to 44 years old living in France. Ignoring this population is not a concern in our context given that we focus on the educational attainment of the children of first-generation immigrants. Younger, first-generation immigrants, will have young or very young children,

⁶ The PRI survey was conducted by the Caisse Nationale d'Assurance Vieillesse (CNAV) and the Institut National de la Statistique et des Etudes Economiques (INSEE) from November 2002 to February 2003. The main purpose of the PRI survey was to provide a detailed description of the behavior of older migrants (nearing retirement or already retired) living in France.

meaning that many of these children will be enrolled in primary or secondary schools at the time of the survey. Nevertheless, our results need to be interpreted with care because there is evidence of greater adaptation of the second generation immigrants to the norms and habits of the native population (see Constant et al., 2012, for Germany, Garcia-Muñoz and Neuman, 2013, for a comparative study of immigrants in European and the US).

The survey collected extensive information on the standard demographic and socio-economic individual and household characteristics, including religion. Additionally, each respondent was interviewed about his/her children, whether still living with the parents or in an independent dwelling. We thus have unique information on the characteristics of the child's siblings and calculate, for each child, the number of siblings, the number of boys and girls (separately) and the birth order. For each child aged 16 or older, we also know whether he/she is still enrolled in school at the date of the survey and the highest level of education achieved according to the following ordered categories: (1) no diploma, (2) primary or secondary schooling ('Certificat d'Etudes Primaires', 'BEPC', 'Brevet des Collèges'), (3) vocational school ('BEP', 'CAP'), (4) high school, (5) undergraduate studies, (6) graduate studies, and (7) postgraduate studies.

Another important feature of the data is the detailed information on the migration history of the respondent, such as the economic status in country of origin, date of immigration and level of proficiency in French. The PRI sample includes 6,211 migrant respondents that define our parent sample. From this sample, given that we have information about all children for each migrant, we construct a child sample where each child is counted as one observation. This matched sample comprises 19,285 children (whatever their age). The mean age of the child sample is 25.3 years. However, because we have no information on the schooling of children younger than 16, we drop all of the 3,234 children younger than 16.⁷ We also delete 69 observations with missing values on the child's education. These selections leave us with a final sample of 15,982 children, corresponding to a sample of 5,415 parents.

In Table 1, separately for children (in Panel A) and parents (in Panel B), we provide the descriptive statistics of our main variables separately by parents' religion: Muslims (accounting for 33.4% of the respondents), Catholics (46.1%) and other religion (20.5%).⁸ Unfortunately our data does not collect information for the religion of the children of immigrants, and our results should be

⁷ Erjnaes and Pörtner (2004) also select their sample on the basis of the child's age. By definition, very young children will not attend school and young children below 16 will be in the secondary school, so they will not have had the opportunity to have obtained a diploma. At the same time, we implicitly account for these young children because they are considered when calculating the number of siblings and other characteristics of the sibship.

⁸ For the children, the corresponding figures are 44.9% (Muslims), 37.8% (Catholics) and 17.4% (other religions). Other religion category includes: Protestant (including Evangelists and Anglicans) (2.8%), other Christian (Orthodox, Gregorian, Maronite, and other Christian Armenian) (3.1%), other religion (5.1%), and also no religion (6.3%).

interpreted as relative to parents' religion.⁹ One important difference between the three groups is the average number of siblings, which is significantly higher among the Muslims. Additionally, Muslim children seem more likely to be enrolled in school compared to the non-Muslims. This is essentially due to the different age composition, as Muslims and parents with other religion have more children born 1975 and later relative to Catholic immigrants.

From Panel B, we see that Muslim parents are slightly younger, have fewer females' household heads and have much more difficulties in speaking French relative to the other immigrants. A striking difference is that the average Muslim immigrant is less educated than the average non-Muslim immigrant. In particular, 42% of the Muslim parents have no education, compared with only 6% and 6.8% among Catholics and other immigrants with other religion, respectively. Also, a bit more than 80% of the Muslim immigrants seem more religious (measured through regular or irregular practice), relative to 54% among Catholics and 41.5% among those with other religion. In addition, 90.5% of the Muslims come from Africa, whereas most of the non-Muslims come from European countries, especially Southern European countries.

[Insert Table 1 here]

These differences between Muslim and non-Muslim immigrants are expected to significantly affect their children's education. Before explaining our estimation strategy, we first attempt to understand more about the possible educational differences between children depending on their parents' religion. We exclude from this preliminary discussion all children aged 24 or under and only consider children who have completed their education at the time of the survey. By definition, we do not know the final level of diploma that will be obtained by the currently enrolled children, but we will account for these censored observations in our estimations.

Figure 1 displays the large differences in education of children with Muslim, Catholic and other religion parents. In particular, Muslim children are more likely to only have primary/secondary or no education, whereas non-Muslim children are more likely to be highly educated (undergraduate, graduate or postgraduate diplomas). For instance, 10.5% of the Catholics and 12.3% of other religion immigrants have no diploma compared to 25.6% of the Muslim children, whereas 14.9% of the Catholics and 15.5% of other religion group have a graduate diploma relative to 5.9% of Muslims.

[Insert Figure 1 here]

Another, perhaps more subtle, difference in the educational outcomes is related to intra-family inequalities. For instance, because Muslim parents have more children on average, this may result in a lower human capital investment in their children (due to the well-known quantity and quality trade-off). This, in turn, may affect both the average educational attainment and the

⁹ There is mixed evidence on whether the time since migration is correlated to immigrants' religiosity. We will return to this issue later.

differences in education between siblings. Such difference could occur because of parental preferences for some children but also if parents are liquidity constrained (leading to the so-called sibling rivalry described in Garg and Morduch, 1998). One difficulty here is that we have an ordered indicator for education, so computing the standard deviation at the family level and making comparisons between Muslim and non-Muslim families would not be very informative.

Our preliminary approach is to construct a dummy variable for whether each child (aged 24 or more) has at least completed high school. The proportion of children with at least a high school education is 31.2% among Muslims, 43.4% among Catholics and 54.4% among other religions. We then calculate the standard deviation of this outcome at the family level. Our results are presented in Figure 2, where we also account for the number of siblings, as it may influence the magnitude of intra-family educational inequalities. Overall, it seems that there is more intra-family educational inequality within Muslim families than within non-Muslims. The mean standard deviation of more than high school achievement is 0.973 among siblings in Muslim families, compared with 0.881 among siblings in Catholic families, and 0.886 among siblings in families of other religions. However, one must be careful in drawing strong conclusions from this simplistic approach because the use of a high school education dummy does not accurately measure within family educational inequality.

[Insert Figure2 here]

To summarize, a preliminary descriptive analysis of our data reveals two important results on the education of immigrant children. The first is that children from Muslim immigrant families achieve a lower level of education, on average, than children from non-Muslim immigrant families. The second result suggests a greater inequality among siblings in Muslim families. Of course, these raw differences could be simply due to differences in children and parental characteristics between the two groups. Next, we attempt to further understand the education of children of immigrants living in France.

3. Empirical strategy

In this section we explain our approach in understanding the differences in education between Muslim and non-Muslim immigrants, with a particular emphasis on intra-family inequalities. For the presentation, we focus on the subsample of children having completed their schooling. We extend our approach in subsection 4. 2 where we account for children enrolled at the time of the survey.

Assume first a continuous outcome S_{ji}^* measuring the level of education of each child i with $i = 1, \dots, N_j$ in family j with $j = 1, \dots, J$. In this setting, estimating S_{ji}^* using a linear model and adding a Muslim dummy in the list of covariates would shed light on possible differences between children belonging to the different religious groups. It would then be straightforward to focus on the

children's educational inequalities, both between and within families. Indeed, the total variance $V(S_{ji}^*)$ could then be expressed as:

$$V(S_{ji}^*) = V(\bar{S}_j^*) + V(S_{ji}^* - \bar{S}_j^*) \quad (1)$$

where the variance $V(\bar{S}_j^*)$ associated with the average family level of schooling \bar{S}_j^* indicates the between families heterogeneity in education. $S_{ji}^* - \bar{S}_j^*$ is the gap between each child's education and the mean education of the child and his/her siblings, meaning that $V(S_{ji}^* - \bar{S}_j^*)$ is a measure of the within family inequality. However, such decomposition is not directly applicable in our context since we have no information on the number of years of schooling, but only an ordered categorical variable measuring education.

To address this concern, we implement the following estimation strategy. Let S_{ji} be the highest education level achieved by child i at the time of the survey. To account for the ordered information given by the dependent variable, we first consider an ordered Probit model with the following seven categories: 'no diploma' ($S_{ji} = 0$), 'primary or secondary level' ($S_{ji} = 1$), 'vocational studies' ($S_{ji} = 2$), 'high school' ($S_{ji} = 3$), 'undergraduate studies' ($S_{ji} = 4$), 'graduate studies' ($S_{ji} = 5$) and 'postgraduate studies' ($S_{ji} = 6$). We assume that there exists a continuous, latent variable S_{ji}^* associated with the different categories, which we express as a linear function of a set of child-specific and parental characteristics X_{ji} :

$$S_{ji}^* = X_{ji}\beta + \delta_j + \varepsilon_{ji} \quad (2)$$

where δ_j is a family-specific heterogeneity term that picks up the unobserved parental characteristics common to siblings that influence the children's education - for instance, unobservable parental social norms or traits like ability or parental altruism should strongly influence the child's human capital investments. This family-specific heterogeneity is assumed to be normally distributed such that $\delta_j \sim N(0; \sigma_\delta^2)$. In addition, ε_{ji} is a child-specific error term that is also assumed to follow a normal distribution $\varepsilon_{ji} \sim N(0; 1)$. For each category of education $n = 0, \dots, 6$, we assume that:

$$\mu_n < S_{ji}^* \leq \mu_{n+1} \text{ when } S_{ji} = n \quad (3)$$

where the μ_n are a set of threshold parameters to be estimated with the vector of coefficients β . We set $\mu_0 = -\infty$ and $\mu_7 = +\infty$. The model given by (2) and (3) defines a random effect ordered Probit model. The probability $\Pr(S_{j1}, \dots, S_{jN_j})$ may be expressed as:

$$\Pr(S_{j1}, \dots, S_{jN_j}) = \int_{-\infty}^{+\infty} \prod_i (\Phi(\mu_{n+1} - X_{ji}\beta - \delta_j) - \Phi(\mu_n - X_{ji}\beta - \delta_j)) \phi(\delta_j) d\delta_j \quad (4)$$

where $\phi(\cdot)$ and $\Phi(\cdot)$ are respectively the normal density function and the cumulative standard normal distribution. The likelihood of the corresponding random effect ordered Probit model, which

is given by $\ln L = \sum_j \ln \Pr(S_{j1}, \dots, S_{jN_j})$, is estimated using quadrature techniques (see Butler and Moffitt, 1982; Frechette, 2001).

The random effect ordered Probit estimates are then used to study educational inequalities. We follow the methodology proposed by Picard and Wolff (2010) to decompose the total variance into between and within components. We compute the linear fitted value \hat{S}_{ji}^* for each child in the sample such that $\hat{S}_{ji}^* = X_{ji}\hat{\beta}$. This latent variable can be interpreted as a continuous measure of the educational outcome. First, for each family j , we calculate the average level of education $\hat{S}_j^* = \sum_i \hat{S}_{ji}^*/N_j$. Second, for each child, we generate the distance to the mean family education $\hat{S}_{ji}^{*d} = (\hat{S}_{ji}^* - \hat{S}_j^*)$. Finally, we use these calculations to assess the weights of the various components of the total variance.

In particular, we compute the between explained variance $V(\hat{S}_j^*)$ which explains the differences in the mean level of education between families and the within explained variance $V(\hat{S}_{ji}^{*d})$ which provides information about differences among siblings. Similarly, the total residual $\delta_j + \varepsilon_{ji}$ is decomposed into an unexplained between variance component given by $V(\delta_j) = \sigma_\delta^2$ and in an unexplained within variance component such that $V(\varepsilon_{ji}) = 1$ due to normalization. Thus, the within variance measuring intra-family inequalities in education (either explained or unexplained) is given by the sum $V^W = V(\hat{S}_{ji}^{*d}) + 1$, whereas the between variance associated to inter-family inequalities in education is $V^B = V(\hat{S}_j^*) + \sigma_\delta^2$.

4. The determinants of children's education

4.1. Results from random effect ordered Probit

We start by estimating a random effect ordered Probit, as described in the previous section, to understand the determinants of children's education. In these regressions we control for children's characteristics: gender, age through birth cohort dummies, number of siblings, number of sisters, adjusted rank among siblings,¹⁰ whether raised by both parents by the age of 12, place of birth crossed with the current location and household head's characteristics: gender, age, living in couple, duration of migration, difficulty in speaking French, education through five dummies, the household head's financial status at the age of 16, intensity of religious practice, two dummies for Muslim and Catholic religions (the reference being other religion), household income, indicators for the current region of residence in France and a set of country of origin dummies.

¹⁰ By construction, the rank among siblings is correlated with the size of the sibship: children with many siblings will have higher rank on average. Following Booth and Kee (2009), we construct an adjusted rank R_a among siblings such that $R_a = 2 * R / (N + 1)$, with R the standard rank and N the size of the sibship. Whatever the number of siblings, the average adjusted rank is always equal to one at the family level.

In Table 2, we focus on children aged 24 or older that have completed their education. In column 1, we only account for parental religion through two indicators: Muslim and Catholic parent (the reference group being parents with other religion) and the indicators for the current region of residence in France.¹¹ In line with our descriptive analysis, we observe that children with both Muslim and Catholic parents seem less educated relative to children with parents with other religion. One possible concern here is that our religion indicators may account not only for religion per se, but also for other characteristics related to different norms of investing in children education across cultures/countries.

In an attempt to account for such possible differences we include in column 2 a set of county of origin specific dummies (88 indicators). While the Muslim indicator is still negative and significant at the 1 percent level, we find now no significant differences between children with Catholic parents and their peers with parents with other religion.¹² This could be because there is less cultural heterogeneity between Catholic immigrants and immigrants with other religion, as suggested by the fact that these immigrants are more likely to originate from similar countries. Finally, in column 3, we include the child' and the parents' characteristics discussed above. We no longer find any significant differences in children's education by parental religion: children with Muslim parents do not perform worse than children from other parental religions or children with Catholic parents. This result indicates that any raw differences in children's education observed in Figure 1 were simply due to differences in parental and other family characteristics.

[Insert Table 2 here]

Additionally, we see that there is some difference in the influence of brothers and sisters on education. It is less detrimental to have sisters rather than brothers, a Wald test between these two coefficients being significant at the 6 percent level). Interestingly, our results indicate an increasing trend in education over time. The increase in education levels of young generations in France may be the result of increasing returns to education in the labor market in the last decades, decreasing costs of education over time, or by a decreasing selectivity of the education authorities. On the basis of a structural model of education estimated for the period from 1980 till the beginning of the 1990s, Magnac and Thesmar (2002) find evidence suggesting that the decrease in selectivity was the main channel that lead to the increase in education in France; two competing explanations are that

¹¹ Results do not change if we do not account for current region of residence. However, one worry here is that some unobservable characteristics that affect the immigrants' residence choice may also affect the level of parental investment in their children education. Ideally, one would need questions about the families' location and neighborhood when the children were in school, but such information is not available in our cross-sectional data. In some further specifications, we also account for information about the safety of the neighborhood where the respondents currently live (whether the respondents live in a dangerous place or not). Our main findings are robust to these controls.

¹² Our results are not affected by excluding respondents with no religion. These results are available upon request.

selection has been less severe because of a decrease of grade repetitions and/or the opening of new educational tracks.

The number of siblings has a large negative impact on children's education. This is expected because, in large families, parents face more difficulties investing in their children's human capital due to inherent financial constraints. We also find that the later-born children achieve lower levels of diplomas. Being raised by both parents (until age 12), a proxy for family stability, has a positive and significant effect on education. Finally, we find that the place of birth has a significant impact on education. In particular, those born abroad and living currently in France perform worse than those born in France (and living in France). This could be because these children (and their families) faced difficulties in assimilating when entering the host country later (Van Ours and Veenman, 2006) or because these children grew up in their country of origin and migrated later, after having completed their own schooling.¹³ In that case, they would simply have experienced poorer educational conditions. In the same vein, we note that those born abroad and living abroad perform even worse.

Although we observe a positive effect of parental age and on female household head, we find no effect of the duration since migration variable on children education. The fact that the time spent in France has no effect on children's education is somehow surprising, but it may be because we already control for many other observables that are correlated with duration since migration. For example, we show that having difficulties in speaking French negatively affects the children's education and also that a better financial status of the parent at the age of 16 together with a better education translate into better education for children. Additionally, higher income at the household level positively affects children's human capital formation.

Finally, we also check whether the intensity of religious practice matters. This may be a good indication of the intensity of religion identity, which seems to differ between Muslims and non-Muslims and with the duration in the host country. In particular, Bisin et al. (2008) show that the religiosity of a Muslim born in the UK and having spent there more than 30 years is comparable with that of a non-Muslim who just arrived in the country. More recent evidence described in Garcia-Muñoz and Neuman (2013) and Van Tubergen and Sindradóttir (2011) also suggest that religiosity is higher among first-generation immigrants who have recently arrived in the host country. Our results indicate that children with parents reporting a regular practice seem to achieve a higher education relative with those not religiously active.

¹³ To further understand these effects, we make use of another variable in our survey – date of entry in France for each child (we already control for the duration since migration, but it is not always the case that all family migrate at one point in time). Unfortunately, there is a large proportion of missing values that prevents us from using it in our main regressions. However, we have looked at our results on a restricted sample of observations for which we have the information and we find indeed lower education for those children that entered France the latest, while the dummy born abroad, living in France is not significant anymore. All other results, including the religion indicator, are very similar to those in column 3. These results are available upon request.

To further understand how some relevant child and parent characteristics affect the children's educational achievement, we also estimate separate regressions for Muslim (column 4), Catholic (column 5) and other religion (column 6) families, respectively.¹⁴ Among Muslims, only those born after 1970 have achieved higher education compared to the reference category, while the effect is not statistically significant for the 1965-1969 group. At the same time, we also find that the magnitude of the associated coefficient (0.090) is not different from that obtained for Catholics (0.140). To assess whether there were some differences in the role played by birth cohorts on educational attainment for Muslims and Catholics, we test the joint significance of the birth order coefficients obtained from separate regressions on each subsample. We find a value of 2.18 for the corresponding Chi² statistic (p=0.535), so that we cannot reject the assumption of similar birth order effects for these two groups.

Interestingly, gender does not seem to have a significant impact on education for the Muslim children, whereas girls seem to be more educated among non-Muslim immigrants. The negative effect of the number of siblings seems more important among non-Muslims than among Muslims. Additionally, only Muslims children born abroad and currently living abroad have a lower education than those born in France and currently living there.¹⁵ The difficulty in speaking French is more important among all immigrant religious groups. Both for non-Muslims and to a lesser extent for Muslims, there is positive correlation between a high parental education (high school and more) and the children's education.

The intensity of the religious practice does not seem to matter for the education of children with Muslim parents or with parents with other religion, but it has a positive effect among Catholic immigrant families. The fact that we find no effect of the intensity of the religious practice for children from parents with other religions, but especially for Muslim parents is interesting.¹⁶ However, it is not easy to draw strong conclusions from this variable because it is not very clear what regular practice means for each religious group: for Muslims praying several times a day may be an indicator of a practicing religion regularly, while for other groups attending church is likely to be a regular manifestation of religion. Garcia-Muñoz and Neuman (2013) find that Muslim immigrants in Europe and in the US are not more likely to attend religious services as compared to natives, but they are praying more often.

¹⁴ The number of children of the Muslim sample is lower than that of the Catholic sample because we only consider children aged at least 24 years old and not enrolled at the date of the survey (recall that Muslim children are younger on average and have a higher probability to attend school).

¹⁵ Additionally, we have also looked at our results excluding all children born abroad and living abroad, as this group may be very different than those living in France. Our results, available upon request, are largely in line with those in Table 2.

¹⁶ We believe that it is difficult to assess the importance of this variable for other religion immigrants, because this is a highly heterogenous group.

4.2. Robustness results from GLS and censored Ordered Probit models

So far, we have considered a random effect ordered Probit specification since our dependent variable is categorical. Let us briefly discuss the robustness of our previous results using additional estimation strategies.¹⁷ First, we consider a continuous measure for our outcome variable, corresponding to the number of years of education. For that purpose, we associate a specific number of years of education to each category: 0 for no education, 7 years for primary secondary, 10 years for vocational school, 12 for high school, 14 for undergraduate, 16 for graduate, and 17 for postgraduate. We turn to Generalized Least Squares to estimate the random effect specification with years of education as dependent variable.

Compared to the case where the education outcome lies in an interval, here we assign the same level to all children reporting the same category. However, the results look very similar to our main findings in Table 2. Our variable of interest, the Muslim and Catholic dummies, are still not significant when family characteristics are introduced in the list of covariates net of parental origin country: the coefficients are respectively equal to 0.176 (with $t=0.85$) for Muslim and 0.233 (with $t=1.20$) for Catholic.

Secondly, in our ordered estimates, we have not considered children still enrolled in school at the time of the survey (about 19% of the children). Ignoring these observations could create some bias if, for instance, Muslim or non-Muslim children will not obtain the same diploma once having completed their schooling.¹⁸ To deal with this issue, we decided to treat all children still enrolled in school as censored observations in the ordered Probit model. Indeed, for these children, we know that they will end their schooling with their current level of education in the worst case and presumably some will achieve a higher diploma.

To account for these censored observations in the likelihood of the model, we proceed in the following way. For enrolled children, the probability $\Pr(S_{ji} = n)$ with $n = 0, \dots, 6$ becomes $\Pr(S_{ji} = n) = 1 - \Phi(\mu_n - X_{ji}\beta - \delta_j)$. Let C_{ji} be a dummy variable taking the value 1 when the child i in family j has completed his/her education (uncensored observation) and 0 when the child is still enrolled in school (censored observation).¹⁹ For a given family, the contribution to the likelihood is:

$$\Pr(S_{j1}, \dots, S_{jN_j}) = \int_{-\infty}^{+\infty} \prod_i \left\{ \begin{array}{l} C_{ji} * (\Phi(\mu_{n+1} - X_{ji}\beta - \delta_j) - \Phi(\mu_n - X_{ji}\beta - \delta_j)) \\ + (1 - C_{ji}) * (1 - \Phi(\mu_n - X_{ji}\beta - \delta_j)) \end{array} \right\} \phi(\delta_j) d\delta_j \quad (5)$$

Accounting for censoring in the ordered Probit model have very little impact on our explanatory variables. Compared to the other religions, both the Muslim and Catholic dummies turn out to be

¹⁷ All these additional estimates are available upon request.

¹⁸ As shown in Table 1, Muslim children are, for instance, younger on average and more often enrolled.

¹⁹ Here, we suppose that censoring is exogenous in the sense that it is not affected by family characteristics.

insignificant at conventional level, the coefficients being equal to 0.028 (with $t=0.40$) and -0.006 (with $t=-0.10$) respectively.

4.3. Variance decomposition

Next, drawing on the random effect specifications presented in Table 2, we decompose the total variance (explained and unexplained) following the methodology described in Section 3. For the decomposition variance, we estimate the random effect ordered regressions on the subsample of families having at least two children as, by definition, there is no intra-family variation in education for families with only one child.

Our results in Table 3 indicate more inequality within siblings among Muslim families than among non-Muslim families. The weight of the within component is 51.9% among Muslims, 45% among Catholics and 36.6% among other religion families. However, it seems very difficult to explain the variations at the intra-family level. The unexplained within variance is quite high for all religious groups as compared to the explained within variance.²⁰ Conversely, the between variance (corresponding to differences in the average level of education between families) is much more balanced between its explained and unexplained components.

[Insert Table 3 here]

In line with our previous robustness analyses, we have also performed the variance decomposition from the GLS estimates and the censored random effect ordered Probit estimates. In both cases, we find that the within variance in education is significantly higher for Muslims compared to non-Muslims. With the linear specification, the weight of the within variance is respectively 55.0% for Muslim, 46.3% for Catholic and 39.4% for other religions. The corresponding figures from censored random effect ordered models are respectively equal to 52.9% for Muslim, 45.1% for Catholic and 39.3% for other religions when all children aged at least 16 years old are included in the sample.

5. Unequal investment in children over the life cycle?

Finally, we attempt to understand whether there is a higher likelihood that Muslims favor some of their children relative to non-Muslims parents throughout the whole life cycle, and not necessarily during the educational period. Focusing on private inter-vivo transfers Wolff et al. (2007)

²⁰ Even though it remains difficult to explain, we also attempted to put a number on the how much of the within inequality is due to some of our explanatory variables. For each Muslim household, we regress the explained within variance by the standard deviation of the following characteristics: gender, age, raised by both head and spouse until age of 12, born abroad and living in France, and born abroad and living abroad. To assess the contribution of each variable to the within inequality we perform a Fields' decomposition of factor contribution. We find that around 18% of within inequality is explained by the gap in age at the sibship level, 23.5% by change in raised by both parents, and around 37% by place of birth. The variation in gender at the sibship level explains less than 0.001% of the variation.

show that, net of family characteristics, Muslim parents are much more likely to share their resources unequally among their children. Consequently, in what follows, we compare the intra-household allocation of education and private transfers.

For the purpose of descriptive analysis, we consider the following binary variables: an indicator if the child has more than a high school education and an indicator if the child has received a monetary transfer from the parents, either regularly or occasionally. The monetary transfers include: transfers related to buying a house and other expenses related to a house; transfers in the event of financial problems; transfers for births, marriages, funeral, illness, travel; transfers to pay a debt; and also transfers related to the child's education. To avoid the possibility that parents make transfers to finance education, we only consider here the subsample of children aged at least 24 and no longer enrolled in school.²¹

This leaves us with a sample of 6,342 observations. Among them, 29.9% are Muslims (1,893 children), 51.7% are Catholics (3,280 children) and 18.4% have another religion (1,169 children). The mean proportion of children with higher education is 30.5%, 21.0% among Muslims, 32.4% among Catholics and 40.7% among the other group, respectively. The mean proportion of children having received a financial transfer is 11.5%: 5.0% among Muslims, 14.1% among Christians and 15.1% among other religions. The self-reported motivation behind these transfers varies strongly by religion. Among Christians, the main motives are: help because of financial problems (26.5%), gifts (24%) and help to buy a house or an apartment (20.1%). Among Muslims, transfers are largely motivated by financial problems of the recipients (79.4%), this proportion being 45.5% among the other religion group.

Because our education and transfer variables are binary, we turn to random effect Probit models and estimate separate regressions for the three religious groups in order to decompose the total variance.²² Our results are described in Figure 2. First, with respect to our previous ordered estimates on education, we find very similar results when considering the binary outcome (having more than high school). The within variance is 47.8% for Muslims, 39.5% for Catholics and 29.7% for other religions. Secondly, a very similar pattern holds for private transfers received by children. The magnitude of the within variance component is much higher among the Muslims (31.0%) compared to Catholics (8.8%) and other religions (12.9%). So, our findings suggest that these are all parental resources and not only education that are more unequally shared among siblings in Muslim families.

²¹ We also only consider families with at most four children satisfying the previous criteria, as at most four transfers to children are recorded in the PRI survey.

²² Both in the education and transfer regressions, we include a set of dummies for the region of origin (instead of countries of origin) with the following categories: Northern Europe, Eastern Europe, Southern Europe, Northern Africa, Southern Africa, America, Middle, Asia. We choose to group countries by regions as there were very few children for some countries. For private transfers, we have also estimated a regression pooling all religions. We find that children with Muslim parents are significantly less likely to receive money, while there is no difference between Christian and other religions (see also Wolff et al., 2007).

[Insert Figure 2 here]

As a final step, we attempt to better understand the intra-household allocation of family resources. For that purpose, we estimate fixed effect discrete choice models to explain the level of education of the child and also the probability of having received financial transfers from parents. For education, we report results from the “blow-up and cluster” estimator proposed in Baetschmann et al. (2013), but note that we have obtained very similar results when turning to the two-step minimum distance estimator described in Das and van Soest (1999). For transfers, we rely on the conditional Logit model as described in Chamberlain (1980).

With the conditional maximum likelihood approach, families in which all children receive money from their parents or in which there is no financial transfer are excluded. Also, with a fixed effect framework, all the variables that are invariant at the family level are by definition picked up by the fixed effect. In our case, this concerns the parental characteristics, meaning that we cannot include religion indicators in the list of covariates. As a consequence, we first estimate models with characteristics of the children only and then add a set of terms crossing the children’s characteristics by parental religion.

The corresponding results are shown in Table 4, in column 1 (A and B) for education and in column 2 (A and B) for financial transfers. In column 1A we show that, similar to our results in Table 2, girls seem more likely to be high educated relative to boys. There is also a benefit for first-born children and for children belonging to the younger cohorts. However, now the place of birth does not seem to matter for the children in the household.²³ To see whether gender and other controls are influencing differently the Muslims compared to the other religious groups, we include the interaction terms between the Muslim indicator and these controls in column 2A. None of these is statistically significant, meaning that the effect of gender, birth cohort, birth order and place of birth on education is not affected by the parental religion.

[Insert Table 4 here]

In a similar fashion, we consider next the receipt of financial transfers from parents. The most interesting finding here is that girls seem to receive fewer transfers relative than boys within the family (column 2B). Children from younger cohorts, the first born-children as well as children born abroad and living abroad (relative to those born and living in France), are more likely to be helped by their parents compared to their siblings. When introducing the interaction terms, we note that there is some substantial difference between the gift-giving decisions to boys and girls of Muslim and non-Muslim parents. The negative and significant interaction term between the girl and Muslim indicators indicates that girls have a lower probability to receive a monetary transfer from

²³ Note that this variable does not vary a lot at the family level for our sample.

their parents within Muslim compared to non-Muslim households. This may suggest different behavior in Muslim as compared to non-Muslim immigrant families due to, for instance, different social customs and traditions such as signaling device in the marriage market for the sons or son preferences as documented for Muslims in India (Bhalotra et al., 2010, Bhat and Zavier, 2005).²⁴

Overall, the results from this section indicate no significant intra-household allocation differences in children education in Muslim vs. non-Muslim households, while we find some indication of gender differences on the probability to receive monetary transfers within Muslim vs. non-Muslim families. We need to interpret the latter result with care because, even though we account for a large type of inter-vivo private transfers, another type of behavior may underline in transfers occurring later in the life cycle such as late donations or bequests.

6. Discussions and conclusions

In this paper, we have used a unique data set on first-generation immigrants living in France, one of the largest destination countries for immigrants in Europe, in an attempt to understand whether there are significant differences in the ways Muslim and non-Muslim immigrants invest in their children's education.

While simple calculations indicate that children from Muslim families have lower education compared to non-Muslim families, this pattern is explained by differences in observable household characteristics between these groups. In particular, once we account for detailed observables, estimates from ordered Probit models show no significant difference in education achievement between Muslim and non-Muslim children. One possible explanation has to do with the fact that in France education (including high education) is mainly funded by state.²⁵ We need to be cautious in interpreting our results further because we have no information on the quality of the education such as parental time allocation with their children for school related activities or the quality of the school the children attend. These are very important inputs that would potentially impact children grades in school and other, long term outcomes (probability of working, wages, or their assimilation in the host country).

However, we do find differences in the magnitude of within-family inequality. In particular, the within family variance is 15% higher among Muslims relative to Catholics and about 42% higher relative to immigrant families with other religion, meaning that siblings in Muslim immigrant families are significantly more likely to achieve different educational achievements. These results hold across

²⁴ According to our data, the proportion of transfers related to family events (like marriage or birth) is extremely low among Muslims (3.2%). The lower probability of transfers for girls relative to boys in Muslim vs. non-Muslim households may also be a compensation mechanism if the family would have invested more in terms of education for girls than for boys or if girls perform better at school.

²⁵ In 2003, the year of the survey, public spending on education in France was 5.9% of GDP, while private education expenditures represented 0.5 of GDP.

different specifications and robustness checks. While with the data in hand it is difficult to understand the mechanisms that would explain these findings because the largest share of the within family variation remains unexplained, we attempted to put a number on the explained variation and found that 18% of within inequality is explained by the gap in age at the sibship level, 23.5% by change in raised by both parents, and around 37% by the place of birth. We further show more differences in the receipt of private financial transfers within Muslim families (with a strong disadvantage for girls compared to boys).

Overall, we conclude that Muslim parents redistribute their resources more unequally among their children compared to the non-Muslim immigrants. Further research is required to understand the mechanisms that lead to these differences. When interpreting our results, it should be kept in mind that our empirical study concerns first generation immigrants. As we have already discussed, recent evidence indicates that the second generation of immigrants is less religious relative to the first generation (Constant et al., 2012). Thus, it remains difficult to know whether the same pattern of investments in education would hold for the second generation of immigrants. Also, it would be very interesting to understand how the behaviour of the Muslim immigrants in France would compare to Muslim immigrants in other European countries and in the US.

References

- Algan Y, Dustmann C, Glitz A, Manning A (2010) The economic situation of first and second-generation immigrants in France, Germany and the United Kingdom, *Economic Journal* 120:F4-F30.
- Altonji JG, Dunn TJ (1996) The effects of family characteristics on the return to education, *Review of Economics and Statistics* 77:692-704.
- Adida CL, Laitin DD, Valfort MA (2011) One Muslim is enough! Evidence from a field experiment in France, IZA Working Paper 6122.
- Arai M, Karlsson J, Lundholm M (2011) On fragile grounds: A replication of Are Muslim immigrants different in terms of cultural integration?, *Journal of the European Economic Association* 9:1002-1011.
- Attias-Donfut C, Davaut P, Gallou R, Rozenkier A, Wolff FC (2006) *L'enracinement. Enquête sur le vieillissement des immigrés en France*, Armand Colin, Paris.
- Baetschmann G, Staub K, Winkelmann R (2013) Reconsidering panel data methods for ordered response variables, with an application to the effect of unemployment on life satisfaction, mimeo, University of Zurich.
- Bhalotra S, Valente C, van Soest A (2010) The puzzle of Muslim advantage in child survival in India, *Journal of Health Economics* 29:191-204.
- Behrman J (1997) Intrahousehold distribution and the family, in Rosenzweig MR, Stark O, eds, *Handbook of Population and Family Economics*, North-Holland, Elsevier, 125-187.
- Bhat PN, Francis Xavier AJ (2003) Fertility decline and gender bias in Northern India, *Demography* 40:637-657.
- Bisin A, Patacchini E, Verdier T, Zenou Y (2008) Are Muslim immigrants different in terms of cultural integration?, *Journal of the European Economic Association* 6:445-456.
- Bisin A, Patacchini E, Verdier T., Zenou Y (2011) Errata Corrigé: Are Muslim immigrants different in terms of cultural integration?, *Journal of the European Economic Association* 9:1012-1019.
- Bisin A, Verdier T (2011) The economics of cultural transmission and socialization, in Benhabib J, Bisin A, Jackson M, eds, *Handbook of Social Economics*, North-Holland, Elsevier, 1A:339-416.
- Böhlmark A (2008) Age at immigration and school performance: A siblings analysis using Swedish register data, *Labour Economics* 15:1366-1387.
- Booth A, Kee H (2009) Birth order matters: The effect of family size and birth order on educational attainment, *Journal of Population Economics* 22:367-397.
- Butler JS, Moffitt R (1982) A computationally efficient quadrature procedure for the one-factor multinomial Probit model, *Econometrica* 50:761-764.
- Card D (1999) The causal effect of education on earnings, in Ashenfelter OC, Card D, *Handbook of Labor Economics*, Amsterdam, Elsevier, 3A:1801-1863.
- Chamberlain G (1980) Analysis of covariance with qualitative data, *Review of Economic Studies* 47:225-238.
- Chiswick B (1988) Differences in education and earnings across racial and ethnic groups: Tastes, discrimination, and investment in child quality, *Quarterly Journal of Economics* 103:571-597.
- Constant A, Zimmermann K, eds (2013) *International Handbook on the Economics of Migration*, Edward Elgar, Cheltenham.
- Constant A, Gataullina L, Zimmermann K, Zimmermann L (2006) Clash of cultures: Muslims and Christians in the ethnosizing process, IZA Discussion Paper 2350.

Constant A, Nottmeyer O, Zimmermann K (2012) Cultural integration in Germany, in Algan Y, Bisin A, Manning A, Verdier T, eds, *Cultural Integration of Immigrants in Europe*, Oxford University Press, Oxford, 69-124.

Das M, van Soest A (1999) A panel data model for subjective information on household income growth, *Journal of Economic Behavior and Organization* 40:409-426.

Domingues Dos Santos M, Wolff FC (2011) Human capital background and the educational attainment of the second-generation immigrants in France, *Economics of Education Review* 30:1085-1096.

Dustmann C, Frattini T (2011) Immigration: The European experience, IZA Discussion Paper 6261.

Dustmann C, Frattini T, Gianandrea L (2012) Educational achievement of second generation immigrants: An international comparison, *Economic Policy* 27:143-185.

Dustmann C, Glitz A (2011) Migration and education, in Hanushek E, Machin S, Woessmann L, eds, *Handbook of the Economics of Education*, Amsterdam, Elsevier, 4:327-441.

Ejrnaes M, Pörtner C (2004) Birth order and the intrahousehold allocation of time and education, *Review of Economics and Statistics* 86:1008-1019.

Fernandez R (2011) Does culture matter?, in Benhabib J, Bisin A, Jackson M, eds, *Handbook of Social Economics*, Amsterdam, Elsevier, 1A:481-510.

Fernandez R., Fogli A (2006a) Fertility: The role of culture and family experience, *Journal of the European Economic Association* 4:552-561.

Fernandez R, Fogli A (2006b) Culture: An empirical investigation of beliefs, work, and fertility, *American Economic Journal: Macroeconomics* 1:146-177.

Frechette GR (2001) Random effects ordered Probit, *Stata Technical Bulletin* 159:23-27.

Gang I, Zimmermann K (2000) Is child like parent? Educational attainment and ethnic origin, *Journal of Human Resources* 35:550-569.

Garcia-Muñoz T, Neuman S (2013) Is religiosity of immigrants a bridge or a buffer in the process of integration? A comparative study of Europe and the United States, in Constant A, Zimmermann K, eds, *International Handbook on the Economics of Migration*, Edward Elgar, Cheltenham.

Garg A, Morduch J (1998) Sibling rivalry and the gender gap: Evidence from child health outcomes in Ghana, *Journal of Population Economics* 11:471-493.

Giuliano P (2007) Living arrangements in Western Europe: Does cultural origin matter?, *Journal of the European Economic Association* 5:927-952.

Hajj M, Panizza U (2009) Religion and education gender gap: Are Muslims different?, *Economics of Education Review* 28:337-344.

Heckman J, Stixrud J, Urzua S (2006) The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior, *Journal of Labor Economics* 24:411-482.

Magnac T, Thesmar D (2002) Analyse économique des politiques éducatives: l'augmentation de la scolarisation en France de 1982 à 1993, *Annales d'Economie et Statistiques* 65:1-34.

Ozyurt S (2009) Living Islam in a non-Muslim society: How religiosity affects acculturation and civic integration of Muslim immigrant women in Western host societies, mimeo, CCIS.

Picard N, Wolff FC (2010) Measuring educational inequalities: Evidence from Albania, *Journal of Population Economics* 23:989-1023.

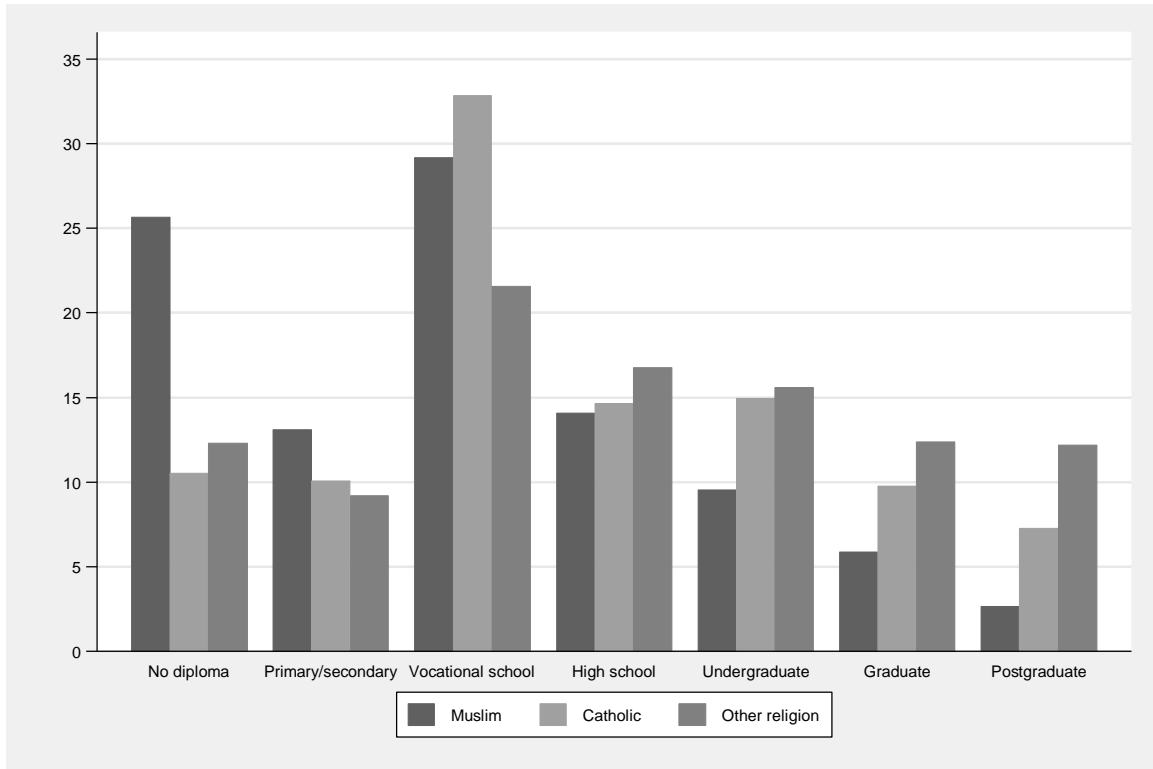
Schaafsma J, Sweetman A (2001), Immigrants earnings: Age at migration matters, *Canadian Journal of Economics* 34:1066-1099.

Van Ours J, Veenman J (2006) Age at immigration and educational attainment of young immigrants, *Economics Letters* 90:310-316.

Van Tubergen F, Sindradóttir J (2011), The Religiosity of Immigrants in Europe: A Cross –National Study, *Journal for the Scientific Study of Religion* 50: 272-288.

Wolff FC, Spilerman S, Attias-Donfut C (2007) Transfers from migrants to their children: Evidence that altruism and cultural factors matter, *Review of Income and Wealth* 53:619-644.

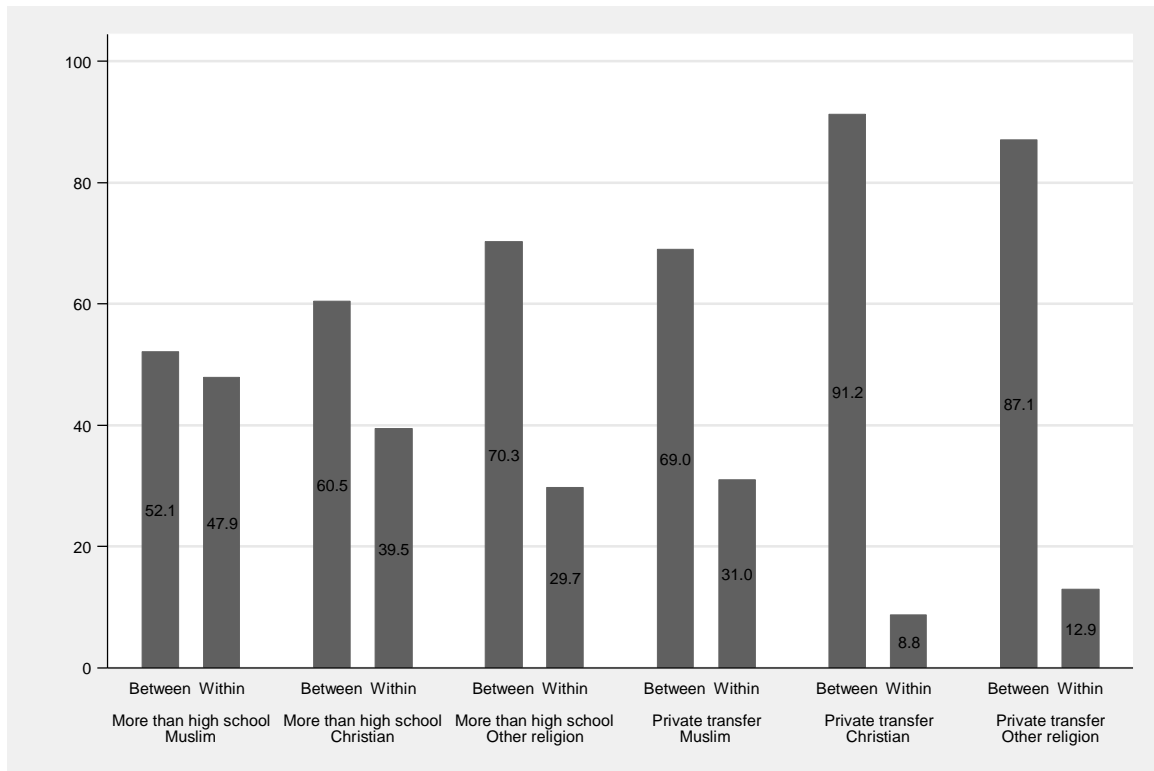
Figure 1. Children's education of immigrants, by parental religion



Source : survey PRI 2003, authors' calculations.

Note : sample restricted to children aged 24 and over and having completed their education.

Figure 2. Variance decomposition from random effects Probit models for education and private transfers



Source : survey PRI 2003, authors' calculations.

Table 1. Descriptive statistics of the sample**Panel A: Characteristics of children**

Parental religion	Muslim	Catholic	Other religion	All
Girl	0.496	0.484	0.491	0.491
Age	26.766	30.187	28.022	28.276
Birth cohort				
Born before 1965	0.076	0.152	0.112	0.111
Born 1965-1969	0.113	0.186	0.140	0.145
Born 1970-1974	0.178	0.238	0.201	0.205
Born 1975-1979	0.241	0.203	0.211	0.221
Born 1980-1984	0.262	0.163	0.227	0.219
Born after 1984	0.129	0.059	0.109	0.099
Number of siblings	4.813	2.184	2.667	3.447
Number of brothers	2.375	1.125	1.353	1.725
Number of sisters	2.438	1.058	1.315	1.722
Rank within the sibship	3.031	2.022	2.164	2.499
Raised by both head and spouse till 12	0.881	0.936	0.916	0.908
Place of birth				
Born in France	0.592	0.761	0.617	0.660
Born abroad, living in France	0.294	0.192	0.291	0.255
Born abroad, living abroad	0.114	0.046	0.092	0.085
Enrolled in school	0.258	0.151	0.266	0.219
Number of children	7,172	6,036	2,774	15,982

Panel B: Characteristics of parents (head of the household)

Variables	Muslim	Catholic	Other religion	All
Female	0.407	0.524	0.479	0.476
Age	55.339	56.976	56.042	56.238
In couple	0.847	0.845	0.838	0.845
Duration since migration	30.593	35.962	30.756	33.103
Difficulty in speaking French	0.584	0.302	0.315	0.399
Education				
No education	0.420	0.060	0.068	0.182
Primary	0.313	0.460	0.230	0.364
Secondary	0.190	0.301	0.282	0.260
High school	0.036	0.070	0.123	0.070
More than high school	0.040	0.110	0.298	0.125
Household's income (log)	9.497	9.813	9.848	9.714
Financial status				
Very poor	0.269	0.233	0.152	0.228
when 16				
Poor	0.249	0.278	0.218	0.256
Fair	0.363	0.355	0.394	0.366
Good	0.119	0.133	0.236	0.150
Religious practice				
Regular practice	0.657	0.231	0.216	0.370
Irregular practice	0.154	0.311	0.199	0.235
No practice	0.190	0.458	0.586	0.395
Origin region				
Northern and Eastern Europe	0.006	0.115	0.250	0.106
Southern Europe	0.001	0.758	0.208	0.393
Northern Africa	0.850	0.032	0.198	0.339
Southern Africa	0.055	0.048	0.086	0.058
America	0.000	0.018	0.035	0.015
Middle East	0.084	0.009	0.040	0.040
Asia	0.004	0.022	0.183	0.049
Number of parents	1,809	2,498	1,108	5,415

Source : survey PRI 2003, authors' calculations.

Table 2. Random effect ordered Probit estimates of children's education

Variables		(1) All		(2) All		(3) All		(4) Muslim		(5) Catholic		(6) Other religion	
		coeff.	t-value	coeff.	t-value	coeff.	t-value	coeff.	t-value	coeff.	t-value	coeff.	t-value
Muslim parent		-0.970***	(-16.08)	-0.601***	(-6.68)	0.015	(0.18)						
Catholic parent		-0.199***	(-3.53)	0.050	(0.75)	0.045	(0.75)						
Parent from other religions		Ref		Ref		Ref							
<i>Characteristics of the child</i>													
Girl						0.133***	(5.17)	0.065	(1.61)	0.172***	(4.37)	0.225***	(3.45)
Birth cohort	Born before 1965					Ref		Ref		Ref		Ref	
	Born 1965-1969					0.119***	(2.71)	0.090	(1.20)	0.140**	(2.21)	0.154	(1.45)
	Born 1970-1974					0.345***	(6.60)	0.338***	(3.91)	0.416***	(5.23)	0.239*	(1.92)
	Born 1975-1979					0.562***	(8.75)	0.493***	(4.73)	0.696***	(6.96)	0.535***	(3.46)
Number of brothers						-0.145***	(-9.90)	-0.077***	(-3.84)	-0.240***	(-9.37)	-0.201***	(-5.24)
Number of sisters						-0.110***	(-7.99)	-0.075**	(-4.07)	-0.197***	(-7.66)	-0.075**	(-2.04)
Adjusted rank within the sibship						-0.198***	(-5.26)	-0.113*	(-1.80)	-0.305***	(-5.50)	-0.165**	(-1.81)
Raised by both head and spouse till 12						0.412***	(7.33)	0.450***	(5.50)	0.328***	(3.36)	0.312**	(2.34)
Place of birth	Born in France					Ref		Ref		Ref		Ref	
	Born abroad, living in France					-0.092**	(-2.44)	-0.030	(-0.53)	-0.158***	(-2.63)	-0.034	(-0.33)
	Born abroad, living abroad					-0.263***	(-4.35)	-0.398***	(-4.50)	-0.061	(-0.56)	0.111	(0.76)
<i>Characteristics of the head of the household</i>													
Female						0.216***	(5.46)	0.286***	(3.74)	0.106*	(1.94)	0.340***	(3.69)
Age						0.026***	(6.52)	0.015**	(2.19)	0.033***	(5.45)	0.033***	(3.59)
In couple						0.220***	(4.37)	0.271***	(3.15)	0.123*	(1.69)	0.367***	(2.98)
Duration since migration						-0.001	(-0.31)	0.006	(1.27)	-0.003	(-0.97)	0.005	(0.89)
Difficulty in speaking French						-0.322***	(-7.31)	-0.386***	(-5.14)	-0.300***	(-4.82)	-0.362***	(-3.06)
Education	No education					Ref		Ref		Ref		Ref	
	Primary					0.149***	(2.73)	0.063	(0.85)	0.272***	(2.70)	0.464**	(2.52)
	Secondary					0.264***	(4.19)	-0.002	(-0.02)	0.464***	(4.11)	0.685***	(3.67)
	High school					0.886***	(9.13)	0.414*	(1.78)	1.148***	(7.61)	1.243***	(5.59)
	More than high school					1.463***	(15.11)	1.347***	(4.50)	1.668***	(10.79)	1.713***	(7.77)
Household's income (log)						0.151***	(6.78)	0.187***	(5.31)	0.101***	(2.93)	0.146***	(2.79)
Financial status	Very poor					Ref		Ref		Ref		Ref	
when 16	Poor					0.140***	(2.85)	0.205**	(2.58)	0.121*	(1.74)	-0.078	(-0.57)
	Fair					0.273***	(5.85)	0.193***	(2.59)	0.275***	(4.03)	0.256**	(2.01)
	Good					0.393***	(6.21)	0.308***	(2.90)	0.310***	(3.24)	0.468***	(3.04)
Religious practice	Regular practice					0.100**	(2.18)	-0.064	(-0.78)	0.188***	(2.81)	0.174	(1.52)
	Irregular practice					0.053	(1.13)	-0.098	(-0.92)	0.095	(1.60)	0.073	(0.63)
	No practice					Ref		Ref		Ref		Ref	
Country of origin dummies	NO			YES		YES		YES		YES		YES	
Current region of residence in France	YES			YES		YES		YES		YES		YES	
Number of observations		10,470		10,470		10,470		4,166		4,566		1,738	
Number of parents		4,148		4,148		4,148		1,327		2,034		787	
Log likelihood		-17,699.4		-17,529.5		-16,928.5		-6,552.2		-7,366.4		-2,834.5	

Source : survey PRI 2003, authors' calculations. Note: random effects ordered Probit estimates for ordered education. The sample is restricted to children aged 24 and over and having completed their education. Significance levels are respectively 1% (***), 5% (***) and 10% (*).

Table 3. Variance decomposition of education

Decomposition of variance	All		Muslim		Catholic		Other religion	
	Value	%	Value	%	Value	%	Value	%
Children aged 24 and over completed education – Random effect ordered Probit estimates								
Total variance	2.278	100.0	1.972	100.0	2.253	100.0	2.745	100.0
Between variance	1.263	55.5	0.947	48.0	1.240	55.0	1.740	63.4
Explained	0.614	27.0	0.348	17.6	0.616	27.3	1.185	43.2
Unexplained	0.649	28.5	0.599	30.4	0.624	27.7	0.555	20.2
Within variance	1.014	44.5	1.024	51.9	1.014	45.0	1.005	36.6
Explained	0.014	0.6	0.024	1.2	0.014	0.6	0.005	0.2
Unexplained	1.000	43.9	1.000	50.7	1.000	44.4	1.000	36.4

Source : survey PRI 2003, authors' calculations.

Note: the sample is restricted to families having at least two children contributing to the likelihood.

Table 4. Fixed effect estimates of the intra-household allocation of education and private transfers

Variables	(1) Education				(2) Financial transfers			
	(1A)		(1B)		(2A)		(2B)	
	coeff.	t-value	coeff.	t-value	coeff.	t-value	coeff.	t-value
<i>Characteristics of the child</i>								
Girl	0.283 ^{***}	(4.28)	0.310 ^{***}	(3.94)	-0.498 ^{***}	(-2.68)	-0.161	(-0.76)
Birth cohort	Born before 1965		Ref		Ref		Ref	
	Born 1965-1969		0.019 (0.13)		0.085 (0.53)		0.945 ^{**} (2.43)	
	Born 1970-1974		0.428 ^{**} (2.26)		0.550 ^{**} (2.55)		1.226 ^{**} (2.42)	
	Born 1975-1979		0.877 ^{***} (3.66)		1.068 ^{***} (3.74)		1.354 ^{**} (2.11)	
Adjusted rank within the sibship	-0.264 ^{**} (-2.26)		-0.339 ^{**} (-2.53)		-0.226 (-0.73)		-0.502 (-1.44)	
Raised by both head and spouse till 12	0.074 (0.26)		-0.071 (-0.19)		0.176 (0.32)		0.284 (0.47)	
Place of birth	Born in France		Ref		Ref		Ref	
	Born abroad, living in France		0.078 (0.61)		0.081 (0.52)		0.485 (1.18)	
	Born abroad, living abroad		-0.057 (-0.26)		0.148 (0.56)		0.966 ^{**} (2.05)	
<i>Characteristics of the child x Muslim</i>								
Girl x Muslim			-0.075 (-0.52)				-1.774 ^{***} (-3.32)	
Birth cohort	Born before 1965 x Muslim		Ref		Ref		Ref	
	Born 1965-1969 x Muslim		-0.365 (-0.90)				-0.264 (-0.20)	
	Born 1970-1974 x Muslim		-0.545 (-1.16)				-0.380 (-0.25)	
	Born 1975-1979 x Muslim		-0.770 (-1.40)				-1.420 (-0.80)	
Adjusted rank within the sibship x Muslim			0.289 (1.03)				1.138 (1.19)	
Raised by both head and spouse till 12 x Muslim			0.365 (0.63)				-3.038 [*] (-1.91)	
Place of birth	Born in France x Muslim		Ref		Ref		Ref	
	Born abroad, living in France x Muslim		-0.041 (-0.15)				-0.764 (-0.71)	
	Born abroad, living abroad x Muslim		-0.572 (-1.26)				1.805 (1.32)	
Number of observations	9903		9903		637		637	
Log likelihood	-3,535.3		-3,528.9		-220.2		-207.2	

Source : survey PRI 2003, authors' calculations.

Note: (1A) and (1B) are fixed effects ordered Logit estimates, (2A) and (2B) are fixed effects Logit estimates. The sample is restricted to children aged 24 and over and having completed their education. Significance levels are respectively 1% (^{***}), 5% (^{**}) and 10% (^{*}).