How large second-generation migrants and natives differ in terms of human capital accumulation and why? Empirical evidence for France

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Abstract

This paper analyses the differences in the determinants of the accumulation of human capital for second-generation immigrants relatively to natives for the French case. We use the *Training and Occupational Skills* survey to conduct our econometric analysis, where we distinguish the natives, the second-generation immigrants from 'North Africa' and from 'Southern Europe' origins. We don't observe striking differences in the determinants between the second-generation immigrants as a whole and the natives. Moreover, the 'second-generation immigrants' group is a heterogeneous one. The significant determinants as well as the magnitude of the impact of these determinants substantially differ between the natives and the two main considered origins. There seems to be a lower 'determinism' through parental education for 'Southern Europe' than 'North Africa' origin, but differences in intergenerational correlations of education could be explained by parental transmission of education and/or by selection effects of the migrants. The Blinder-Oaxaca decomposition shows that parental endowments in education account for a large part of the mean outcome differences, but transmissions of education (and other components) also seems to be some relevant to explain differences in accumulation of human capital of second-generation migrants *vs* natives or between migrants.

Key-words: accumulation of human capital, intergenerational mobility, immigrants.
JEL Classification: J1, J24, J62.

1. Introduction

People who are born in a same country but whom parents' countries of origin are different may exhibit different patterns of education or labor markets outcomes. Using French data, we analyse the differences in the determinants of the

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accumulation of human capital [1] for second-generation immigrants relatively to natives. In particular, we focus on these differences for the second-generation immigrants from two origins: the 'Northern Africa' or the 'Southern Europe' origin.

Since the seminal work of Chiswick (1988), a large literature has developed that analyses the impact of belonging to ethnic groups or to second- (or latter) generation of immigrants on educational or labour market outcomes. This literature notably exhibits some levels of achievement at test scores or educational attainment of second-generation immigrants that are generally equal, or even frequently superior to those of natives (Rong and Grant, 1992; Kao and Tienda, 1995; Chiswick and DebBurman, 2003; Algan et al., 2010; Dustman, 2012). The literature has also put in evidence some substantial heterogeneity in labour or educational achievement between ethnic groups (Borjas, 1995; Waters and Eschbach, 1995; Gang and Zimmerman, 2000; Chiswick and DebBurman, 2003; Bauer and Riphahn, 2007; Kessler and Safi, 2010). Several recent works have been focused on the impact of 'ethnic' origin or to have immigrant parents on educational or labour market outcomes for the French case. For instance, Brinbaum *et al.* (2010) show the large heterogeneity of migrants and their descendants in terms of education according to the country of origin. Domingues Dos Santos and Wolff (2011) analyse the differences in the impact of human capital parental background on the educational attainment for different ethnic groups of second-generation migrants. They show that, if differences coming from the country of origin or the fluency in French are significant, the skills of the immigrants is the major explanatory factor for the human capital accumulation of the young generation. The disadvantage of second-generation immigrant in terms of various labor market outcomes (access to employment, employment status, earnings…) is also stressed by many works (Meurs *et al.*, 2006; Lefranc, 2010; Meurs and Pailhé, 2010). Some studies have underlined the specific disadvantages for children of immigrants from Maghreb notably in terms of employment or stable employment (Meurs *et al.*, 2006; Meurs and Pailhé, 2010; Obka, 2012).

The differences in education or labour market outcomes between different 'origins' may be partly explained by differences in preferences or tastes in schooling (and may be transmitted from one generation to another), as well as discrimination, or differential investment productivity (Chiswick, 1988). Intergenerational transmissions can play an important role in these features, as initial characteristics in schooling or earnings may be largely transmitted from one generation to the next (Borjas, 1992), the empirical evidence being more and more documented (see *e.g.* D'Addio, 2007). In particular, the recent literature also provides evidence on intergenerational transmission of human capital and intergenerational mobility regarding second-generation migrants *vs* natives (Hammarstedt and Palme, 2006; Bauer and Riphahn, 2007; Niknami, 2010). Moreover, the impact of the characteristics of the neighbourhood[2] on the accumulation of human capital (Borjas, 1995; Haveman and Wolfe, 1995) should also be stressed. The presence of 'ethnic capital' that would act as a human capital externality could also influence the educational outcomes (Borjas, 1995). Finally, the difference in terms of pattern of human capital accumulation according to the origin may also be explained by the endowments in parental education (first-generation migrants). Indeed, there might be some 'selection effects' of the migrants in terms of skills that may differ according

[1] In that study, human capital is considered in its narrow definition, *i.e.* the education level of an individual.

[2] These characteristics may largely differ between natives and second-generation migrants.

to their origin: the literature suggests that higher bilateral migration costs favour positive selection (*i.e.* higher education levels of migrants, in average) while lower bilateral migration costs favour negative selection (Chiquiar and Hanson, 2005; McKenzie and Rapoport, 2010). This could explain why (parents) migrants from 'different origin' have different average levels of education. This feature has already been stressed for the case of the migrants in France (Brinbaum *et al.*, 2010). Furthermore, the parents that have emigrated in France may adjust their education decisions for their children (the second-generation migrants) to the local labor and education markets conditions: it could induce some similarity in the education choices whatever the origin and finally explain the differences of pattern in human capital accumulation for different origins.

This study analyses the differences in the determinants of the accumulation of human capital for second-generation immigrants relatively to natives for the French case. In particular, we analyse these differences for the second-generation immigrants from the Northern Africa or Southern Europe origin. We contribute to the literature by focusing on the difference in the determinants of human capital accumulation (and especially parental background) between different groups of individuals born in France, the second-generation migrants and the natives. Our paper is structured as follows. The section 2 describes the data and presents descriptive statistics as well as evidence of intergenerational mobility for second-generation migrants and natives. We then describe the empirical strategy in section 3. Section 4 presents and discusses the results. Section 5 concludes.

2. Data and descriptive statistics

2.1. Data

The 2003 Formation et Qualification *survey and the information about migrants*
We use the *Formation et Qualification* (FQP, Training and Occupational Skills) survey which is collected by the French National Institute of Statistics and Economic Studies (*Insee*) every 8 or 10 years since 1964 in France. The FQP 2003 survey contains two types of information about the ascendants of the surveyed individuals which allow identifying individuals who have a 'migration' origin from the previous generation: the country of birth and the nationality at birth of both parents. It firstly allows us to distinguish between the 'native' individuals from the individuals who belong to the 'second-generation of immigrants', all born in France[3]. This source of data is statistically representative at the national level and permits to conduct studies in the fields of training, education, professional mobility or intergenerational mobility. It represents a major source to study the determinants of human capital accumulation and intergenerational mobility for France.
The FQP 2003 survey is the last one available for France and contains around 40 000 individual observations. The survey contains information on both surveyed

[3] The *Trajectoire et Origines* survey is a very rich source of data for migrants and their descendants but by definition does not include the native population. See Beauchemin *et al.* (2010) for a presentation of the data and some first results obtained with the survey, and Domingues Dos Santos and Wolff (2011) for an empirical work on the data dealing with the impact of parental human capital background on (children) second-generation migrants' educational attainment.

individuals and their parents in terms of education or occupational status, as well as information about the occupational status about the grandparents, and also other individual of familial characteristics. In that paper, a 'native' is defined as one individual born in France and whose both parents are French-born and born in France[4]. A second-generation immigrant is one individual born in France but whom at least one parent is born abroad. As FQP 2003 provides information on group of countries of origin[5], we are also available to distinguish the individuals who come from North Africa or Southern Europe[6], representing a very large share of the second-generation immigrants in the sample.
Finally, we shall conduct our analysis on individuals who have achieved their studies to have a correct measure of their level of schooling. We then restrain the sample to people who are 28 years or above at the date of survey. Indeed, at this age, the very largest share of the individuals has finished its schooling[7]. This criterion being exogenous, no bias is introduced by this procedure. We also restrain the sample to individuals who are not more than 55 years old, as specific conditions for accumulation of human capital may exist in France until 1945-1948 (pre-second world war, war period, and just-after war period).
The final sample is composed of 2859 second-generation immigrants and of 18575 natives in our sample. In particular, 1046 second-generation immigrants have a North African origin and 1131 second-generation immigrants have a Southern Europe origin in the sample.

2.2. Summary statistics and educational intergenerational mobility

Tables 1a and 1b provide some summary statistics on educational attainment[8] and familial background on different sub-populations: second-generation immigrants,

[4] Please note that the criterion is not that of nationality (according to the French Law, a child is *French born* if at least one of his parents is French at the moment of his birth or if at least one of his parents is born in France).
[5] We choose to select these sub-samples according to the number of observations in the sample for these two origins. Mœurs and Pailhé (2010) or Lefranc (2010) also focus on these sub-populations in their analysis. Note that the literature provides no clear evidence of disadvantages for the 'Northern Africa' migrants in terms of educational outcomes in France (*e.g.* Vallet and Caille, 1999; Lefranc, 2010). But, their "disadvantages" seem obvious on the labour market when controlling for education and social background, opening the interpretation for discriminations (*e.g.* Meurs et al., 2006; Meurs and Pailhé, 2010).
[6] In the 20th century, France has a rich history of immigrations. In the 1920's and the 1930's, Italians and Polish represent a large share of the migration while in the 1945-1974 period Spanish, Portuguese and migrants from Africa (particularly from Northern Africa) represent an important migration wave (see *e.g.* De Wenden, 2012). According to the *Trajectoire et Origines* survey from 2010, the migrants from Spain-Italy and Portugal (Southern Europe) have mainly started to migrate from 1957 and 1966 and migrants from Maroc-Tunisia and Algeria (Northern Africa) from 1971 and 1968 (Beauchemin *et al.*, 2010).
[7] This corresponds to 10 years of schooling after the *Baccalauréat* (A-level grade), *theoretically*. In the 2003 FQP 2003 survey, only 1.43% of the 28 years old andmore have not finished their initial studies at the time of the survey.
[8] The main French levels of education (diplomas) are exposed in Appendix A.1. Note that we retain seven levels for the surveyed individual, and only six for his parents (the six first levels). We also use two different definitions for the years of schooling. The first one is the duration of schooling in years corrected for breaks of repeated years during scholarship, we note the corresponding variable « years of schooling (1) ». The second definition is the equivalent of years of education for the highest diploma obtained by an individual (corresponding variable: « years of schooling (2) »): for example, for a *A*-grade level, we will associate a duration of schooling of 12 years. See also footnote 11 about the measures for parental education used in the econometric approach.

natives, second-generation immigrants from North Africa and second-generation immigrants from Southern Europe.

There is no striking difference between the average educational attainment of the second generation immigrants (as a whole) to that of the natives (table 1a). Parental years of schooling of second-generation migrants are smaller than those of the natives (the only exception is the case of the mother's education, *first definition*). We observe a difference in the average schooling years for the benefit of the 'North Africa' second generation migrants relative to the natives when the total years of schooling are considered. When the schooling years of the highest grade are considered, there is rather an advantage for the natives. Parental education (mother's, father's or the most educated parents) is in average higher for the 'North Africa' than for the 'native' origin[9]. The situation for the Southern Europe immigrants is the opposite to that of North African second generation migrants: parents are less educated in average that the parents of the natives. In addition, this population is a little smaller educated in average that the natives, according to the indicators.

Table 1b presents the detailed picture of the highest grades of individuals and their parents, as well as other family background characteristics, by sub-population. Clearly, as a whole the second generation immigrants have an advantage relatively to the natives for the highest diplomas ("Bac+2" and higher university grades). But once again, there is some heterogeneity in the 'second generation immigrant' population. The migrants from 'North Africa' origin have the benefit of having a higher probability to obtain the highest diplomas (and more than the natives) relatively to the 'Southern Europe' population (and in this case, this represents less that the natives). While as a whole the second generation immigrants benefit from rather higher educated parents that the natives', this picture is mostly driven by North Africa origins (Southern European parents have clearly a disadvantage in that perspective). Finally, the parental 'blue collar' socio-professional category (French *PCS, professions et catégories socio-professionnelles)* is more represented among second-generation immigrant population, and even more largely in the 'Southern Europe' sample. There is the same proportion of 'executive' fathers between natives and second-generation population as a whole, but a little more in the 'North Africa' sample and much less in the 'Southern Europe' sample.

[9] This observation may seem somewhat surprising as it indicates a non-disadvantage for parents from North Africa relatively. But is shall be noted that the parents of the surveyed individuals are born largely before 1945, and the development of the education systems permits only to give some high school degree (or even elementary degrees) for most at the time (the rising in education for France is continuous in the 20th century and is such that, from the FQP data, it can be computed that the cohort born are 1930 completed around 8 years of schooling years and the one born in 1950 complete in average around 10 years of schooling). Hence, even if some differences may exist (larger share of the population with high degree of diploma in France), these differences may be scarce at the 'macro' level or not visible through the "years of schooling" indicator around 1950.

Table 1a: Summary statistics.

Variable	Second gen. mig.				Natives				North Africa				South. Europe			
	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max
years of schooling (1)	*12.05*	*3.25*	*2*	*20*	*11.93*	*3.15*	*2*	*20*	*12.48*	*3.24*	*2*	*20*	*11.79*	*3.01*	*2*	*20*
years of schooling (2)	*10.44*	*3.79*	*5*	*17*	*10.48*	*3.66*	*5*	*17*	*10.20*	*3.80*	*5*	*17*	*10.20*	*3.63*	*5*	*17*
Father's education																
years of schooling (1)	*7.93*	*2.81*	*4.15*	*15.99*	*8.17*	*2.76*	*4.21*	*16.10*	*8.49*	*2.95*	*4.15*	*15.94*	*7.22*	*2.16*	*4.47*	*15.78*
years of schooling (2)	*7.12*	*3.40*	*5*	*15*	*7.45*	*3.40*	*5*	*15*	*7.60*	*3.65*	*5*	*15*	*6.27*	*2.66*	*5*	*15*
Mother's education																
years of schooling (1)	*7.80*	*2.44*	*4.69*	*15.94*	*7.78*	*2.37*	*4.53*	*15.99*	*8.39*	*2.58*	*4.69*	*15.94*	*7.14*	*1.81*	*4.85*	*15.88*
years of schooling (2)	*6.71*	*3.08*	*5*	*15*	*6.74*	*3.02*	*5*	*15*	*7.24*	*3.37*	*5*	*15*	*5.90*	*2.27*	*5*	*15*
Most educated parent																
years of schooling (1)	*8.54*	*2.87*	*4.69*	*15.99*	*8.72*	*2.81*	*4.53*	*16.10*	*9.18*	*2.95*	*4.69*	*15.94*	*7.73*	*2.30*	*4.85*	*15.88*
years of schooling (2)	*7.71*	*3.62*	*5*	*15*	*8.02*	*3.55*	*5*	*15*	*8.28*	*3.80*	*5*	*15*	*6.34*	*2.74*	*5*	*15*
Numbers of brothers and sisters	*3.00*	*2.44*	*0*	*17*	*2.67*	*2.19*	*0*	*17*	*3.24*	*2.67*	*0*	*14*	*2.76*	*2.16*	*0*	*14*
Rank in brotherhood	*2.72*	*2.01*	*1*	*16*	*2.43*	*1.75*	*1*	*15*	*2.66*	*1.95*	*1*	*13*	*2.70*	*2.00*	*1*	*15*
Nb. Obs.	2859				18575				1046				1131			

Sources: FQP 2003 survey. Computations from the author under STATA
Note: years of schooling (1) refers to the achieved years of schooling (corrected for breaks or repeated years during scholarship), years of schooling (2) correspond to the completed years of schooling of the highest obtained grade.

Table 1b: Summary Statistics (suite).

Variable	Share of obs. per sub-population			
	Second gen. mig.	Natives	North Africa	Southern Europe
No diploma/CEP	*0.256*	*0.239*	*0.233*	*0.262*
'Brevet' level	*0.096*	*0.096*	*0.104*	*0.091*
CAP/BEP	*0.266*	*0.285*	*0.243*	*0.318*
Baccalauréat	*0.149*	*0.155*	*0.160*	*0.136*
Bac+2	*0.102*	*0.111*	*0.108*	*0.091*
Bac+3/Bac+4	*0.055*	*0.048*	*0.069*	*0.044*
Bac+5 and further	*0.074*	*0.063*	*0.080*	*0.054*
Father's education				
No diploma/CEP	*0.698*	*0.635*	*0.634*	*0.803*
'Brevet' level	*0.033*	*0.036*	*0.051*	*0.013*
CAP/BEP	*0.128*	*0.192*	*0.126*	*0.131*
Baccalauréat	*0.049*	*0.057*	*0.064*	*0.023*
Bac+2	*0.023*	*0.023*	*0.038*	*0.007*
Bac+3 and further	*0.066*	*0.053*	*0.085*	*0.020*
Mother's education				
No diploma/CEP	*0.745*	*0.729*	*0.669*	*0.854*
'Brevet' level	*0.046*	*0.056*	*0.063*	*0.030*
CAP/BEP	*0.087*	*0.110*	*0.108*	*0.068*
Baccalauréat	*0.054*	*0.045*	*0.070*	*0.026*
Bac+2	*0.033*	*0.036*	*0.043*	*0.011*
Bac+3 and further	*0.031*	*0.021*	*0.044*	*0.007*
Father's occupational status				
Blue-collar worker	*0.530*	*0.404*	*0.453*	*0.655*
Store keeper	*0.112*	*0.122*	*0.103*	*0.129*
Executive	*0.085*	*0.084*	*0.116*	*0.030*
Intermediate worker	*0.144*	*0.147*	*0.173*	*0.098*
Employee	*0.092*	*0.111*	*0.139*	*0.045*
Farmer	*0.030*	*0.123*	*0.008*	*0.038*
Female	*0.530*	*0.525*	*0.550*	*0.503*
Male	*0.470*	*0.475*	*0.450*	*0.497*
Divorce of parents during scholarship	*0.099*	*0.078*	*0.115*	*0.084*
Nb. Obs.	2859	18575	1046	1131

Sources: FQP 2003 survey. Computations from the author under STATA

Tables 2a and 2b below exhibit the correlations between parents and child (surveyed individual)'s education. The width of the intergenerational correlation changes according to the measure of education: the coefficients are larger for when years of

schooling are observed than when the years of schooling for the highest grade are chosen. But, overall results obtained with both of the measures are similar. While the correlations for natives and second generation immigrants are rather near in both cases, higher correlations are observed in general for the North Africa sample and always (much) smaller for the Southern European sample. In addition, for all populations except individuals from Southern Europe origin, there is evidence of slightly higher intergenerational correlations between mother and child relatively to the ones between father and child.

Table 2a. Intergenerational correlations of education (Pearson coefficients).

Intergenerational link	Second gen. mig.	Natives	North Africa	South. Europe
Parent-child	0.471 ***	0.474 ***	0.483 ***	0.376 ***
Mother-child	0.452 ***	0.446 ***	0.468 ***	0.337 ***
Father-child	0.433 ***	0.438 ***	0.436 ***	0.341 ***

Source: FQP 2003 survey. Computations from the author under STATA.
Note 1: Significance level for the coefficient: *** at 0.1%.
Note 2: years of schooling (1) refers to the achieved years of schooling (corrected for breaks or repeated years during scholarship)

Table 2b. Intergenerational correlations of education (Pearson coefficients).
Alternative definition for schooling years.

Intergenerational link	Second gen. mig.	Natives	North Africa	South. Europe
Parent-child	0.397***	0.387***	0.440***	0.290***
Mother-child	0.372***	0.358***	0.418***	0.237***
Father-child	0.359***	0.351***	0.388***	0.261***

Source: FQP 2003 survey. Computations from the author under STATA.
Note 1: significance level for the coefficient: *** at 0.1%.
Note 2: years of schooling (2) correspond to the completed years of schooling of the highest obtained grade.

This section has put in evidence that differences in education attainment as well in intergenerational mobility seem to apply between native and second-generation immigrants of certain origin, with some strong heterogeneity among the second generation migrants population. The next section presents the methodology that we propose to analyse these differences, and in particular addresses the question: to which extent the possible changes in parental human capital may play a role in these features ?

3. Empirical strategy

3.1. Estimations of human capital production functions

We firstly produce estimates from one simple empirical model on the whole sample. This model may be exposed as the following human capital production function, *i.e.* function that link inputs (explaining factors) to the level of education (outcome):

$$EDU^C = \beta_0 + \beta_1 EDU^P + \beta_2 MIG + \sum_j \beta_j X_j + \varepsilon \quad (1)$$

We then run some estimates on different subsamples: second-generation of migrants, natives and second-generation of migrants from North African origin or Southern European origin, from the same empirical model:

$$EDU^C = \beta_0 + \beta_1 EDU^P + \sum_j \beta_j X_j + \varepsilon \quad (2)$$

In these models, EDU^C is an indicator for the human capital level of the individual (numbers of schooling years corrected for possible breaks or repeated years during scholarship[10]), and EDU^P a variable (or a vector of variables, depending on the cases) for parental human capital[11].

In correctly-specified econometric estimates, β_1 is a coefficient or vector of coefficients that normally represents, *in usual human capital production functions*, the degree of intergenerational transmissions of human capital, *i.e.* the degree of education *effectively* transmitted by parents to children. But in this study, we estimate and compare estimates of the human capital production function for different sub-samples, that correspond to 'natives' population and to other origins. As selection effects (that may differ according to the origin) in education levels may have occurred for parents from that have emigrated and should lead to difference in the average "endowments" in parental education according to the origin, we have to be careful in the interpretation of the value of the β_1 coefficient: if it does not represent the 'causal' effect of parental education, this coefficient *does not correspond* to *the degree of intergenerational transmission of education* but a 'net' association of children schooling with parental schooling[12]. We will further discuss this observation in the section 4.2 (discussion).

MIG is a vector of variables that indicate the 'origin' (according to the estimations, second-generation migrants *vs* natives, or 'natives' *vs* 'North Africa' *vs* 'Southern Europe').

X_j represents a vector of parental, familial and individual characteristics (father's socioprofessional category, occurrence of divorce of the parents during scholarship, gender, rank in the brotherhood).

The equations are firstly estimated by ordinary least square (OLS), by incorporating some cohort-fixed effect[13] (FE), as we have a large numbers of cohorts in our database. These fixed effects could account for some unobservable characteristics and specific to groups of cohorts: it could account for the transformation of the French education system and as well corresponds to characteristics to specific characteristics of the waves of migrants. It also could be linked to the fact that the 'migrant'

[10] Indeed, the repetition of a grade is a very well-spread practice in France.

[11] We mainly use two different measures for parental education. The first corresponds to the years of schooling years of the parent. As this variable is not included in the survey, we generate it from the econometric relationship that exists in the survey between the individual, his level of diploma and his birth cohort (Fabre and Moullet, 2004). Another approach considers the « equivalent » years of schooling of the highest diploma coresponding to the normal duration of schooling to attain that level of education. In an alternative approach, we use indicators of the highest level of parental diploma to account for parental education in certain estimations. Note also that we consider alternatively specifications with both father's and mother's education and specifications with only the most educated parent, as there may be strong collinearity between schooling coefficients for fathers and mothers (Holmlund et al., 2011).

[12] As we proceed to estimations with control variables.

[13] We insert some dummy variables for groups of (5- or 6-years birth cohort).

population (the "first" generation, the parents) are not a random sample of the population of their country of origin (see also discussion in section 4.2).

3.2. Blinder-Oaxaca decomposition

We also perform Blinder-Oaxaca decomposition (Blinder, 1973; Oaxaca, 1973) that allows studying mean outcome differences between different groups. We apply the decomposition method to explain educational attainment of different group of population (origins), by focusing on three successive peers of groups of origin: 'North Africa'-natives, 'Southern Europe'-natives and 'North Africa'-'Southern Europe'. Two main types of Blinder-Oaxaca decompositions are commonly used in the empirical literature (*e.g.* Duncan and Sandy, 2010; Elder et *al.*, 2010): the three-fold and the two-fold decomposition (Jann, 2008).

Our specific model (equation (2)) may be re-written simpler as follow for a considered group of origins *i*:

$$EDU_i^C = \beta_i \ X_i \ + \varepsilon_i \qquad (3)$$

With X_i a vector containing predictors and a constant, β_i the slope parameter and the intercept and ε_i the error term.

The mean outcome difference D_1 between *two considered groups of origins* A and B is:

$$D_1 = E(EDU_A^C) - E(EDU_B^C) \qquad (4)$$

It may be expressed as follow for the three-fold decomposition (Jann, 2008):

$$D_1 = \left[E(X_A) - E(X_B)\right]\beta_B \ + E(X_B)(\beta_A \ - \beta_B) + \left[E(X_A) - E(X_B)\right](\beta_A \ - \beta_B) \qquad (5)$$

The first term corresponds to the share of the difference due to group differences in the predictors ('endowments effects'), the second term measures the shares of differences in the coefficients ('coefficients' part) and the third one is an interaction term between the two first terms ('interaction' part).

The two-fold decomposition, firstly proposed by Neumark (1988), considers that some non-discriminatory coefficients vector (β^*) has to be considered to determine the contribution of the differences in the predictors[14]. The mean outcome difference D_2 is such as follow (Jann, 2008):

$$D_2 = \left[E(X_A) - E(X_B)\right]\beta^* \ + \left[E(X_A)(\beta_A \ - \beta^*) + E(X_B)(\beta^* \ - \beta_B)\right] \qquad (6)$$

The first component is the share explained by the group differences in the predictors ('explained' part) while the second component represents the 'unexplained' part (effects of differences in unobserved variables).

[14] This vector β^* is estimated in pooled regression over the two groups of origin A and B (for that reason, the two-fold decomposition is sometimes called the 'pooled' decomposition).

The decomposition is obtained by using the *oaxaca* command on Stata (see Jann, 2008). The differential in mean outcome is firstly expressed in two of three parts (two-fold or three-fold Blinder-Oaxaca decomposition). Then, a more detailed decomposition is presented, were we group the explanatory variables into 3 categories: parental education (father's and mother's education or 'most educated parent''s education), other familial characteristics (father's socio-professional category, divorce of the parents) and individual characteristics (gender, rank in the brotherhood, cohort).

4. Results and discussion

4.1. The results

Estimations of human capital production functions

The table 3 below presents the econometric results for the estimations on the whole sample (natives + second-generation immigrants). These first estimations use the traditional years of schooling measures. The columns (1) and (2) report the results by OLS with (cohort) fixed effect. The importance of parental education is confirmed in these estimations, with a larger effect of mother's education. The table also illustrates the importance of the socio-professional status of the father: the (reference) 'blue collar worker' origin exhibits a disadvantage comparing to the other 'PCS' in terms of accumulation of human capital. The 'Gender' or 'rank in the brotherhood' variables as well as the 'occurrence of divorce' during scholarship have all an impact on education attainment. Finally, the controls for birth cohort are all significant, with a larger benefit for the younger cohorts. In these estimations, only the 'Southern Europe' origin seems to have an impact on educational attainment. The coefficient associated to the 'North Africa' origin is most of the time negative but never significant. Also, the coefficient for 'other origin' is never significant, neither. This could mean that, ceteris paribus, the general form of the human capital accumulation only differs between natives and second generation migrants from Southern Europe, but not between natives and other origins. Other estimations on the whole sample are run by differentiating only natives and second generation migrants (whatever is the origin).

The table 3.bis hereafter reports only the coefficients associated to the 'second-generation immigrant' dummy: the impact of belonging to that origin is most of the time significantly positive. But, as the previous estimation has shown it, some heterogeneity in the second generation immigrants group occurs. Note that the substitution of dummy indicators for parental highest diplomas to parental schooling years don't change the main results (see Appendix, table A.2; column (1)). These first results are confirmed for estimations run by using the alternative measure of the year of schooling (tables A.3 and A.4 in Appendix).

Table 3. Estimations on the whole sample (fixed effects).

		Explained variable: years of schooling(1) (1)	(2)
Father's years of schooling (1)		0.106***	-
		0.006	-
Mother's years of schooling (1)		0.175***	-
		0.007	-
Most educated parent's years of schooling (1)		-	0.206***
		-	0.006
Father's socioprofessional category (PCS)	Blue collar worker	*Ref.*	*Ref.*
	Shopkeeper	0.089***	0.089***
		0.005	0.005
	Executive	0.198***	0.210***
		0.006	0.006
	Intermediate Professions	0.129***	0.134***
		0.004	0.004
	Employee	0.076***	0.077***
		0.005	0.005
	Farmer	0.069***	0.071***
		0.005	0.005
Gender		0.018***	0.018***
		0.003	.003
Rank in the brotherhood		-0.014***	-0.015***
		0.000	0.000
Divorce of parents during scholarship		-0.059***	-0.057***
		0.005	0.005
Natives		*Ref.*	*Ref.*
North-Africa origin		-0.005	-0.002
		0.007	0.007
Southern Europe origin		0.038***	0.037***
		0.007	0.007
Other origins		0.004	0.005
		0.009	0.009
1948-1953 Cohort		*Ref.*	*Ref.*
1954-1958 cohort		0.085***	0.089***
		0.005	0.005
1959-1963 cohort		0.123***	0.130***
		0.005	0.005
1964-1968 cohort		0.148***	0.160***
		0.005	0.005
1969-1975 cohort		0.198***	0.215***
		0.005	0.005
R^2		0.32	0.32
Nb. of observations		21434	21434

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata
Note 1: ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note 2: years of schooling are in log.

Table 3bis. Estimations on the whole sample (Fixed effects).

	Explained variable: years of schooling(1)	
Second-generation migrants	0.014***	0.014***
	0.004	0.004

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata
Note 1: ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note 2: years of schooling are in log.

The first group of estimations has shown some heterogeneity in the group of second generation immigrants as well as apparently not significant differences between accumulation of human capital for 'natives' and for 'North Africa' origin. But general advantage from begin from Southern Europe has also been stressed. Also, this first approach can only put in evidence some "fixed" effect of the belonging to some particular origin comparing to the natives, as some interaction may occur between the 'origin' variable and all the other independent variables. Hence, the next approach estimates some education production functions by subpopulation: second-generation migrants, natives, second-generation migrants from North Africa, second-generation migrants from Southern Europe.

The table 4 below presents the econometric results by OLS with (cohort)-fixed effect. There is evidence of heterogeneity in the determinants of educational attainment among second-generation immigrants as well as between this group and the 'natives' group[15]. First, let us focus on the impact of parental education (coefficients in the second to fourth lines in the table)[16]. On average, the second-generation immigrants group doesn't seem to differ significantly from the 'natives' group in terms of elasticities: 0.210 *vs* 0.205, respectively when considering the most educated parent (columns (5) and (6)), 0.094 and 0.18 *vs* 0.108 and 0.172 when considering the father's and mother's education (columns (1) and (2)). But, when we look further among second-generation migrants, lower coefficients (hence lower association between parental and children's education) are observed for 'Southern Europe' (columns (4) and (8) *vs* columns (2) and (5)) origin (exception: for the fathers' coefficient). Higher coefficients are observed for the 'North Africa' origin (columns (3) and (7)) relatively to Natives and, above all, to the 'Southern Europe' origin. Hence, there seems to be a lower 'determinism' through parental education for 'Southern Europe' than 'North Africa' origin. Finally, the mothers' education seems to have a stronger impact on the education of their children than the fathers', whatever the origin.

For the impact of other variables (French PCS, gender, rank in the brotherhood, divorce of parents), we don't observe striking differences *between the 'natives' and the second-generation immigrant as a whole*. But, some differences occurs betweens the natives and the two observed origins.

According to the estimations, the 'North Africa' group doesn't seem, *ceteris paribus*, affected by the gender for its accumulation of human capital, nor by the rank in the brotherhood. The impact of the variable 'to have a father employee' is not significantly different from the 'blue collar worker' origin (the reference for the French PCS in the estimations). In addition, the magnitude of the coefficients for these variables is lower than those for the natives (an exception: the coefficient attached to the 'Farmer' father). There is a larger benefit in the educational attainment for the younger cohorts. But the estimated coefficients for belonging to specific cohorts are much higher than for the natives (around twice or more).
For the second-generation migrants from Southern Europe, all variables inserted in the econometric estimations have an impact on educational attainment. But the impact of these variables is, except for gender, lower in magnitude that those for the natives. Once again, there is a larger benefit in the educational attainment for the younger cohorts. The coefficients for the belonging to specific cohorts are a little higher in magnitude than in the natives' case. Finally, the *R*-square computed is much lower for the Southern Europe case (0.24), comparing to the 'natives' or the North Africa cases (0.32). Hence additional variables that are not taken into account (unobserved factors) are susceptible to play a role in the accumulation of human capital for the 'Southern Europe' origin.
Similar overall results are obtained when using parental highest diplomas as education indicators (Table A.2, columns (2) to (4), Appendix). These results are also confirmed by using the "alternative" measure for years of schooling (Table A.5 for Appendix).

[15] This is confirmed by the Chow test whose null hypothesis *Ho* is the equality between the coefficient of the same variables of two samples. Indeed, the Chow tests performed conducted to reject, for all pair 'natives'-'non-natives' populations, the null hypothesis.
[16] As schooling measures for the individual and parental levels are in log, it corresponds to elasticities.

Table 4. Econometric estimations by origin (fixed effects).

		Explained variable: years of schooling(1)							
		Sec. Gen. Mig. (1)	Natives (2)	N. Africa (3)	S. Europe (4)	Sec. Gen. Mig. (5)	Natives (6)	N. Africa (7)	S. Europe (8)
Father's years of schooling (1)		0.094***	0.108***	0.117***	0.115***	-	-	-	-
		0.021	0.007	0.034	0.037	-	-	-	-
Mother's years of schooling (1)		0.187***	0.172***	0.229***	0.144***	-	-	-	-
		0.021	0.007	0.032	0.038	-	-	-	-
Most educated parent's years of schooling (1)		-	-	-	-	0.210***	0.205***	0.270***	0.188***
		-	-	-	-	0.020	0.006	0.033	0.032
Father's socioprofessional category (PCS)	Blue collar worker	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*
	Shopkeeper	0.063***	0.093***	041*	0.049**	0.061***	0.094***	0.044*	0.047**
		0.016	0.005	0.023	0.024	0.016	0.005	0.023	0.024
	Executive	0.159***	0.202***	0.148***	0.143***	0.173***	0.214***	0.162***	0.147***
		0.019	0.006	0.028	0.040	0.018	0.006	0.028	0.039
	Intermediate Professions	0.089***	0.135***	0.074***	0.098***	0.091***	0.140***	0.074***	0.098***
		0.013	0.005	0.021	0.024	0.013	0.005	0.021	0.024
	Employee	0.042**	0.081***	0.030	0.081**	0.039**	0.081***	0.028	0.081**
		0.016	0.005	0.023	0.036	0.017	0.005	0.023	0.036
	Farmer	0.050**	0.072***	0.135*	0.046	0.049**	0.074***	0.125*	0.045
		0.025	0.005	0.074	0.033	0.025	0.005	0.072	0.033
Gender		0.026***	0.017***	0.016	0.071***	0.024***	0.017***	0.014	0.070***
		0.009	0.003	0.014	0.014	0.009	0.003	0.014	0.014
Rank in the brotherhood		-0.012***	-0.015***	-0.002	-0.013***	-0.013***	-0.016***	-0.003	-0.014***
		0.002	0.001	0.004	0.003	0.002	0.001	0.004	0.003
Divorce of parents during scholarship		-0.052***	-0.060***	-0.038*	-0.051**	-0.051***	-0.058***	-0.040*	-0.048*
		0.015	0.006	0.022	0.025	0.015	0.006	0.022	0.025
1948-1953 cohort		*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*
1954-1958 cohort		0.126***	0.080***	0.232***	0.110***	0.131***	0.084***	0.235***	0.114***
		0.019	0.006	0.049	0.028	0.019	0.006	0.050	0.028
1959-1963 cohort		0.145***	0.120***	0.228***	0.150***	0.153***	0.127***	0.236***	0.156***
		0.017	0.005	0.045	0.026	0.017	0.005	0.046	0.026
1964-1968 cohort		0.162***	0.146***	0.244***	0.162***	0.176***	0.157***	0.258***	0.174***
		0.017	0.005	0.044	0.026	0.017	0.005	00.045	0.026
1969-1975 cohort		0.225***	0.193***	0.326***	0.207***	0.243***	0.211***	0.346***	0.222***
		0.017	0.005	0.043	0.027	0.016	0.005	0.044	0.026
Nb. of observations		0.29	0.32	0.32	0.24	0.29	0.32	0.31	0.24
		2859	18575	1046	1131	2859	18575	1046	1131

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata
Note (1): ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note (2): years are schooling are in log.

Blinder-Oaxaca decomposition

We perform Oaxaca decomposition to explain the differential in the mean outcome between peers of groups of origin: 'North Africa'-natives, 'Southern Europe'-natives and 'North Africa'-'Southern Europa'.

At first we proceed to the three-fold Blinder-Oaxaca decomposition (table 5).
From a general point of view, the difference in means outcomes is mostly explained by differences in endowments. We mainly comment the estimations where education of both parents is considered for parental education (table 5, columns (1), (2) and (3)).
For the peer 'North Africa-natives' (column (1)), the difference in mean outcome (0.0460) is highly explained by (differences in) endowments (0.0493). The contribution of the (differences in) econometrically estimated coefficients is around three times lower (-0.0166). The interaction part is also much lower but not significant as a whole. The *endowment* part is firstly explained by individual characteristics (rank in the brotherhood, gender and cohort) for 2/3 and by parental education (education of both of the parents) for a 1/3. Other familial characteristics (socioprofessional category of the father, divorce of the parents) account for nothing

of the differential in the endowments. The coefficient part if mainly explained by the parental education which unerlines the importance of parental transmissions of education and that differences into the transmission occurs between the two groups 'North Africa' and 'natives' (higher transmissions, here). Individual characteristics represent only around ¼ of the impact of parental education. The interaction part appears is not significant as a whole but its components (except 'familial characteristics') are significant: individual characteristic represents the larger part of this interaction between 'endowments' and 'coefficients'.
As shown in column (2), the difference in mean outcome for the peer 'Southern Europe'-natives (0.0101) is rather low and not significant *as a whole*. But two components of this difference are significant: the 'endowments' part and the 'coefficients' part (a little less). But in this case, the 'endowment' part is explained by differences in 'other family characteristics' endowments and then in parental education (individual characteristics are not significant to explain this part). The 'coefficient' part is mostly explained by individual characteristics, as parental education is not significant.
We then observe the decomposition for the 'Southern Europe'-'North Africa' peer (column (3)). The difference in mean outcome largely comes a little from differences in endowments but mostly from differences in coefficients. This is interestingly different with the situation observed on the estimates (1) and (2). The interaction part appears not significant. Endowments in parental education is also important because is represent more than a half of the 'endowment' part and individual characteristics are also important. The coefficient in parental education is by far the main component of the 'coefficient' part. But it does not appear (at the limit) as significant at the 1% level.

As shown in columns (4), (5) and (6), the results obtained *by using the education of 'the most educated parent'* underline very similar results to the previous and commented ones. A small change occurs for the 'North Africa'-'Southern Europe' peer (column 6): parental education stays by far, the main component of the 'coefficient' part but is now significant at the 1% level. This would stress some differences in parental transmission of education (at the benefit of the Northern 'Africa origin').

Table 5: Three-fold Blinder-Oaxaca decomposition

	Parental education : both parents			*Parental education : most educated parent*		
	Gr. 1: North Africa Gr. 2: natives	Gr. 1: Southern Europe Gr. 2: natives	Gr. 1: Southern Europe Gr. 2: North Africa	Gr. 1: North Africa Gr. 2: natives	Gr. 1: Southern Europe Gr. 2: natives	Gr. 1: Southern Europe Gr. 2: North Africa
Overall						
Mean prediction Group 1	2.4898 ***	2.4336***	2.4336***	2.4898***	2.4336***	2.4336***
	0.0085	0.0079	0.0079	0.0084	0.0079	0.0079
Mean prediction Group 2	2.4438***	2.4438***	2.489***	2.4438***	2.4438***	2.4891***
	0.0020	0.0020	0.0086	0.0020	0.0020	0.0086
Difference	0.0460***	-0.0101	-0.0555***	0.0460***	-0.0101	-0.0555***
	0.0087	0.0082	0.0117	0.0087	0.0081	0.0117
Diff. endowments	0.0493***	-0.0503**	-0.1095***	0.0470***	-0.0492***	-0.1067***
	0.0050	0.0087	0.0104	0.0049	0.0044	0.0105
Diff. coefficients	-0.0166*	0.0324***	0.0398***	-0.0146	0.0297***	0.0352***
	0.0147	0.0090	0.0118	0.0144	0.0089	0.0117
Diff. interactions	0.0133	0.0077	0.0142	0.0136	0.0093*	0.0159
	0.0119	0.0058	0.0111	0.0117	0.0055	0.0110
Breakdown of the 'endowments' part						
Parental education	0.0166***	-0.0240***	-0.0518***	0.0108***	-0.0223***	-0.0447***
	0.0024	0.0019	0.0065	0.0020	0.0018	0.0065
Other familial characteristics	-0.0000	-0.0293***	-0.0161***	0.0002	-0.0304***	-0.0172**
	0.0024	0.0020	0.0054	0.0025	0.0021	0.0054
Individual characteristics	0.0328***	0.0031	-0.0415***	0.0358***	0.0034	-0.0446***
	0.0021	0.0022	0.0070	0.0023	0.0024	0.0073
Breakdown of the 'coefficient' part						
Parental education	0.1352*	-0.0379	-0.1866	0.1374*	-0.0339	-0.1791*
	0.0775	0.0905	0.1201	0.0735	0.0711	0.1033
Other familial characteristics	0.0098*	0.0092*	0.0118	0.0098*	0.0103**	0.0118
	0.0055	0.0052	0.0142	0.0055	0.0051	0.0140
Individual characteristics	0.0297**	0.0302***	-0.0166	0.0279*	0.0304***	-0.0155
	0.0143	0.0117	0.0213	0.0145	0.0116	0.0216
Constant	-0.1914**	0.0309	0.2313*	-0.1899**	0.0229	0.2181*
	0.0904	0.0937	0.1279	0.0877	0.0741	0.114
Breakdown of the 'interaction' part						
Parental education	0.0045*	0.0010	0.0132	0.0034*	0.0017	0.0135*
	0.0023	0.0041	0.0085	0.0019	0.0036	-0.0079
Other familial characteristics	-0.0101	0.0071	-0.0078	-0.0091	0.0080	-0.0071
	0.0086	0.0051	0.0079	0.0083	0.0051	0.0078
Individual characteristics	0.0189**	-0.0005	0.0088	0.0193**	-0.0005	0.0095
	0.0075	0.0016	0.0072	0.0077	0.0016	0.0073

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata with the Oaxaca command.
Note (1): ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note (2): the effects of dummy variables corresponding to categorical indicators (father's socioprofessional category and cohorts) have been normalized so that the results of the decomposition do not depend of the choice of the base category (Jann, 2008)

We also ran some the *two-fold* Blinder-Oaxaca decomposition (see Table A6 in Appendix) which distinguishes two parts: one which represents group differences in the predictors and another unexplained. This decomposition globally stresses that, globally, as in the two-fold decomposition method, differences in means values of the predictors (endowments) account for the majority of the mean outcome differences.
For the 'North Africa'-natives' peer, the differences in outcomes means is very largely due the 'explained differences' and in particular by individual characteristics and then parental education. The 'unexplained' part appears here non-significant as a whole and is mainly composed of parental education and for 3 times less, by individual characteristics.
For the Southern 'Europe-native' peer, the situation is different because both 'explained' and 'unexplained' part account for a large share of the difference. The main difference with previous differential is that the 'explained' part for the 'North Africa'-natives peer is firstly explained by individual characteristics while it is firstly explained by 'other familial characteristics' and also parental education for the 'Southern Europe'-natives peer.

Finally, the difference in mean outcome for the peer 'Southern Europe-North Africa' is firstly due to difference in the 'unexplained' part. In this part, the parental education and then individual characteristics are important.

4.2. Interpretation and discussion of the results

The obtained results: selection effects or differences in intergenerational transmission?

Our econometric results *could* confirm the importance of parental transmissions of education for their child's education. Indeed, tables 2a and 2b underline a higher intergenerational correlations for 'North Africa' origin relatively to the 'native' origin, and lower correlations for 'Southern Europe' origin. According to our econometric estimations (see table 2), intergenerational transmissions of education are higher for the second-generation migrants from North Africa relatively to the natives and lower for those from Southern Europe. Hence, the intergenerational transmissions could be a major factor explaining the differences in the intergenerational correlations of educations among the different groups.

But *there is an alternative explanation to this story*. As we stressed it earlier in that study, there might be a selection of the (parents) migrants in terms of skills that may differ according to the specific origin and lead to differences in average endowments in (parental) education. The literature suggests that higher bilateral migration costs favour positive selection (*i.e.* higher education levels of migrants, in average) while lower bilateral migration costs favour negative selection (Chiquiar and Hanson, 2005; McKenzie and Rapoport, 2010): this could explain why migrants from 'Northern Africa' origin have on average higher levels of education that those from 'Southern Europe' origin (see tables 1a and 1b), this last origin facing lower bilateral migration costs (shorter distance to France, closer living conditions, *etc.*). The parents that have emigrated in France may adjust their education decisions for their children (the second-generation migrants) to the local labor and education markets conditions, hence inducing some similarity in the education choice for both 'main' origin (Northern Africa, Southern Europe). As the levels of education of the first generation of migrants from Southern Europe have levels of education that are more dispersed and lower in average, there would be higher educational mobility for this origin ("catching-up") and so lower correlation of education levels for this origin relatively to Northern Africa. Hence, difference in the values in the estimated β_1 coefficient for different origins may come from 'selection' (differences in initial conditions in terms of parental education). This is an alternative to the hypothesis of differences in intergenerational transmissions of education, as selection could explain between-origins differences in β_1 with same pattern in intergenerational transmission. If this hypothesis applies and as mentioned in section 3, the value of the β_1 coefficient does not represent the 'causal' effect of parental education and so *does not correspond* to *the degree of intergenerational transmissions of education*. In that case, the β_1 coefficient corresponds to a 'net' association of children schooling with parental schooling by taking into account a set of control variables.

Theoretically, the two aforementioned hypotheses (selection and differences in the degree of intergenerational transmissions) may also apply at the same time and explain the patterns found in the econometric estimations of human capital production functions. The Blinder-Oaxaca decomposition previously allows us to confirm this hypothesis. Indeed, the Blinder-Oaxaca decomposition has shown, that

the differences in outcomes means could be, globally, decomposed into two significant parts: the 'endowments' part and the 'coefficient' part. Differences in means values of the predictors (endowments, in the 'endowments' [respectively 'explained part'] for the 3-fold Blinder-Oaxaca decomposition [respectively 2-fold decomposition]) account for the majority of the mean outcome differences. In particular, the parental endowments in education are important. But parental transmissions of education (in the 'coefficient' or 'unexplained' part) are also relevant 'factors'. These conclusions must be qualified to the extent that other components of the 'endowments' and 'coefficients' parts are also important, and differ in magnitude as well as significance according to the peers of origin that are considered.

Robustness checks

We have already noticed in section 4.1 that results were robust to the definition of parental education (both parents' education *vs* most educated parent's education). The estimations conducted by using alternative definition for parental education (years of schooling corresponding to duration of schooling to complete the highest-level diploma) provide also similar results to those presented in table 4, for instance.
We try to take account of unobservable characteristics in our estimations. We have inserted some (cohort-) fixed effects but that can incorporate some information relative to each 'population', and constant for each set of cohorts. When we run the estimations without fixed effects with OLS, we observe a rise in the coefficient for the parental education variable(s). There is also variation in the coefficient of the other variables, but mostly upward changes. A possible interpretation is that the parental education variable captures many things when there is no fixed effect that may be correlated with the environment of the child. We suppose that the specifications with fixed effects are better because they can take into account some of the unobservable factors. Especially, the results may be robust to some specific 'laws' or event that occurred a certain year and that can impact education (see below for a discussion about the Berthoin Law). But in addition, our sample of 28-55 years second-generation migrants may be highly selected if this group of population has a high likelihood to move out of France[17]. Hence, differences in the estimated coefficients of the cohort dummies might also pick up the influence of non-random selection into migration.
Furthermore, we also ran some instrumental variable (IV) estimations where we attempt to take into account for possible endogeneity in the parental education variables that would come from unobservable characteristics linked to parental education and that would have some impact on children's human capital[18]. But in these estimations, endogeneity of the parental education variables was rejected for the 'migrants' samples and non-significance occurred for many inserted determinants of human capital. 'Literally', the results for the tests that we obtained in these IV

[17] And possibly, the children could move to the country where their parents came from.
[18] There are theoretical and empirical foundations for such an endogeneity. The causal impact of parental human capital on children's human capital is more and more questioned[18] (Black et al., 2005; Holmlund et al., 2011), and some study discuss of potential endogeneity of the parental human capital variable (Lilard and Willis, 1994). In the present study, there might be some unobservable components linked to parental education that may have some impact on children's human capital and that can act differently according the considered 'origin' (for example: some neighborhood effects (Borjas, 1995) or the ability (Becker and Tomes, 1986)). The differences terms of taste or preferences in schooling (unobservable) may also induce some differences in intergenerational transmissions, to the extent that some different ethnic groups may have different schooling preferences (Chiswick, 1988).

estimations signify that parental education is not endogenous, at least for migrants[19]. Further interpretation can't be brought.
By estimating our econometric model with the same set of variables for each of the sample, we obtain in the OLS estimations some *R*-square of 0.32 except for the 'Southern Europe' case where we a *R*-square of 0.24 was obtained. Hence, it is very likely that some unobservable characteristics that may differ between second-generation migrants and natives may play an important role in the accumulation of human capital of some of the second generation migrants.
Finally, an important law was passed in France in 1959 by raising the minimum mandatory schooling age to 16 years old (14 before the law) for scholars born from 1953. We incorporate some cohort-fixed effect in our econometric estimations, to account for differences among the generations: the estimations show evidence of a benefit for the older cohorts relatively to the younger ones (1948-1953 in our econometric analysis). So we are able to assert that our estimations are robust to the likely impact of the Berthoin Law.

5. Conclusion

This paper analyses for the French case the difference in the determinants of the accumulation of human capital for second-generation immigrants from different origins relatively to natives. In our study, we distinguish the natives, the second-generation immigrants from 'North Africa' or 'Southern Europe' origins. To perform our econometric analysis, we use the *Formation and Qualification Professionnelle* survey. We don't observe striking differences in the determinants between the second-generation immigrants as a whole and natives. But the 'second-generation immigrants' group is a heterogeneous one. It underlines an important source of heterogeneity in human capital accumulation in France. Also, the significant determinants but also the magnitude of the impact of these determinants, substantially differ between the natives and the other consider origins. There also seems to be a lower 'determinism' through parental education for 'Southern Europe' than 'North Africa' origin, but differences in intergenerational correlations of education could be explained by parental transmission of education and/or by selection effects of the migrants. These two explanations may explain a part of the final educational outcomes of second-generation immigrants that, in average, seem close or superior to those obtained by the natives. Our results show that parental endowments in education are important, but transmissions of education (and other components) also seems to be some relevant to explain accumulation of human capital of second-generation migrants *vs* natives or between migrants. Further research could investigate to which extent these features are "transmitted" on the labor market to explain the differences of returns on the labour market for second-generation migrants *vs* natives.

[19] The results of the IV estimations where parental human capital is endogenized are available from the author upon request.

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Appendix

Table A.1. Education levels (diploma).

Level of diploma	Level of education (INSEE)	Corresponding French diploma	Theoretical cumulative number of years of schooling
		No diploma	
1	VI	*CEP (Certificat d'études primaires): Primary school degree*	5
2	V bis	*BEPC, brevet : First part of generally secondary school completed*	9
3	V	*CAP, BEP : first vocational-technical degree*	11
4	IV	*BAC, bac professionnel (equivalent to a A*-grade level: general or vovational education)	12
5	III	*Bac + 2 (DUT, BTS, DEUG…) : first two year-university degree*	14
6	II	*Bac + 3 / Bac+4 (Licence/Maîtrise) : Three or four years French university degrees (last year of Licence and first of Master).*	15/16
7	I	*Bac +5 (master degree) and higher degrees (PhD…)*	17

Table A2. Estimations with grade level as parental education.

Explained variable: years of schooling(1)		*Whole sample*	*By origin*			
			Sec. Gen. Migrants	Natives	*N. Africa*	*S. Europe*
		(1)	(2)	(3)	(4)	(5)
Father's highest diploma	*Without any diploma / CEP*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*
	'Brevet'	0.089***	0.053**	0.094***	0.045	0.087
		0.008	0.026	0.009	0.035	0.057
	'CAP/BEP'	0.035***	0.027*	0.037***	0.016	0.058**
		0.004	0.015	0.004	0.028	0.023
	Baccalauréat	0.090***	0.051**	0.095***	0.055*	0.110**
		0.007	0.021	0.007	0.031	0.044
	'Bac+2'	0.097***	0.107***	0.094***	0.157***	0.152
		0.010	0.027	0.010	0.036	0.096
	'Bac+3' and more	0.136***	0.127***	0.137***	0.122***	0.146***
		0.009	0.023	0.009	0.032	0.051
Mother's highest diploma	*Without any diploma / CEP*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*
	'Brevet'	0.103***	0.093***	0.103***	0.050	0.146***
		0.007	0.021	0.007	0.031	0.036
	'CAP/BEP'	0.064***	0.063***	0.064***	0.080***	0.146***
		0.004	0.016	0.005	0.022	0.026
	Baccalauréat	0.116***	0.107***	0.117***	0.126***	0.075*
		0.007	0.018	0.008	0.027	0.040
	'Bac+2'	0.125***	0.150***	0.121***	0.149***	0.136**
		0.008	0.022	0.009	0.033	0.055
	'Bac+3' and more	0.160***	0.171***	0.159***	0.196***	0.039
		0.010	0.024	0.011	0.032	0.082
Father's socioprofessional category (PCS)	Blue collar worker	*Refo.*	*Refo.*	*Refo.*	*Refo.*	*Refo.*
	Shopkeeper	0.083***	0.061***	0.087***	0.043*	0.068
		0.005	0.015	0.005	0.023	0.014
	Executive	0.156***	0.118***	0.160***	0.123***	0.113
		0.006	0.020	0.007	0.030	0.046
	Intermediate Professions	0.113***	0.080***	0.118***	0.070***	0.085***
		0.004	0.014	0.005	0.021	0.025
	Employee	0.068***	0.039**	0.071***	0.034	0.076
		0.005	0.016	0.005	0.023	0.036
	Farmer	0.059***	0.041*	0.062***	0.134*	0.041
		0.005	0.025	0.005	0.070	0.033
Gender		0.019***	0.025***	0.018***	0.017	0.068***
		0.003	0.009	0.003	0.014	0.014
Rank in the brotherhood		-0.018***	-0.016***	-0.019***	-0.008*	-0.016*
		0.000	0.002	0.001	0.004	0.003
Divorce of parents during scholarship		-0.056***	-0.046***	-0.058***	-0.033	-0.047*
		0.005	0.015	0.006	0.022	0.025
Natives		*Ref.*	-	-	-	-
North-Africa origin		-0.009	-	-	-	-
		0.007	-	-	-	-
Southern Europe origin		0.035***	-	-	-	-
		0.007	-	-	-	-
Other origins		-0.002	-	-	-	-
		0.009	-	-	-	-
Controls for birth cohorts		yes	yes	yes	yes	yes
R^2		0.33	0.30	0.33	0.32	0.22
Nb. of observations		21434	2859	18575	1046	1131

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata
Note 1: ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note 2: years are schooling are in log.

Table A3. Estimations on the whole sample. *Alternative definition for the years of schooling.*

		Explained variable: years of schooling(2) OLS (1)	OLS (2)
Father's years of schooling (2)		0.109***	-
		0.007	-
Mother's years of schooling (2)		0.168***	-
		0.007	-
Most educated parent's years of schooling (2)		-	0.194***
		-	0.006
Father's socioprofessional category (PCS)	Blue collar worker	*Ref.*	*Ref.*
	Shopkeeper	0.123***	0.126***
		0.008	0.008
	Executive	0.235***	0.264***
		0.009	0.008
	Intermediate Professions	0.170***	0.181***
		0.007	0.007
	Employee	0.105***	0.106***
		0.008	0.008
	Farmer	-0.091***	0.129***
		0.009	0.008
Gender		0.022***	0.022***
		0.004	0.004
Rank in the brotherhood		-0.029***	-0.029***
		0.001	0.001
Divorce of parents during scholarship		-0.091***	-0.089***
		0.009	0.009
Natives		*Ref.*	*Ref.*
North-Africa origin		-0.021*	-0.017
		0.011	0.011
Southern Europe origin		0.043***	0.042***
		0.011	0.011
Other origins		0.005	0.008
		0.014	0.014
Controls for birth cohorts		yes	yes
R^2		0.32	0.21
Nb. of observations		21434	21434

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata
Note 1: ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note 2: years of schooling are in log.

Table A4. Estimations on the whole sample. *Alternative definition for the years of schooling.*

	Explained variable: years of schooling(2) OLS (1)	OLS (2)
Second-generation migrants	0.009	0.012
	0.007	0.007

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata
Note 1: ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note 2: years of schooling are in log.

Table A5. Econometric estimations by origin. *Alternative definition for the years of schooling.*

		Explained variable: years of schooling(2)							
		Sec. Gen. Mig. (1)	Natives (2)	N. Africa (3)	S. Europe (4)	Sec. Gen. Mig. (5)	Natives (6)	N. Africa (7)	S. Europe (8)
Father's years of schooling (2)		0.111***	0.109***	0.130***	0.135***	-	-	-	-
		0.021	0.007	0.032	0.037	-	-	-	-
Mother's years of schooling (2)		0.184***	0.164***	0.228***	0.123***	-	-	-	-
		0.020	0.007	0.031	0.039	-	-	-	-
Most educated parent's years of schooling (2)		-	-	-	-	0.208***	0.191***	0.281***	0.168***
		-	-	-	-	0.019	0.007	0.030	0.032
Father's socioprofessional category (PCS)	Blue collar worker	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*
	Shopkeeper	0.109***	0.128***	0.069*	0.067*	0.090***	0.132***	0.073*	0.067*
		0.041	0.008	0.040	0.036	0.023	0.008	0.040	0.036
	Executive	0.182***	0.241***	0.173***	0.186***	0.218***	0.269***	0.200***	0.211***
		0.026	0.009	0.039	0.052	0.025	0.009	0.037	0.051
	Intermediate Professions	0.119***	0.177***	0.098***	0.132***	0.125***	0.188***	0.095***	0.139***
		0.021	0.008	0.034	0.037	0.021	0.007	0.034	0.037
	Employee	0.059**	0.110***	0.047	0.149***	0.056**	0.112***	0.041	0.151***
		0.026	0.009	0.036	0.051	0.026	0.009	0.036	0.051
	Farmer	0.109**	0.127***	0.240**	0.103*	0.110**	0.132***	0.224*	0.104*
		0.041	0.008	0.119	0.056	0.041	0.008	0.118	0.056
Gender		0.043***	0.019***	0.022	0.108***	0.041***	0.019***	0.018	0.108***
		0.014	0.005	0.022	0.022	0.014	0.005	0.022	0.022
Rank in the brotherhood		-0.025***	-0.030***	-0.007	-0.033***	-0.025***	-0.030***	-0.007	-0.033***
		0.003	0.001	0.006	0.005	0.003	0.001	0.006	0.005
Divorce of parents during scholarship		-0.064***	-0.096***	-0.019	-0.100**	-0.065***	-0.094***	-0.026	-0.096**
		0.023	0.010	0.036	0.041	0.023	-0.094	0.035	-0.041
Controls for birth cohorts		yes	yes	yes	yes	yes	yes	yes	yes
R^2		0.20	0.22	0.23	0.16	0.20	0.22	0.23	0.16
Nb. of observations		2859	18575	1046	1131	2859	18575	1046	1131

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata
Note (1): ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note (2): years are schooling are in log.

Table A6: Two-fold Blinder-Oaxaca decomposition

	Parental education : both parents			*Parental education : most educated parent*		
	Gr. 1: North Africa Gr. 2: natives	Gr. 1: Southern Europe Gr. 2: natives	Gr. 1: Southern Europe Gr. 2: North Africa	Gr. 1: North Africa Gr. 2: natives	Gr. 1: Southern Europe Gr. 2: natives	Gr. 1: Southern Europe Gr. 2: North Africa
Overall						
Mean prediction Group 1	2.4898***	2.4336***	2.4336***	2.4898***	2.4336***	2.4336***
	0.0084	0.0079	0.0079	0.0084	0.0079	0.0079
Mean prediction Group 2	2.4438***	2.4438***	2.4891***	2.4438***	2.4438***	2.4891***
	0.0020	0.0020	0.0089	0.0020	0.0020	0.0085
Difference	*0.0460****	*-0.0101*	*-0.0555****	*0.0460****	*-0.0101*	*-0.0555****
	0.0087	*0.0081*	*0.0116*	*0.0087*	*0.0081*	*0.0116*
Explained	0.0501***	-0.0499***	-0.1001***	0.0476***	-0.0488***	-0.0957***
	0.0050	0.0043	0.0076	0.0048	0.0044	0.0075
Unexplained	-0.0040	0.0397***	0.0446***	-0.0016	0.0386***	0.0402***
	0.0074	0.0072	0.0110	0.0074	0.0072	0.109
Breakdown of the 'explained' part						
Parental education	0.0167***	-0.0240***	-0.0458***	0.0109***	-0.0222***	-0.0376***
	0.0024	0.0019	0.0051	0.0020	0.0018	0.0047
Other familial characteristics	-0.0001	-0.0289***	-0.0204***	0.0001	-0.0299***	-0.0215***
	0.0023	0.0020	0.0042	0.0024	0.0020	0.0042
Individual characteristics	0.0335***	0.0030	-0.0338***	0.0365***	0.0034	-0.0365***
	0.0021	0.0022	0.0044	0.0023	0.0024	0.0046
Breakdown of the 'unexplained' part						
Parental education	0.1396*	-0.0369	-0.1795	0.1408*	-0.0322	-0.1727*
	0.0788	0.861	0.1144	0.0747	0.0672	0.0987
Other familial characteristics	-0.0002	0.0160*	0.0082	0.0008	0.0179*	0.0090
	0.0124	0.0096	0.0153	0.0122	0.0095	0.0152
Individual characteristics	0.0479***	0.0297**	-0.0155	0.0466***	0.0299**	-0.0141
	0.0169	0.0122	0.0203	0.0173	0.0121	0.0206
constant	-0.1914**	0.0309	0.2313*	-0.1899**	0.0229	0.2181*
	0.0898	0.0931	0.1170	0.872	0.0737	0.1127

Sources: FQP survey (INSEE; 2003). Computations from the author under Stata with the Oaxaca command.
Note (1): ***, ** and * stand for significance (respectively at the 1%, 5% or 10% level). Robust standard errors stand within parenthesis.
Note (2): the effects of dummy variables corresponding to categorical indicators (father's socioprofessional category and cohorts) have been normalized so that the results of the decomposition do not depend of the choice of the base category (Jann, 2008)