

The interplay between families and schools: Immigrant and Native Differentials in Educational Outcomes

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Abstract: We examine the effects of school context on educational outlooks and outcomes of the children of immigrants, in comparison with natives in Spain, an under-represented case in the international literature and a fast growing immigration destination in Europe. Using two sources of hierarchical data, *2011 Chances Survey*[†] and the *2010 Secondary Schooling National Evaluation Survey*, which cluster students across schools, we investigate the factors that contribute to the formation of long term educational careers. To start with we analyze performance from both an objective (test scores in mathematics) and subjective perspective (estimation by children and also their parents of whether individual school results will allow them to proceed to tertiary education). Then we turn our attention to the adjusted educational expectations (controlled for prior performance) of children. Our results reveal the different way that school context works for immigrant and native origin children. Our multilevel regression analysis finds significantly worse school results among immigrants (test scores). Although immigrant children themselves understand the constraints that such disadvantage imposes on their future educational careers, immigrant parents seem to hold on to a rather unrealistic position. This parental optimism in turn seems to boost the career expectation of immigrant children independent of school effects. Thus while school context determines the performance of immigrant origin students to a greater extent than those of natives, the opposite is true for expectations. The formation of aspirations is more family-oriented among immigrants, and thus more positive, than among natives. Whether the long-term educational careers of immigrant children are as successful as they expect is a matter of how they do cognitively in schools, in which there is a greater role for schools to play.

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Introduction

Like other Southern European countries, Spain has received intense migration inflows over the last decade. The speed of its transformation from being an emigration to an immigration society, with a similar percentage of immigrants to that of other important EU destinations, makes of this country an interesting case study, where a large portion of the student population is still affected by the *short-term migration shock* that is known to constrain educational success (Cebolla and González-Ferrer 2008 and 2013). Despite this analytical advantage, research on Spain is still poorly represented in the international literature.

In this paper we seek to unveil the extent to which the children of immigrant families are at a disadvantage compared to the children of native-born parents in terms of their long-term educational careers by inquiring into both their school performance (test scores and a subjective inference of how school results will grant access to tertiary education) and their expectations. While the literature has largely identified that immigrant families, both in the US and Europe, hold rather optimistic views about their children's educational prospects, the reasons for their optimism remains debated. Here we propose a mechanism to account for this regularity: given their limited information of the educational system in the host country, immigrant parents misestimate the potential of their children's educational success. To examine how plausible this mechanisms is we look at the extent to which school context, in comparison with family, shapes the outcomes (performance) of immigrant and non-immigrant children, and their own and their parents expectations regarding their educational careers.

In his seminal research on inequality of educational opportunities, Boudon (1974) argued that the distance between social origins and destinations is a function of the initial social position. Boudon's Inequality of Educational Opportunity-Inequality of Social Origin (IEO-ISO) model explains why higher levels of attainment may not reduce class differentials in education. It suggests that there is a correlation between social background and individual aptitude to succeed at school and ambition to reach a particular destination. Boudon also argued that the independent effect of individual social position, in conjunction with the characteristics of the educational system, determines the costs and benefits that constrain individual decisions. According to this scheme, group differentials in education arise from two different sources of inequality: (1) Primary sources of inequality link individual socioeconomic origin to proven ability at school. This can include constraints that derive from material disadvantage (translated into lower-quality education), cultural deprivation (including unequal information about the educational system), and IQ differences; (2) Secondary sources of disadvantage are the consequence class-specific cost-benefit structures at each branching point.

Specifically focusing on the differentials existing between the children of immigrant and native families, a plethora of theories has been developed. (1) Migrating implies a partial devaluation, and in some cases the loss, of most of the human capital accumulated by emigrants prior to departure (Friedberg, 2000). A significant part of human capital is country-specific and does not fully travel across borders. Lack of language proficiency is the most evident consequence of the *migratory shock* on human capital. As a consequence, the children of immigrant parents may not benefit from a

sufficiently sophisticated knowledge of the educational system. They would need to acquire proficiency in the language at school, as well as adapt to new rules and practices. This process affects immigrant families and their children with an unequal intensity over time and across generations (Chiswick and DebBurman, 2004). (2) An alternative block of arguments suggests that because immigrant families in destination countries are by far overrepresented among less-advantaged social groups, controlling for socioeconomic disadvantage greatly reduces the observed disadvantage. Considering proper and obvious controls leaves little unexplained regarding the immigrant-native differential in educational performance (Schnepf, 2004; Kao and Thompson, 2003). This has been documented as a strong explanation in the case of many ethnic minorities in European countries (Heath and Brinbaum, 2007). (3) However, strong national-origin residuals remain unexplained in other cases (Levels and Dronkers, 2008). In the US, where ethnicity is perhaps a stronger determinant of individual life course, a heated empirical and theoretical debate began in the early 1990s that sought to unravel the existence of unexplained ethnic variation after everything else had been considered. Scholars convinced by traditional arguments stressed the importance of the effect of culture and discrimination. More sophisticated sociological explanations (mostly social-network driven) became dominant thereafter. Among them are the now classic theories such as Ethnic Capital (Borjas, 1992), the seminal Modes of Incorporation (Portes and Rumbaut, 1996), and the Segmented Assimilation theory (Portes and Zhou, 1993). (4) In a somehow disconnected manner from the mainstream literature on immigration, research on the importance of school effects to explain immigrant disadvantage in educational attainment is much more limited, and has a preeminent focus on the importance of immigrant concentration in deprived school environments. Despite of the importance of the school effects argument in the creation of migrant disadvantage, empirical analysis in Europe have concluded that migrant concentration has a limited impact (Cebolla-Boado, 2007; Fekjær and Birkelund, 2007; Szulkin and Jonsson, 2007).

Drawing on the works above we take a two-throng approach in this paper. Firstly we analyze the factors that contribute to educational performance both objectively and subjectively. Accordingly we look at both immigrant-native student differentials in test scores in the subject of mathematics and inferences of students and their families from their school results regarding how likely they will attain tertiary education. Overall, the European literature is starting to confirm that the educational underperformance of the children of immigrants compared to their native-counterparts is mostly due to cognitive abilities, thus our focus on mathematic test results is justified (Heath and Brinbaum, 2007). On the other hand, the children of immigrants are supposed to benefit from their families' higher educational ambitions (Jonsson and Rudolphi, 2011 for the case of Sweden, and Cebolla-Boado, 2011 for France). This European finding matches the prediction of the famous immigrant optimism regularity detected in America (Kao and Tienda, 1995). Thus, secondly, we turn to analyzing educational expectations after taking prior educational performance into account. These two aspects, cognitive performance and conditional aspirations, should help us understand the educational disadvantage that immigrant origin children endure in the long-run.

While individual/family level factors have been extensively studied in analyzing immigrant educational disadvantage, in line with the highly dominant US-originated literature we reviewed above, the role of school context (or other societal contexts for that matter) is much less known. This void in the literature has partly to do with the lack of appropriate data. With the availability of new data sets that allow multi-level

analysis, we are able to provide a more comprehensive analysis taking into consideration the contribution of individuals' social resources (family) and contribution of social contexts (school effects) simultaneously. This is exactly what we do in this paper. Put differently, we inquire into the interplay between families and schools, and whether it compensates or reinforces the immigrant disadvantage.

Hypotheses

In line with our discussion above, we put forward a number of hypotheses. Considering the objective measures of school performance, we expect Spain to follow the European pattern--that is, immigrant children are disadvantaged and this disadvantage is due mostly to a composition effect. In other words, it is due to the fact that immigrants are disproportionately over-represented among low socioeconomic status families.

H1: The school results of the children of immigrants are lower than those of the children born into native parents.

Since immigration to Spain is a rather recent phenomenon, we expect a significant lack of information among immigrant families regarding the educational system of the country. They would not be in a position to provide the appropriate stimulation or help for their children to catch up with the native average performance, thus we expect school context to be a more important determinant of their children's results.

H2: School effects are more important determinants of the performance of immigrant origin students than their native counterparts.

For the same reason, we expect that immigrant families rely on less sophisticated information regarding the consequences of the underperformance of their offspring, and thus less able to adequately infer from their children's school results their long-term educational trajectory. The ability of inferring the probabilities of succeeding in educational transitions is extensively discussed in the literature; families use school grades a signal of their offspring's abilities and update this information over-time (Breen and Goldthorpe, 1997; Breen 1999). Understanding the consequences of good or bad school performance requires however some knowledge about the functioning of the educational system. Accordingly, we expect immigrant families to be less able (or less accurate) in estimating the chances that their children have of reaching tertiary education given their school results.

H3: Immigrant parents are less likely than native parents to infer the real chances that their children have of reaching tertiary education.

It follows from Hypothesis 3 that immigrant expectations are largely more optimistic than those of their native-counterparts. Along this line of reasoning we finally expect the school context to be less important in determining the educational expectations of immigrant children than it is for the children of natives, after controlling for objective performance (test scores).

H4: The production of educational expectations expressed by immigrant children is more autonomous from the school context and, accordingly, more influenced by their families.

Data, variables and method

Data

Research on youth in Spain, and particularly on the children of immigrant families, has been severely limited by the lack of available data. In this paper we employ two of the most important sources of empirical evidence available in Spain, which are here analyzed for the first time.

Chances (2011): This survey randomly sampled 30 schools (15 public and 15 private) in the municipality of Madrid out of the whole universe of private and public schools in the city. The sample of schools was constructed in two stages. In the first stage we selected 24 neighborhoods from four different strata constructed by combinations of three indicators: 1) the total number of immigrant origin children from the 10 largest immigrant groups living in the city in 2011, 2) the percentage of immigrant origin in the neighborhood and, 3) the socio-economic profile of the neighborhood according to the official classification provided by the City Statistical Office. The 24 selected neighborhoods included 120 schools with secondary education from which we randomly selected our 30 schools in the second stage.

In the selected schools, all students were enrolled in the 3rd and 4th grades of secondary education (*Educación Secundaria Obligatoria*–ESO) completed a questionnaire during one of their 55 minutes classes. In addition, one of their parents (the mother or the father, whoever they decided) also completed a parallel questionnaire during the following two weeks[‡]. At the end of the fieldwork, which took place between January and June of 2011, we obtained 2,734 completed student questionnaires and 1,239 completed parental questionnaires. Forty-six percent of surveyed students were of immigrant origin. The overall parental response rate was approximately 45 percent; 48.5% among non-immigrant origin children and 37.5% among immigrant origin children.

The questionnaires included a number of indicators of life-course expectations, particularly of educational expectations. Both student and parental questionnaires replicated the wording of a large number of relevant questions, which allows for pairwise comparisons of students and parental answers to similar indicators. For the purpose of this paper, the questions on educational expectations and subjective assessment of the students' school performance provided by both students and their parents, are of main interest.

Secondary Schooling National Evaluation Survey (SSNES 2010). This is a nationally representative sample of schools and students within, conducted by the Ministry of Education for policy-oriented research. It provides variation across schools and individuals with a sample of over 29,000 students sorted across more than 900 schools. Although the questionnaire is far poorer than that of *CHANCES 2011*, we are able to obtain measures of students' educational expectations and adjust them using

[‡] Parental questionnaires (translated into Chinese, Arabic and Romanian when needed) were handed to the parents by their children. Between one and two weeks later, teachers collected the completed parental questionnaires in the classroom.

individuals' prior school performance.

Dependent Variables:

To test the hypotheses we have drawn above, we utilize three different dependent variables:

First, we look at **Objective School Performance**, as measured by the math scores obtained by students in the national evaluation test, taken from the *SSNES 2010*. Mathematics is a less culturally biased subject than the other subjects included in the national evaluation exams (e.g. language, social, and natural sciences), thus was chosen for that reason.

Secondly, we analyze the **Subjective Estimation** that both students and their parents make of their chances of **Going to the University** utilizing the data from *CHANCES 2011*. The exact wording of the selected question (posed to both children and their parents) is: "Do you consider your/your child's school performance good enough to be able to go to the university" The answer takes three different values: (0) "No" (1) "I am uncertain" (2) "Yes."

Finally, we analyze differences in **Students' Educational Expectations** given their objective school performance (test scores) using again the data from *SSNES 2010*. All students in the survey were asked about their expected educational trajectories: "Which is the highest educational level you expect to reach?" Answers to this question range from 1 to 5: (1) "Until the end of compulsory schooling" (2) "Basic vocational training" (3) "Until the completion of upper secondary education" (4) "Advanced vocational training" (5) "University degree."

Independent Variables and Controls:

One interest we have in this paper is to disentangle the individual and contextual level factors that shape children's school outcomes and expectations. On the basis of the prior empirical work and theoretical arguments, we introduce independent variables accounting for both individual and aggregate-level influences:

- at the individual level we control for gender, parental socio-economic background, children's immigrant origin and their specific ethnicity, as well as prior school performance when this variable is needed (in models explaining expectations);
- at the school level we control for school ownership (public vs. private)[§] and school quality, proxied by the average socio-economic status of parents in the school;^{**}

Method

[§] Spanish school system includes three types of schools: a) completely public, b) private but state-funded and, c) completely private. Our public school variable distinguishes between completely public and the rest.

^{**} See Appendix 1 for a more detailed description of the independent variables.

Since the two datasets utilized in our analyses are hierarchically organized (i.e. clustering children across schools), multilevel regressions are the most appropriate tool. This allows for a joint estimation of individual and aggregate level explanations (e.g. contextual effects due to clustering of individuals in countries, cities, neighborhoods, schools and classrooms, among others). Specifically we estimate, random component models (DeLeeuw and Meijer, 2008; Gelmand and Hill, 2007), which are specified as follows:

$$y_{ij} = \gamma_{00} + u_{0j} + \beta_1 x_1 + \dots + \beta_n x_n + \varepsilon_{ij}$$

The basic innovation of multilevel modeling compared to the standard OLS approach is that here the constant term is the result of two basic separate components,

$$\beta_0 = \gamma_{00} + u_{0j}$$

where γ_{00} is the average intercept of all schools considered, and u_{0j} is a random noise term correcting the average intercept to each school observation.

Multilevel models can become more complex if further random terms are added to account for between school differences in the way individual level explanations work. Accordingly,

$$\beta_1 = \gamma_{10} + u_{1j}$$

where γ_{10} represents the average slope of a given independent variable, and u_{1j} the school specific adjustment to the average prediction.

Although only the first of our three dependent variables (test scores) is properly continuous and, thus, ideal for linear multilevel regression analyses, the other two dependent variables have been also considered continuous in order to avoid logistic regression multilevel modelling. The reason why we opted for this technical solution is that the dispersion of cluster residuals (school effects: u_{0j}) is held constant (Snijders and Bosker, 1999). Besides, the interpretation of estimates in linear models is more intuitive than it is in logistic models.

Findings

The empirical section is organized in two blocks. We first discuss the results obtained from the analysis of school outcomes for immigrant and native origin students. As we stated before we utilize both a measure of objective performance (test scores in mathematics) and the translation by children and their parents of school results into probabilities of attaining tertiary education. We then use conditional expectations as the dependent variable to discuss whether the children of immigrant families adjust their expectations in the light of prior results.

1. School performance

1.1. Objective: test scores

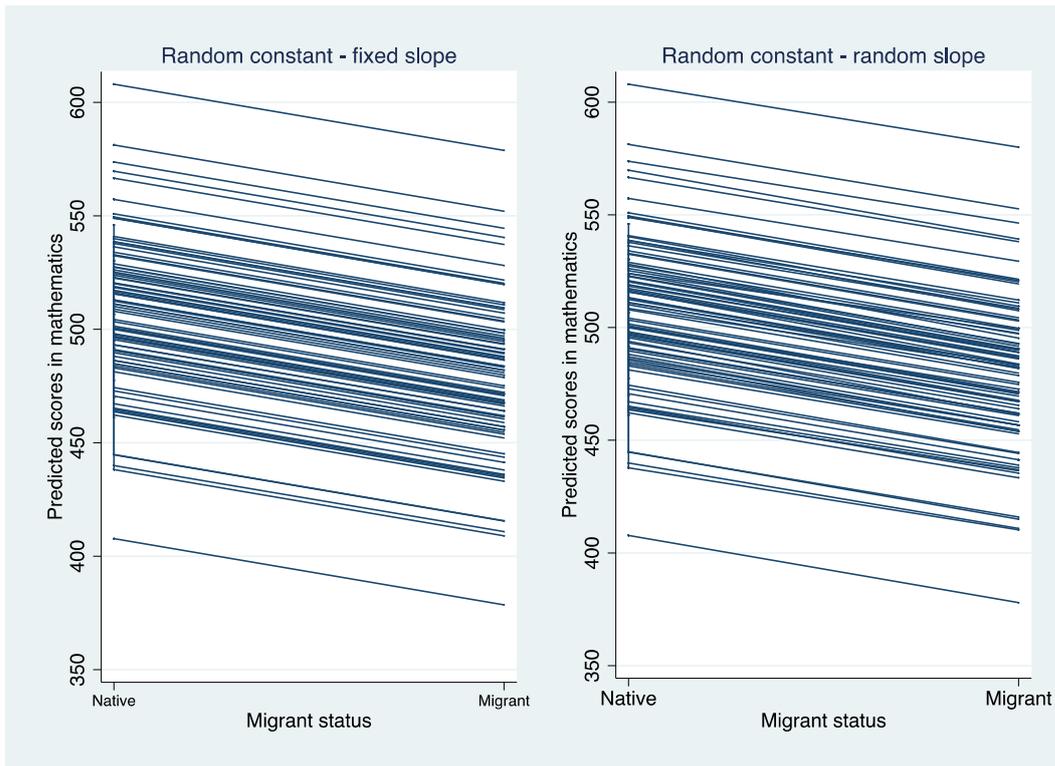
Even in a descriptive manner, students in the sample obtain different average test scores depending on their immigrant status (see Figure A.1 in the appendix). Table 1 seeks to confirm this using multivariate analysis. It presents the results of our multilevel analyses in a stepwise manner. We first calculate an intercept-only model where the overall variance in our dependent variable, test scores in mathematics, is partitioned into two blocks: individual (σ_e) and school (σ_u) level. These are the measures of dispersion of the regression residual terms (e_{ij} and u_{0j}). Regarding the dispersion of individual level residuals we present a general measure (σ_e), and a decomposition of the error term for immigrants and natives (σ_e immigrants- σ_e natives).

From Model 0 we can see that the clustering of students across schools in our data matters to a large extent: 16% of the individual level variation in scores appears to be associated with the type of school to which students attend. This is known from the Rho or intra-class correlation coefficient (Snijders and Booskers, 1999).^{††} Given that we decomposed the individual level residuals for immigrants and natives, we can calculate the immigrant-status specific intra class correlation. In so doing, we provide a contrast to our second hypothesis (H2), namely whether schools matter more for the performance of migrants or natives. We can clearly see that individual level dispersion is smaller for the children of immigrant families than for the children of natives (note the difference between $\sigma[e]$ for each population). While for the migrant population, the standard deviation of the individual level residual terms amounts to 6445, among the native subsample it reaches 6534. In other words, schools have a relatively higher weight for migrants than for natives in determining test scores, in line with our proposed hypothesis.

Model 1.a in turn confirms our first hypothesis according to which immigrant children are expected to be disadvantaged compared to their native counterparts. Indeed, the estimate associated with their average performance in mathematics is -0.29. Although the gross size of this disadvantage is not very large, statistically it is nevertheless highly significant. Figure 1 summarizes the results. The figure is divided into two panels. The first one corresponds to the results obtained from Model 1.a. The second one confirms that adding a random term in the slope of the immigrant effect provides no major changes. In other words, the immigrant effect appears to operate identically across schools.

Figure 1. Difference between random constant and random constant and slope multilevel regression models in the prediction of test scores in mathematics by students' immigrant status

^{††} This is the result of calculating the importance of the individual level variance relative to the overall variance. In other words, it represents the proportion of the variance in our dependent variable that happens within schools. Technically it requires to calculate $\sigma(e)/[\sigma(e)+\sigma(u)]$. In our model, rho=1278.8/(1278.8+6524.5).



Estimated from Model 1 in table 1 (first panel). Second panel obtained from a random slope model not shown (results are available upon request)

Model 1.b presents gender as well as the rough ethnic residuals so as to prove the extent to which the immigrant status hides internal variation. In line with the broader literature, boys do better than girls in mathematics. All immigrant groups in Spain show traces of gross or unconditional disadvantage, Moroccans, Romanians and Africans in a relatively worse situation.

Model 2 measures the impact of immigrant status net of a number of family level controls and independent variables including parental socioeconomic status and a measure of parental cultural capital (number of books in the household).^{††} The controls behave as expected. Socio-economically less-deprived family background and larger number of books owned by the household all contribute positively to school performance. Regarding the net effect of ethnicity, the European literature on ethnic residuals suggests that, excluding some groups (e.g. Turks in Germany and the children of Indochinese families in France), most of the ethnic differential fades away by simply controlling for socioeconomic disadvantage (Heath and Brinbaum, 2007). This European finding is only partially confirmed here for Spain. Note that the immigrant disadvantage regarding test scores revealed by Figure 1 disappears in this model specification. However, some unexplained disadvantage remains associated with the estimates for Romanians, Moroccans, and Other Africans well as with the residual category “Other”. Yet, children of two immigrant parents of Latin American, Asian, and

^{††} We do not consider these as a comprehensive list of individual and family level controls. Yet, for the sake of simplicity they represent an exigent combination of relevant factors. Sensibility analysis has revealed that expanding the number of controls to parental education or occupation implies no major changes in the results we present and discuss here.

European origin are not significantly different in their maths scores than children of natives^{§§}.

Table 1. Determinants of test scores in mathematics (multilevel random intercept models)

		<i>Model 0</i>	<i>Model 1.a</i>	<i>Model 1.b</i>	<i>Model 2</i>	<i>Model3</i>
Immigrant status (ref. child born to at least one native parent)			-0.29***		0.95	1.08
			(1.70)		(3.09)	(3.08)
Ethnicity (ref. Spanish)	Latin American			-14.92* (6.20)	-6.10 (6.58)	6.08 (-5.90)
	Romanian			-31.63*** (6.15)	-14.80* (6.60)	-14.71* (6.58)
	Other European			-11.95*** (3.83)	-7.00 (4.30)	-6.71 (4.29)
	Moroccan			-47.25*** (5.19)	-24.73*** (5.78)	-23.71*** (5.77)
	Other African			-41.20*** (10.26)	-25.75* (10.29)	-25.86* (10.27)
	Asian			-9.40 (10.15)	-0.61 (10.06)	0.29 (10.03)
	Other			-18.58*** (6.07)	-12.90* (6.07)	-13.70* (6.07)
Gender (ref. male)			-9.00*** (1.00)	-8.75*** (0.99)	-9.00*** (0.99)	
Family level	Socio-ec index				17.09*** (0.74)	14.51*** (0.76)
	No. books				8.23*** (0.62)	8.36*** (0.62)
School level	Public school					-4.18 (2.28)
	Parental education, school average					24.94*** (1.99)
Constant		503.60*** (1.28)		503.70*** (1.29)	491.55*** (1.83)	494.52*** (2.32)
Statistics	N	25605	25605	25605	25605	25605
	Chi2	-	293.62***	344.57***	2388.37***	2754.38***
	σ (u)	1278.8	1246.9	1229.5	737.5	556.26
	σ (e)	6524.4	6457.1	6443.1	6068.6	6061.5
	Rho (ICC)	16.4				
	σ (e) immigrant	6445.9	5886.2	5886.0	5543.5	5536.0
	σ (e) native	6534.0	6528.5	6529.0	6132.5	6125.5

Source: SSNES 2010. Legend: * p<.05; ** p<.01; *** p<.001

The last model (3) adds the school level controls: the school status (whether it is private or public) and the average value of the school socioeconomic index. These frequently used proxies of school quality in the specialized literature on school effects also behave as expected and more importantly reduce the unexplained school level variation [from σ (u)=737.5 to σ (u)=556.26].

^{§§} The final model specification also included a proxy for « ethnic capital » following the the basic operationalization by Borjas (1992). This variable had some effect on the ethnic residuals but did not alter the results concerning the main arguments here.

1.2. Subjective assessment of individual chances of reaching tertiary education.

In the previous section we evidenced that migrant children underperform natives in our objective measure of results in mathematics. We also showed that this is largely due to a composition effect since the fully specified model shows no significant residuals associated with immigrant status, and that the ethnic residuals remain significant only for some groups (Romanians and Africans, including Moroccans).

In this section we look at the students' subjective performance as it is assessed by children and their parents when evaluating their actual possibilities to go to the university. We present the results of this set of analysis separately for children and parents. The first panel in Table 2 shows the results for the estimated performance of children; the second one replicates the analysis for parents.

Children, as seen in Model 0, are aware of their gross disadvantage. Being the child of an immigrant family shows a negative and significant effect (-0.06*) on the assessment that the children themselves make of their possibilities to go to the university, considering their school performance so far (dependent variable). This effect, here also, explained by compositional effects: as can be seen, in Model 1 for Students this negative effect disappears once controlling for gender, ethnicity, parental education, and school characteristics (public schools and average level of parental education in the student-body).

In contrast, immigrant parents (right-hand side of the table) think that the chances of their children reaching the university level are higher on average compared to native parents (the estimate in Model 0 is 0.17**). This is so even after controlling for the child's subjective assessment of his/her own performance^{***}. In other words, immigrant parents are more unrealistic regarding their offspring's school results and are likely to overestimate their chances of having educational careers that would end in a university degree. Moreover, in Model 1 in the second panel of Table 2 we test an interaction between immigrant status and the student's reported own assessment. Importantly, this interaction is negative and significant. We actually see here that the worse the subjective assessment that immigrant kids make of their performance, the more positive their parents assessment is or, in other words, more unrealistic parents become. Finally, Model 2 shows that our conclusions in Model 1 are robust and remain substantially unchanged after completing the model specification with our selected controls (gender, ethnicity, parental education, public school and average parental education in the school).

Table 2. Subjective assessment of the student's performance by the students and their parents, municipality of Madrid (random constant multilevel regression)

Individual & Family level	<i>Student</i>		<i>Parents</i>		
	M0	M1	M0	M1	M2
Immigrant family	-0.06* (0.03)	-0.00 (0.07)	0.17*** (0.05)	0.42*** (0.09)	0.44*** (0.12)

^{***} Interestingly, children's and parents' assessments only correlate in 0.3, which suggest a large degree of parent-child disagreement in this regard.

Child's Subjective assessment of his/her performance				0.40***	0.45***	0.43***
		(0.03)				(0.04)
Interaction	Imm*performance			(0.03)	(0.03)	(0.03)
Gender (ref. male)		0.10*			-0.21**	-0.21**
					(0.06)	(0.06)
	Latin American	0.03				0.15
		(0.11)				(0.16)
	East European	0.08				0.05
		(0.14)				(0.22)
	Moroccan	0.09				0.17
		(0.15)				(0.25)
	Asian	0.07				0.10
		(0.14)				(0.21)
	Other	0.11				0.18
		(0.09)				(0.13)
	Parental educational	0.08*				0.04*
		(0.01)				(0.02)
School level	Public school	-0.07				-0.09
		(0.05)				(0.05)
	Parental education, school average	0.02				0.25
		(0.13)				(0.16)
Constant		1.16*	0.74	0.77***	0.70***	-0.31
		**				
		(0.03)	(0.40)	(0.05)	(0.05)	(0.49)
	N	2525	2525	1171	1171	1171
	N. schools	30	30	28	28	28
	Chi ²	4.36	64.53	200.38	212.34	230.67
	σ (u)	0.01	0.01	0.01	0.01	0.01
	σ (e)		0.52		0.05	0.49
	σ (e) native	0.59		0.48		
	σ (e) immigrant	0.45		0.53		

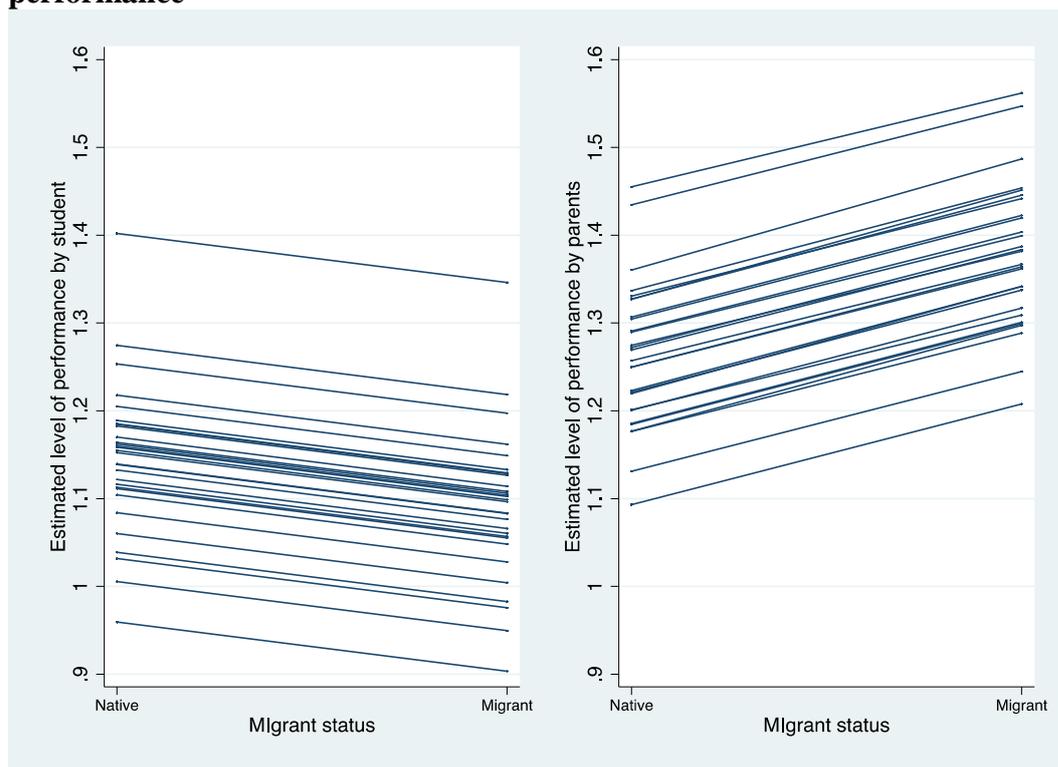
Source: Chances 2011. Legend: * p<.05; ** p<.01; *** p<.001

The results of these analyses partially confirm our third hypothesis (H3), which suggest that immigrants might be less equipped with information to interpret realistically the signal sent by school results through grades and translate them into realistic inferences about the likelihood of their children's educational future. While this seems to be the case for immigrant parents, it is not the case for their children who, in comparison to native children (reference category), estimate more negatively their chances of succeeding in the long-term. This implies that children are more able than parents to place their performance as a benchmark to compare who other students in their

environment do and, thus, to assess their performance in a comparative framework. Meanwhile parents lack this comparative approach.

We can summarize graphically our results proving that children and parents tend to interpret differently the chances of reaching the university. The first panel in Figure 2 refers to the children. We see from this graph that immigrant children report systematically and across schools that their probability of reaching the university is lower than the children of natives. Although school effects are relevant (as seen by differences in the constant of the regression lines that are specific for each school), the slope of all lines is negative. By contrast, the second panel of the figure, which refers to parents, show that immigrant parents are universally more optimistic about their children prospects to reach the university. Since both panels are presented using the same scales, we can clearly compare them. Native and immigrant parents report more optimistic inferences regarding their offsprings' chances (constants are higher among parents than among children), yet, the distance between students and parents is larger for the immigrant population.

Figure 2. Subjective assessment of children's chances to go to the university by children and parents across schools and immigrant status after considering their performance



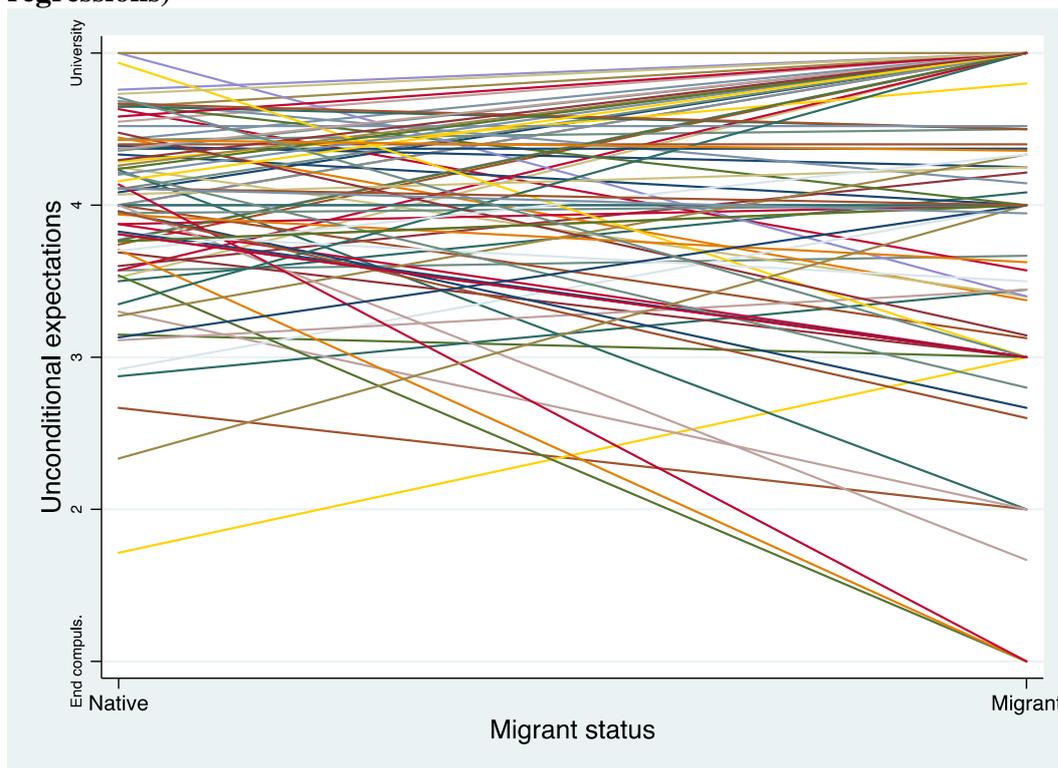
Source: Chances 2011. Estimated from Models 0 in left and right-hand sides in Table 2 (Random constant multilevel models).

To sum up, we see that while immigrant children are in a worse objective situation regarding their chances of reaching the university (as seen from the objective results and the children's subjective inference), immigrant parents are systematically more optimistic. This is particularly the case when the child expresses more pessimism.

2. Educational expectations

Previous research has already shown that immigrants in Spain hold ambitious educational expectations (Portes et al. 2011). In this final section of our empirical analysis we examine how the children of native and immigrant families expect their educational careers to develop. In a preliminary exploration, we do not find major differences in the expectations of the children of native-born families and those of immigrant-origin. This can be seen in Figure 3 which maps the within school difference between immigrant and natives using separate OLS regressions^{†††}.

Figure 3. Educational expectations adjusted for prior school performance: gap between the children of immigrant and native-born families across schools (OLS regressions)



Source: SSNES 2010.

Yet, to fully contrast the immigrant optimism hypothesis we need to provide a fully specified equation in which parental socioeconomic status and prior (objective) grades are considered. Following the logic that we applied in the analysis of test scores in mathematics, we estimated a number of linear multilevel regression models. As before, the empty model (Model 0) allows us to separate the variation that is due to the clustering of students across schools from variation caused by individual or family characteristics. The first model (Model 1) includes the immigrant status and the school performance as controls to provide the net effect of coming from an immigrant family on educational expectations. The second model (Model 2) adds the already known list of individual and family level controls. Finally, Model 3 adds the school level controls.

^{†††} Note that since the clustering of students across schools is empirically not very relevant, we do not present graphically in this section the results of the following multilevel analysis.

Table 3. Determinants of educational expectations in Spain (multilevel random intercept models)

		<i>Model 0</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Immigrant status (ref. child born to at least one native parent)			0.18***	0.28***	0.29***
			(0.03)	(0.05)	(0.05)
Test scores			0.01***	0.01***	0.01***
			(0.00)	(0.00)	(0.00)
Gender (ref. male)				0.35***	0.35***
				(0.02)	(0.02)
Family level	Socio-ec index			0.34***	0.33***
				(0.01)	(0.01)
	No. books			-0.01	-0.00
				(0.01)	(0.01)
Ethnicity (ref. Spanish)	Latin American			0.04	0.04
				(0.11)	(0.11)
	Romanian			-0.07	-0.07
				(0.12)	(0.12)
	Other European			0.01	0.02
				(0.08)	(0.08)
	Moroccan			-0.10	-0.10
				(0.11)	(0.11)
	Other African			0.19	0.20
				(0.19)	(0.19)
	Asian			0.13	0.13
				(0.20)	(0.20)
	Other			0.00	-0.00
				(0.11)	(0.11)
School Level	Public school				-0.07**
					(0.03)
	Parental education, school average				-0.01
					(0.03)
Constant	Constant	4.10***		0.46***	0.53***
		(0.02)		(0.07)	(0.07)
Statistics	N	20427	20427	20427	20427
	Chi2		4858.92***	6984.96***	7007.07***
	σ (u)	0.17	0.08	0.05	0.048
	σ (e)	1.73	1.52	1.33	1.33
	Rho	0.06			
	σ (e) immigrant	1.98	1.73	1.65	1.65
	σ (e) native	1.70	1.40	1.29	1.29

Source: SSNES 2010. Legend: * p<.05; ** p<.01; *** p<.001

From the empty model we know that the clustering of students across schools is almost irrelevant to expectations. In other words, expectations appear to be formed outside schools, probably in the social networks that are the closest, particularly the household. If some 17% of the overall variation in the test scores obtained in mathematics is due to the sorting of students in the school map, here only 94% of the variance in our dependent variable appears to be across school variation, which corresponds to the Rho or Intra Class Correlation Coefficient. The vast majority of the variation in our dependent variable lies at the individual level [$\sigma(e)= 1.73$] and, with minor differences, this applies both to the children of immigrant and native families. Yet, if differences are to be mentioned, one can argue that the school map has more implication for the children of native-born families than for those coming from immigrant origin. This is opposite of what we saw in the case of the school test scores. If schools are more

relevant for school performance of the children of immigrants, they are more important for the children of native born families when it comes to expectations [note the difference between $\sigma(e)$ for immigrants and natives].

Model 1 confirms that also in Spain, immigrant students have higher educational expectations than the children of native born controlling for the student average performance. This effect is statistically significant. Overall, Model 2 shows no major differences between the unadjusted expectations of immigrants and natives. Again, the Romanians and Moroccans report lower expectations compared to the natives. There are no traces of significant differences among other groups. The inclusion of the average school performance prior to reporting expectations greatly impacts the ethnic estimators. Moroccans' disadvantage regarding expectations drops to less than a third of its former size. The difference between the Romanian origin students and the children of natives appear to be very small and more importantly not significant. All other groups now hold positive signs. This regularity, even though it can only be confirmed on unstable basis, since the effects detected are not significant, confirms what the literature calls "immigrant optimism." Under this model specification, the finding mentioned above, that the clustering of students across schools appears to be less relevant for immigrants than for natives, becomes more relevant. Note that the individual level errors are distributed with a variance of 1.7 for immigrants while for natives the distribution is more compacted, 1.4. Thus we can conclude that family or individual level processes are more important in creating expectations for the children of immigrants than they are for the children of native-born parents, for whom the school context is more important.

In Model 3, the addition of individual and family level controls imposes no important changes in the picture described in the previous models, with the exception of the further reduction of the Moroccan differential compared to the native. Given the limited relevancy of the distribution of students across schools for educational expectations, one should be little surprised to see that the contextual level predictors are also barely significant, not to say irrelevant. Only attending a private school has a significant positive effect on expectations.

Conclusion

In this paper we provide evidence about the conditions that shape the educational trajectories of the children of immigrant families in comparison with the children of native-born parents in Spain. Our research makes two types of contributions. Firstly, it provides information on Spain, which as a recent immigration destination in Western Europe is an under-represented case study in the international literature. As we have shown, Spain fits many of the predictions made by the American and European literature. We also make a theoretical contribution providing foundations to the broadly known regularity of immigrant optimism regarding educational expectations.

With respect to the description of the situation in Spain we have identified a significant pattern of disadvantage among the children of immigrants in comparison to the natives. Some of this disadvantage fades away after properly controlling for parental socioeconomic status. Yet, unexplained ethnic residuals persist among some groups, particularly among African and Moroccan origin students. In this case, Spain seems to be closer to other European countries like Germany where the Turkish origin

immigrants have shown a robust and negative ethnic differential compared to natives in school and educational results. Above and beyond this pattern, the children of immigrant families in Spain are largely optimistic regarding their expectations. By this we mean that controlling for prior school results, the children of immigrants expect to have larger and more prestigious educational careers than the children of Spanish parents. However, and this is one of the main contribution of this article, this difference between immigrant and non-immigrant children seems to be due to their parents' optimism, rather than their own.

Immigrant optimism regarding long-term educational careers has been internationally documented as an empirical regularity. In order to investigate the causes of it, we have looked at how the families and the school context affect the processing of information made available to individuals, on the basis of which they will form their educational expectations and will make their decisions. We have shown that the school context is more important in shaping the school results among immigrant-origin students than among the natives. By contrast, the formation of expectations among the former seems to depend more on family characteristics than among the latter. This implies that the formation of expectations among immigrant families is more autonomous and driven by non-school factors. Furthermore, we have shown that immigrant parents are rather unable to produce an accurate assessment of how likely their children will continue to tertiary education. Indeed, despite their underperformance in schools, immigrant parents appear to be inclined to think that their children will nevertheless attend university. In a nutshell, if immigrant parents are less able to assess the potential of their children in light of their school performance, and the expectations among immigrant families are less influenced by the school context, we argue that the reason for immigrant optimism is the lack of precise information about the functioning of the school system, and the signals that grades send them regarding the educational potential of their children.

While the evidence provided in this paper restricts to the recent Spanish experience, the obtained results are of a great relevance for the international debate on the positive impulse that immigrant families may represent for their children.

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Appendix 1: Description of Independent Variables

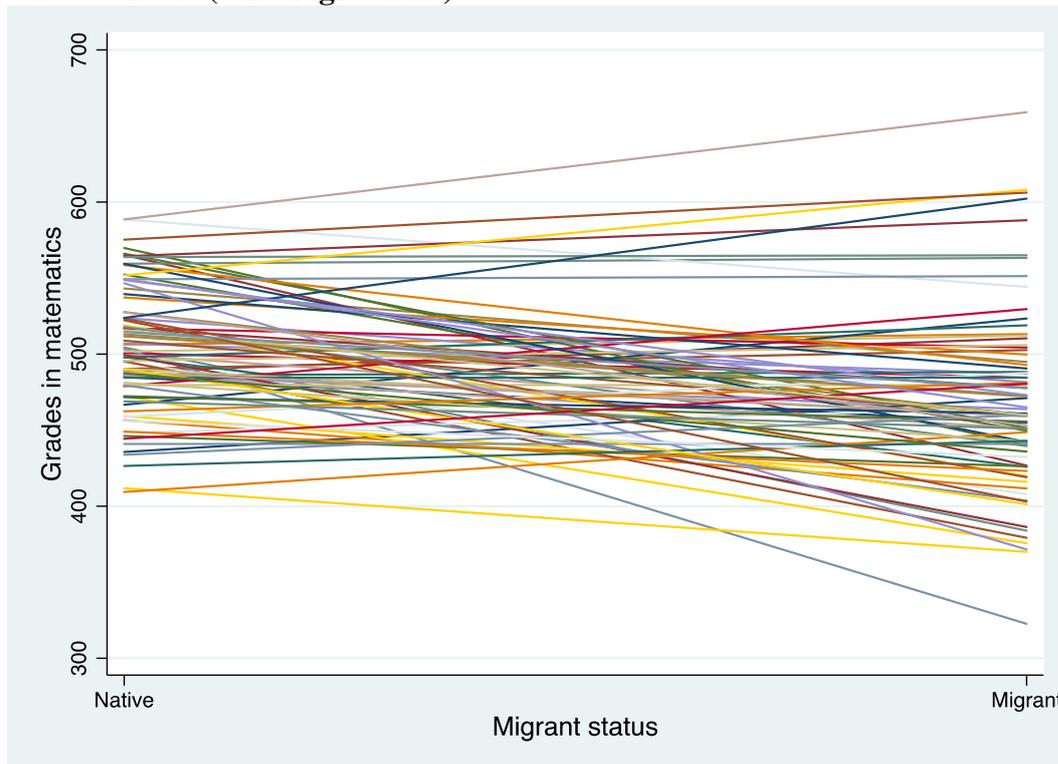
Model	Variable name	Definition	Response categories	Source
1	Test Scores in Maths		0-500 points	SSNES 2010
1, 2 & 3	Ethnicity	Country of birth of the foreign-born parent. If both parents are foreign born but from different countries, the country of birth of the mother.	Spanish (reference) Romanian Other European Latin American Moroccan Other African Asian Other	SSNES 2010 & CHANCES 2011
1, 2 & 3	Immigrant Origin	Indicates whether the child was born to two immigrant parents, or not ^{***}	No (0, reference), Yes (1, Child born to two immigrant parents)	SSNES 2010 & CHANCES 2011
1, 2 & 3	Gender	Indicates sex of the child	Male (0, reference), Female (1)	SSNES 2010 & CHANCES 2011
1 & 3	Socio-Economic Index	This a by-default given score made of parental occupation and household resources		SSNES 2010 Provided by the Minister of Education following the common practise in international surveys of student achievements (PISA and TIMMS)
1 & 3	Number of Books	Number of books in the household as reported by the child		
1, 2 & 3	Public School	Ownership of the school. Private includes both private state-funded and completely private schools	No (0, reference), Yes (1)	SSNES 2010 & CHANCES 2011
1 & 3	Average Parental Education in School	Average education of the parents with children enrolled in each school	Composite Index including education, occupation & hh resources -1., 1	SSNES 2010
2				CHANCES 2011
2	Performance	Do you consider your /your child's school performance good enough to do a university career you/he/she prefer(s)?	0 No 1 I am not sure 2 Yes	
2	Parental Education	Highest parental educational level	1 None 2 Primary 3Secondary 4 Tertiary 0 DK	
2	Parental Education, school average	Average highest educational level among school's parents	1 None 2 Primary 3Secondary 4 Tertiary 0 DK	
3	Expectations	How likely you consider you will go to the university?	Scale 1-5	SSNES 2010

^{***} Mixed parental couples are known for intense acculturation. The fact that in Spain Latin Americans (native Spanish speakers) are vastly over-represented among mixed parental couples further justifies our decision to collapse these two categories together.

Appendix 2

Figure A.1 represents the average difference in test scores in mathematics between immigrant and non-immigrant origin for each school in the sample. For each line, the intercept in the left registers the natives' average results. The one on the right the migrants' mean grade. The existence of a visible dispersion around the average score of 500 summarizes the importance of school effects in our data; in other words, the clustering of students in our dataset is of an evident importance to understand variation in our dependent variable. Yet, although this applies to both the children of immigrants and natives, it is far more important for the former than for the latter group. Dispersion in the right hand side of the figure is larger than in the left. This suggests that while school effects are important in general, children of immigrants appear to be more sensitive to this indicator of societal context than the children of natives.

Figure A.1. Immigrant status as a determinant of test scores in mathematics across schools (OLS regressions)



Source: Our elaboration from the National Evaluation Survey. Each line is a separate OLS regression. Dependent variable is test scores in mathematics at the end of compulsory secondary schooling.