

The version of record of this article has been published and is available in
Child Indicators Research (date of publication 5 January 2016)

<https://doi.org/10.1007/s12187-015-9361-z>

The influence of the gap between parental and their children's expectations on children's academic attainment

Oscar David Marcenaro-Gutierrez¹; Luis Alejandro Lopez-Agudo²

Abstract Parents and their children's expectations on educational achievement have been highlighted in the literature as proper proxy indicators for students' forthcoming performance. In this research we intend to measure the effect of these indicators accounting for the existence of endogeneity –due to their reciprocal relationship– and also their correlation with unobservable variables conditioning students' achievement. The aim is to determine the extent to which the potential positive correlation between expectations and children's educational performance could help to overcome the limiting effect of low socio-economic characteristics of the household on the latter and, consequently, to achieve the well-being of children in the medium and long run. Our results show a positive influence of the agreement of parental and children's expectations on students' achievement and on the likelihood of children's enrollment in a particular academic track. In addition, parental expectations have been found to be dependent on family socio-economic background, what supports the persistence of strong barriers to socioeconomic mobility of children. We suggest policy interventions as, e.g., fostering the participation of both parents and children on university and professional orientation in early stages of secondary education, so they could have complete and symmetric information to set their expectations on a realistic basis.

JEL Classifications I21, D84

Keywords parent's expectations; children's expectations; indicators; educational performance; well-being; endogeneity.

Acknowledgements

This work was partly supported by the Andalusian Regional Ministry of Innovation, Science and Employment [PAI group SEJ-532 and Excellence Project SEJ-2727]; the Research Plan of the University of Malaga (Capacity Building Programme I+D+i of Universities 2014-2015); the Ministry of Economy and Competitiveness of Spain [Research Project ECO2014-56397-P] and the scholarship FPU2014 04518 of the Spanish Ministry of Education.

¹ O. D. Marcenaro-Gutierrez. Corresponding author.

Departamento de Economía Aplicada (Estadística y Econometría, 15), Universidad de Malaga, C/ Ejido, 6, 29071, Malaga, Spain. Tel.: +34 95 213 7003; Fax: +34 95 213 7262.
e-mail: odmarcenaro@uma.es

² L. A. Lopez-Agudo

Departamento de Economía Aplicada (Estadística y Econometría, 15), Universidad de Malaga, C/ Ejido, 6, 29071, Malaga, Spain. Programa de Doctorado en Economía y Empresa de la Universidad de Malaga. Tel.: +34 95 213 7003; Fax: +34 95 213 7262.
email: lopezagudo@uma.es

1 Introduction

Only recently, educational expectations of parents and children have been highlighted in the literature as important factors in predicting students' academic achievement and their decisions about high school tracks. These expectations are said to maintain a reciprocal relationship between them – generating problems of endogeneity in the estimates– and also to be correlated with unobservable indicators which determine students' academic achievement (Hao and Bonstead-Bruns 1998; Zhang et al. 2011). Both issues complicate empirical analyses and, consequently –despite the potential importance of the link between expectations and students' outcomes–, the literature on this is scarce. This is particularly the case of Spain, where there is the additional difficulty of getting access to good observational data on expectations.

In this context, we intend to measure whether the coincidence or discordance of parental and children's expectations could condition the achievement of the latter, controlling for a set of factors traditionally considered to play a significant role in the education production functions (e.g., gender, family background, study hours, etc.). Furthermore, this agreement (or disagreement) in expectations could be affecting the high school track followed by students after completing compulsory education (Räty 2006) and, consequently, the academic career of children and their well-being in the medium and long run. The main interest of going in depth into these issues is to determine the extent to which their potential positive relationship could help to overcome the limiting effect of low socio-economic characteristics of the household on students' educational attainment. In so far as the coincidence of parental and children's expectations may increase students' achievement and this agreement could be achieved by specific policy interventions, we could be moving towards a more meritocratic society, what represents an important aim for education policy interventions (Marcenaro et al. 2015). Besides, we believe that this agreement (or disagreement) is caused by the asymmetric information of parents and children with regard to the actual capacity of the latter, what has important implications in terms of educational policies, as the personal and pecuniary cost of those failing to complete their academic track is massive –sometimes due to inappropriate selections by children following their parents' advices–, what is a matter of particular concern in times of budgetary constraints. In fact, Arce et al. (2015) –analyzing the figures reported by De la Fuente and Serrano (2013)– indicated that dropout rates at university level generated a cost of 5,772 Euros per student each year (average of first, second cycle and post-graduate studies) and, when this dropout happens in the first cycle, the cost raises to 7,120 Euros, what means a total annual cost of 1,500 million Euros (in 2005 constant prices).

In this research we focus on the autonomous community of Andalusia –the most populated Spanish region–, which is of special interest since pupils in this region are among the lowest achievers compared to other Spanish regions–. The figures on the educational performance in this region show that it has systematically obtained lower scores than the average of Spain in the three competencies evaluated by PISA (reading, mathematics and science), belonging to the group of the three worst performing autonomous regions in Spain in these subjects. Andalusia also shows very high early dropout rates from compulsory education (27.7%, as compared to a 22.3% for Spain in 2014; IECA 2015). Furthermore, it is also at the bottom in terms of income equality, what could be partly driven by low levels of social mobility.

Also relevant in terms of the potential implications of our results is that family presents a weak involvement at schools in Spain, even questioning the utility of school councils (OECD 2006), what makes difficult to ensure learning experiences for each child and family. This problem may be higher among marginalized families whose expectations on children academic opportunities may be lower. Thus in Andalusia, which is one of the Spanish regions with lower GDP per capita, this reproduction cycle can be presented with special profusion.

The rest of the paper is organized as follows: In section 2 we make a brief revision of the literature on parental and children's educational expectations. In section 3 we describe the data. Section 4 is devoted to the methodology employed to obtain the results reported in section 5. Finally, section 6 presents the main conclusions and comments on the policy implications derived from our analysis.

2 Background and literature review

The use of expectations as a relevant variable in explaining students' achievement began with the seminal works of Sewell and Vimal (1968) and Sewell et al. (1970), who considered expectations in their achievement models and obtained that they were proper predictors of students' achievement.

A key issue within the literature on expectations is that socio-economic background has been highlighted as helping to increase children's and parental expectations and then academic achievement.

This is a subject of particular concern in our research, since we intend to check whether this relationship is accomplished in the case of Andalusia and, if so, how to mitigate it, in order to boost meritocracy. Hao and Bonstead-Bruns (1998) argued that high income level in the household supposed higher parental expectations, which were translated into the allocation of the income in educational activities and participation in school programs. In addition, they claimed that agreement on parental and students' expectations helped students –of eighth grade in United States– to obtain better achievement. Similarly, Rimkute et al. (2012) found that family background, previous academic achievement and parental level of education predicted parental and students' expectations. What it is more, they highlighted that parental expectations were good indicators of children's expectations and that parental and children's expectations became more similar when students reached ninth grade, so their expectations converge when adolescents approach an education transition, due to the higher discussion about this subject with their parents (Nurmi 2004), therefore expectations become more realistic. This adjustment process is also supported by Hossain and Tsigaris (2015), who found that students' expectations on their achievement in each course are formed from its very beginning.

There are many facts which can be reflecting parental expectations, as parental involvement, which has been frequently remarked as helping to increase academic achievement in school (see, e.g., Hanson et al. 1997). Froiland et al. (2012) measured the influence of parental involvement on children's achievement by activities like helping them with homework and obtained that it was positive for kindergarten students, but when reaching to eighth grade these practices could be counter-productive. Nonetheless, Hao and Bonstead-Bruns (1998) stated the relevance of parental involvement in school learning, because it favors the increase in eighth grade students' expectations. Furthermore, Wang and Benner (2014) found that, to the extent that parental expectations are higher than students', children will be benefited by the higher support and engagement of their parents. Froiland and Davison (2014) analyzed parent-school relationship and parental expectations in the determination of schools' outcomes in the United States' secondary and high schools, finding that these factors were very relevant. They also showed that parental expectations had a positive and higher relation with school outcomes than socio-economic background characteristics of the families, what highlights their relevance. On the other hand, Aldous (2006) claimed that, although the time devoted to homework by students and parental and children's expectations were positive for children's achievement, the practice of helping with the homework by parents was detrimental.

Expectations have also been analyzed in the Spanish context, although to lesser extent; e.g. Torío et al. (2007) found that students from the region of Asturias had higher expectations in their academic future when their achievement and the level of parental education were high. Portes et al. (2010) highlighted that the determinants of expectations and aspirations in Spain were similar to that of students from the United States (demographic factors, socio-economic background, language skills, etc.) and that they could provide an increase in the achievement of second generation immigrants, what would promote social mobility.

Hence, building on the previous literature, the procedure we follow in order to get an accurate vision of the influence of parental and children's expectations agreement/disagreement on students' achievement and their elected high school track –after finishing compulsory education– consists of a two steps procedure. In the first step, we intend to predict “endogeneity-free” parental and students' expectations –due to their reciprocal relationship– by using Two Stage Least Squares estimation methodology; this is based on the idea that we could avoid the endogenous effect of students' expectations on parental expectations by replacing parental expectations with an instrumental variable and same applies to the endogenous impact of parental expectations on students expectations. The predicted instrumented values of students' expectations and parental expectations –once we have removed endogeneity problems– could be employed in the second step to estimate whether their coincidence (or discordance) affects children's achievement/education elections after the last course of secondary education.

The first step of the analysis was explained by authors as Bodovski (2014), who departed from previous works on the relationship between socio-economic background of the family, early parental practices and parental expectations in education. They went a step further and related these parental educational expectations and practices to children's expectations and their general self-concept in many subjects. They obtained that children's higher expectations depended positively on family socio-economic background and parental expectations, but parental involvement in extra-curricular education did not showed an effect on students' expectations –although so did involvement with the school–. Another interesting relationship is that proposed by Zhang et al. (2011), who claimed the existence of a reciprocal

relationship between children's and parental expectations, due to their joint determination, what could be denoting the existence of endogeneity.

Departing from this approach, once obtained "endogeneity-free" parental and children's expectations from the first step, we intend to move forward and study in the second step whether the coincidence or discordance of these parental and children's expectations –conditioned on family socio-economic background, student and school variables– could explain children's achievement and their elected high school track after the last course of secondary education. This approach has been employed by some authors as Neuenschwander et al. (2007), who found –for primary school students– that parental and children's expectations were widely useful when predicting children's achievement, but they did not analyze the influence of their coincidences on students' achievement nor dealt with students' future educational elections and the potential existence of endogeneity between parental and student's expectations. Alternatively, Wang and Benner (2014) did study the discrepancies in parental and children's expectations, finding that higher parental expectations –compared to those of students– had a positive effect on students' achievement. However, they did not take into account the potential existence of endogeneity in the determination of both expectations.

In addition, in this second step we plug in our model children's effort. Once students have formed their expectations, they could vary their effort by devoting more (or less) time to study in order to accomplish their expectations. Because of that, we propose this variable to be a potential means for the realization of students' expectations on their education achievement and future high school track elections.

To conclude, as it can be appreciated from the literature review, there is a virtual absence –to the best of our knowledge– of previous literature for the Spanish case on parental and children's expectations coincidences and discrepancies –dealing with their potential endogeneity– as proxies for ulterior students' achievement and the election of the post-secondary academic track by the student, so we intend to provide empirical evidence on this subject.

3 Data

When performing our analysis we make use of the recent survey ESOC10 (Social Survey 2010: Education and Housing) focused on Andalusia and conducted among a total of 5,032 students aged 10-11 and 14-15 and their families –2,584 from the subsample of students born in 1994 and 2,448 from those born in 1998–. This survey was linked to the results from the Andalusian diagnostic assessment tests and to the administrative records (SENECA) of teacher-based scores, provided by the *Consejería de Educación de la Junta de Andalucía*. This combined database (hereafter ESOC10-SEN) is further reduced by removing those students who: presented some kind of disability, attended to a private school, have repeated a course³ or about whom the database does not have information on these aspects. These filters left us with a subsample of 1,376 observations for students born in 1994 and 2,027 for those born in 1998.

We focus the analysis on the subsample of students aged 14-15, because at this age their achievement scores are measured in a 0 to 10 integer scale, while at age 10-11 they present a lower number of categories⁴, what reduces the discrimination power of the model; additionally, we do not have information on future high school tracks for 10-11 years old students. Hence, once focusing in the subsample of 1994, it was also reduced due to the removal of guardians who answered parents' questionnaire and those parents who did not provide information on their expectations –which is an essential variable in our analysis–, what leaves us with a subsample of 1,295 individuals.

The use of the instrumental variable "the person of reference works more than eight hours every day" reduces the subsample to 1,092 observations. We employed a missing flag procedure in our estimates to control for the potential bias introduced by removing those parents who did not provide

³ We have not included repeaters in our analysis due to the specific characteristics that these students present –like a high likelihood of grade retention and dropping out, as highlighted by many authors, e.g. Carabaña (2013), and thus their lower achievement (Cordero et al. 2013)– what could potentially bias the results of our research. In addition, to the extent that repeater students were also born in 1994 and 1998 –respectively–, they will be attending at least one course under that of non-repeater students, so repeaters' achievement in reading and mathematics would not be comparable to that of non-repeaters.

⁴ These categories are: fail –2.5–, pass –5–, good –6–, very good –7.5– and excellent –9–.

information on the household income level⁵. Table 1 reports the descriptive statistics of the variables under analysis.

Table 1 Descriptive statistics

		Observations	Proportion	S.d.
Who answers the questionnaire	Father	1092	0.34	0.47
	Mother	1092	0.66	0.47
Father's education level	Lower than primary	1092	0.03	0.16
	Primary	1092	0.12	0.30
	Secondary	1092	0.35	0.47
	High school	1092	0.21	0.41
	University	1092	0.29	0.45
Mother's education level	Lower than primary	1092	0.04	0.19
	Primary	1092	0.09	0.29
	Secondary	1092	0.35	0.48
	High school	1092	0.24	0.43
	University	1092	0.28	0.45
Household structure	Lives only with mother	1092	0.08	0.27
	Lives only with father	1092	0.01	0.09
	Does not live with parents	1092	0.00	0.00
	Lives with both parents	1092	0.91	0.28
Monthly income level of the household	1100 Euros or less	1092	0.10	0.30
	From 1101 to 1800 Euros	1092	0.38	0.49
	From 1801 to 2700 Euros	1092	0.25	0.43
	More than 2700 Euros	1092	0.18	0.39
	Income level missing flag	1092	0.09	0.28
Parental implication in homework	A lot	1092	0.16	0.37
	Some	1092	0.50	0.50
	A little	1092	0.30	0.46
	Not at all	1092	0.04	0.19
Sex	Male	1092	0.48	0.50
	Female	1092	0.52	0.50
Immigrant status	Native	1092	0.98	0.15
	Immigrant	1092	0.02	0.15
Ownership of the school	Public school	1092	0.71	0.45
	Semi-private school	1092	0.29	0.45
Time devoted to do the homework by the student	No tasks	1092	0.00	0.05
	Less than 30 minutes	1092	0.04	0.19
	From 30 minutes to less than 1 hour	1092	0.19	0.39
	From 1 to less than 2 hours	1092	0.41	0.49
	From 2 to less than 3 hours	1092	0.23	0.42
	More than 3 hours	1092	0.13	0.34
Parental expectations' instrumental variable	Parental opinion on student's manual skills	1092	7.28	1.78
Students' expectations instrumental variable	The person of reference works more than eight hours every day	1092	0.18	0.38
	The person of reference works eight hours or less every day	1092	0.82	0.38
Dependent variables	SENECA 2009 reading	1043	6.35	2.00
	SENECA 2009 mathematics	1008	6.14	1.96
	Parental expectations	1092	15.29	1.53
	Students' expectations	1092	15.29	1.47
	Academic track: Repeat a	1011	0.09	0.28

⁵ For the estimations reported in Table 4, the use of students' scores in reading/mathematics, the variable for the high school track chosen by the students in the course 2010/11 and the variable that indicates coincidences/discordances between students' and parental expectations contribute to slightly reduce the subsample.

course			
Academic track: High school of sciences and technology	1011	0.43	0.50
Academic track: High school of social and human sciences	1011	0.48	0.50

Source: Authors' own calculations from ESOC10-SEN.

The timing of the observations is also a relevant issue in the kind of study we are performing. For reading and mathematics scores and high school tracks, they are dated to the end of the 2009/10 course, i.e., the last days of June 2010. The rest of variables –among which we find parental and students' expectations– were collected in the ESOC10 survey from April to June 2010.

4 Methodology

Once described the data and the two steps model employed in this analysis, the empirical implementation of these steps is explained in what follows.

4.1 First step of the analysis

Formally, the procedure we follow consists of two clearly differenced steps, which first step models are defined by the estimation of equations (1) and (2) as:

$$\mathbf{SE} = \mathbf{PE}\beta_1 + \mathbf{PC}\beta_2 + \mathbf{PI}\beta_3 + \mathbf{SC}\beta_4 + \mathbf{SCHC}\beta_5 + \varepsilon_1 \quad (1)$$

$$\mathbf{PE} = \mathbf{SE}\gamma_1 + \mathbf{PC}\gamma_2 + \mathbf{PI}\gamma_3 + \mathbf{SC}\gamma_4 + \mathbf{SCHC}\gamma_5 + \varepsilon_2 \quad (2)$$

where **PE** represents parental expectations and **SE** represents students' expectations⁶; **PC** stands for parental and household characteristics and **PI** for parental interaction in education; **SC** represents students' characteristics; **SCHC** stands for school characteristics; being β_i –with $i=1, \dots, 5$ – (in equation 1) and γ_j –with $j=1, \dots, 5$ – (in equation 2) their respective slopes. Finally, ε_1 and ε_2 are the vectors of error terms which are hypothesized as $\varepsilon_1 \sim N(0, \sigma_{\varepsilon_1}^2)$ and $\varepsilon_2 \sim N(0, \sigma_{\varepsilon_2}^2)$.

The variables **SE** and **PE** are the dependent ones in equations (1) and (2), respectively. Nevertheless, when we include each one as regressor for the other, an endogeneity problem arises, because they are jointly determined by students and parents, what violates an important assumption of the model: the independence between regressors and the error term. Because of that, we make use of an instrumental variables approach by estimating equation (1) and (2) by Two-Stage Least Squares (2SLS), proposing **Z₁** (for equation 1) and **Z₂** (for equation 2) as instruments. These instrumental variables must fulfill the relevance requirement (they must account for a significant variation in the endogenous variable) and the validity requirement (they must not be correlated with the error term, i.e., $E(\varepsilon_1|\mathbf{Z}_1) = 0$ and $E(\varepsilon_2|\mathbf{Z}_2) = 0$).

Following these requirements and the related literature, we have checked which variables inside our dataset could potentially be adequate instrument candidates. However, as it is well known from the Econometric literature, finding a proper instrumental variable is always a difficult task. In our case, the proposed instrumental variables have never been employed in the study of expectations, but they have provided good results in this research –to the best of our knowledge–, both empirically –as can be seen in Table 3, section 5– and theoretically, as it is discussed in what follows.

Particularly, the instrumental variable selected for parental expectations (**Z₁**) was “parental opinion on student's manual skills” –ranging from 0 to 10–, which could be reflecting that parents are usually those who realize the potential abilities that their children could have and develop –in addition to teachers– (Winner and Martino 1993), formulating their expectations based on their perceived skills. These “manual skills” are presented by children in a natural way and they could also affect competences in many fields of human activity as art, music, etc. (Howe et al. 1998), due to the wide range of disciplines that this term gathers. This variable could be reflecting parents' perception of children's innate talent –students who are very brilliant in many aspects or gifted–, although they could not be employing their abilities on the education field, presenting underachievement in some cases, which could be due to many aspects as high and unrealistic parental expectations about their performance (Steven 2002).

⁶ Both parental and students' expectations are coded according to the translation of the ISCED level of studies that students or parents expect –for students' highest level of education– to the correspondent number of years of education: not finishing secondary studies (6 years), secondary studies (10 years), middle-level vocational training or high school (12 years), high-level vocational training (14 years) and university studies (16 years).

In the case of students' expectations, the selected instrumental variable (\mathbf{Z}_2) indicates whether the person of reference –the person who provides higher income to the household– works more than eight hours every day or not. Vincent and Neis (2011) stated that parental work schedules have recently changed, reaching to a configuration where both parents work full-time and even in non-standard working hours. In addition, they established that parental work schedules can influence parents' emotional state, affecting their relation and involvement with their children, what finally influences students' achievement. In relation to children's perception of their parents' job, Wierda-Boer and Rönkä (2004) obtained that students wished that their parents could have a job which involved less working hours, better paid, with more holidays and less travelling. Thus, students would be seeking more attention from their parents. Furthermore, Kinnunen and Mauno (2001) highlighted that students are more critical with their parents' job than themselves.

Returning to our empirical model, we have redefined equation (1) by including the instrumented value of \mathbf{PE} and equation (2) by adding the instrumented value of \mathbf{SE} , both from the first stage of their respective 2SLS estimations. Then, we obtain the following equations:

$$\mathbf{SE} = \widehat{\mathbf{PE}}\beta_1 + \mathbf{PC}\beta_2 + \mathbf{PI}\beta_3 + \mathbf{SC}\beta_4 + \mathbf{SCHC}\beta_5 + \varepsilon_1 \quad (3)$$

$$\mathbf{PE} = \widehat{\mathbf{SE}}\gamma_1 + \mathbf{PC}\gamma_2 + \mathbf{PI}\gamma_3 + \mathbf{SC}\gamma_4 + \mathbf{SCHC}\gamma_5 + \varepsilon_2 \quad (4)$$

The first stage of 2SLS begins with the estimation of equations (3.a) and (4.a), respectively: The first one (equation 3.a) includes as regressors the correspondent instrument (\mathbf{Z}_1) and \mathbf{PC} , \mathbf{PI} , \mathbf{SC} , \mathbf{SCHC} , while the second one (equation 4.a) includes \mathbf{PC} , \mathbf{PI} , \mathbf{SC} , \mathbf{SCHC} and the instrument (\mathbf{Z}_2). The dependent variable in equation (3.a) will be the endogenous one in (3) and the dependent variable of equation (4.a) will be endogenous of (4), respectively, so we obtain the following models to estimate:

$$\widehat{\mathbf{PE}} = \mathbf{Z}_1\pi_1 + \mathbf{PC}\pi_2 + \mathbf{PI}\pi_3 + \mathbf{SC}\pi_4 + \mathbf{SCHC}\pi_5 \quad (3.a)$$

$$\widehat{\mathbf{SE}} = \mathbf{Z}_2\theta_1 + \mathbf{PC}\theta_2 + \mathbf{PI}\theta_3 + \mathbf{SC}\theta_4 + \mathbf{SCHC}\theta_5 \quad (4.a)$$

Then, in the second stage of 2SLS we add the fitted values of parental expectations ($\widehat{\mathbf{PE}}$) from equation (3.a) and the fitted values of students' expectations ($\widehat{\mathbf{SE}}$) from equation (4.a) in their respective original regressions ($\widehat{\mathbf{PE}}$ in the case of equation 3 and $\widehat{\mathbf{SE}}$ in equation 4). Due to their properties – $Cov(\widehat{\mathbf{PE}}, \varepsilon_1) = 0$ and $Cov(\widehat{\mathbf{SE}}, \varepsilon_2) = 0$ – endogeneity should not be a problem. Thus, we will estimate (3) and (4) in the second stage of 2SLS.

4.2 Second step of the analysis

Once obtained a prediction of students' expectations ($\widehat{\mathbf{SE}}$) and parental expectations ($\widehat{\mathbf{PE}}$) from equations (3) and (4) –which are no longer joined to the random error term– they will be employed in the second step of our analysis, represented by the estimation of the model:

$$\mathbf{SA} = \widehat{\mathbf{PSE}}\delta_1 + \mathbf{PC}\delta_2 + \mathbf{SC}\delta_3 + \mathbf{SCHC}\delta_4 + \mathbf{SEF}\delta_5 + \tau \quad (5)$$

where \mathbf{SA} measures students' achievement in reading or mathematics and $\widehat{\mathbf{PSE}}$ represents whether predicted parental expectations are higher, similar or lower than predicted students' expectations, being its coefficient δ_1 . This variable is defined by the use of the predicted students' expectations ($\widehat{\mathbf{SE}}$) from equation (3) and the predicted parental expectations ($\widehat{\mathbf{PE}}$) from equation (4)⁷; \mathbf{SEF} represents students' effort and δ_5 is the vector of its slopes; τ is the vector of error terms which is hypothesized to be normally distributed ($\tau \sim N(0, \sigma_\tau^2)$).

As an alternative specification in this second step, the dependent variable \mathbf{SA} will be replaced by student's academic track followed after finishing compulsory education. This analysis will be approached by the use of a multinomial logit model and the replacement of the dependent variable of (5) by students' elected high school track (\mathbf{SAT})⁸.

$$\mathbf{SAT} = \widehat{\mathbf{PSE}}\varphi_1 + \mathbf{PC}\varphi_2 + \mathbf{SC}\varphi_3 + \mathbf{SCHC}\varphi_4 + \mathbf{SEF}\varphi_5 + \omega \quad (6)$$

where ω is the vector of error terms which is hypothesized as $\omega \sim N(0, \sigma_\omega^2)$.

5 Results

⁷ We have considered that parental expectations are higher or lower than students' when they show a difference of 1 year or more.

⁸ We have considered the categories of repeating, high school track of science and technology, and high school track of social and human sciences. The categories of high school track of arts and vocational cycles have not been used due to their low number of observations.

In this section we present the main results of the analysis. First of all, we begin with a bivariate analysis performed with the variables employed in this section for students' achievement in reading and mathematics and also parental and students' expectations, which is shown in Table A1 (Appendix). It can be appreciated a clear increasing trend in both competences and expectations for the case of the variables reflecting parental level of studies and household income. This pattern could be a first evidence of a limited socio-economic mobility in the Andalusian society. Students who live with both parents present the highest academic achievement and their parents have the highest expectations; students who live only with their mother are those who present the highest expectations. Parental involvement in children's homework is negative for children's achievement –as indicated by the literature for secondary school students–, although its influence on expectations is not so clear.

Female students overcome males in both competences and expectations, as also happens for native students compared to immigrants –with the exception of students' expectations, which are slightly higher for immigrants–. Students attending semi-private schools show high achievement in both competences and higher expectations than students from public schools, and the time devoted to homework shows an increasing trend in achievement and expectations with the number of hours. Finally, in the case of the instrumental variables, achievement and expectations increase with the punctuation assigned by parents to the manual skills of their children and those students whose parents work more than eight hours every day present higher values in achievement and expectations. These results for the instrumental variables fit the relationship that may be expected *a priori* for them, to the extent that a high level of manual skills might be denoting that the student is very promising in some field and students whose parents work more than eight hours might be more aware about the importance of a high level of studies to get a good job.

5.1 First step of the analysis

Now we move into the estimates of the conditional model. The results for the first step of our analysis are displayed in Table 2.

Table 2 Estimation of the conditional effect on parental and students' expectations of parental household, parent-children education interaction, student and school variables

Variables	Parental expectations	Students' expectations
Instrumented endogenous variables		
Instrumented students' expectations	0.712* (0.416)	
Instrumented parental expectations		0.544*** (0.207)
Household variables		
Mother answers the questionnaire	-0.022 (0.091)	-0.065 (0.076)
Father's education level (<i>Reference group: Lower than primary</i>)		
Primary	-0.088 (0.235)	-0.151 (0.199)
Secondary	0.246 (0.167)	-0.104 (0.172)
High school	0.325 (0.200)	-0.032 (0.198)
University	0.180 (0.218)	0.089 (0.192)
Mother's education level (<i>Reference group: Lower than primary</i>)		
Primary	0.114 (0.338)	0.342 (0.228)
Secondary	-0.016 (0.336)	0.433** (0.196)
High school	0.253 (0.457)	0.481* (0.266)
University	0.202 (0.568)	0.681** (0.293)
Household structure (<i>Reference group: Lives with both</i>)		

<i>parents)</i>		
Lives only with mother	0.014 (0.151)	0.069 (0.140)
Lives only with father	-0.160 (0.370)	0.095 (0.362)
Monthly income level of the household (<i>Reference group: 1100 Euros or less</i>)		
From 1101 to 1800 Euros	0.405*** (0.157)	-0.067 (0.167)
From 1801 to 2700 Euros	0.451** (0.176)	-0.071 (0.186)
More than 2700 Euros	0.444** (0.218)	-0.011 (0.209)
Income level missing flag	0.478** (0.236)	0.001 (0.222)
Parent-Children education interaction variables		
Parental implication in homework (<i>Reference group: Not at all</i>)		
A lot	-0.397* (0.221)	0.390** (0.186)
Some	-0.442** (0.192)	0.363** (0.180)
A little	-0.281 (0.253)	0.419** (0.173)
Students' variables		
Female (<i>Reference group: Male</i>)	0.016 (0.189)	0.252*** (0.092)
Immigrant (<i>Reference group: Native</i>)	0.058 (0.225)	0.048 (0.215)
School variables		
Semi-private school (<i>Reference group: Public school</i>)	0.167 (0.116)	-0.219*** (0.075)
Constant	4.023 (5.677)	6.155** (2.852)
Observations	1,092	1,092
R-squared	0.501	0.483

Source: Authors' own calculations from ESOC10-SEN.

Standard errors in parentheses.

*** denotes variable significant to level 1%; ** to 5%; * to 10%.

The results presented in Table 2 show that parental expectations have a positive effect on students' expectations (increasing them in 0.544 years for each additional year of parental expectations), and a similar effect can be found for students' expectations on parents' (with a somewhat higher coefficient of 0.712), which is consistent with the literature regarding other geographical areas. Another interesting result is that mothers' educational studies help to increase students' expectations. This could be explained by the high influence that mothers might have on their children (Wolfe 1982) and also their higher capacity of leading their children's academic careers (San Román and Goiricelaya 2012).

As can be seen from the estimations, a medium and high family income –as compared to a low family income– suppose higher parental expectations, in line with the results of Davis-Kean (2005) or Froiland and Davison (2014). The variable reflecting parental involvement on children's education – parental help with homework– shows very remarkable results. In the case of students' expectations the effect of this variable is positive, what might be reflecting the belief among students that parents' implication would be an important support for their ulterior success and thus, it enhances children's self-concept (Bodovski 2014). However, this variable has a completely reverse effect for parental expectations (e.g., a high frequency on these practices increased students' expectations in 0.390 years but it decreases parental expectations in 0.397 years). This could be accounting for the perception of parents about the low ability and independence of their children, so they intend to compensate it by providing more help to them (Phillipson 2010), unlike Wang and Benner (2014), who claimed that parents who had higher expectations engaged more in children's homework, as they were trying to promote students' schooling.

Moreover, parental involvement may be causing the reduction in the agreement of parental and students' expectations to the extent that they will be moving in opposite directions when these practices are performed.

In the case of female students their expectations are higher than males (in 0.252 years), what has been highlighted in the literature (Reynolds and Burge 2008), but not in the case of parents, so they may not differentiate between sons and daughters when forming their expectations. We also obtain the interesting result that expectations are not affected by the immigrant status of students (contrary to that claimed by Hao and Bonstead-Bruns 1998). Finally, it could be highlighted that students' expectations are lower when attending to semi-private schools⁹. This result is contradictory to that obtained in our descriptive analysis, what denotes the richness that conditioning by other variables provides to our results.

Table 3 Instruments' analysis tests

Instruments' tests	Instrumental variable for students' expectations (Whether the person of reference works more than eight hours or not every day)	Instrumental variable for parental expectations (Parental opinion on student's manual skills)
Correlation with parental expectations (Pearson Chi2 Test)	1.901	72.306***
P-value	0.593	0.001
Correlation with students' expectations (Pearson Chi2 Test)	8.851**	27.348
P-value	0.065	0.936
Durbin endogeneity test	0.012	0.174
P-value	0.912	0.676
Wu-Hausman endogeneity test	0.012	0.171
P-value	0.913	0.680

Source: Authors' own calculations from ESOC10-SEN.

*** denotes variable significant to level 1%; ** to 5%; * to 10%.

From the results of Table 3 it can be observed that the instrumental variable for students' expectations was found to present a significative high correlation with them, but none of it in the case of parental expectations. The opposite situation is found for the instrumental variable replacing parental expectations, what accomplish one of the requirements to be a suitable instrumental variable. In order to further check for the suitability of our instruments, we have performed Durbin and Wu-Hausman tests, which null hypothesis is accepted for both instrumental variables, i.e., we net out the endogeneity problem when using the instrumental variables approach. Besides, first stage F-statistic is significant in both cases, so the selected instruments have explanatory power on the endogenous variables after controlling by the other exogenous variables. In addition, Cragg and Donald (1993) minimum eigenvalue statistics for both instrumental variables coincide with the F-statistic. These results show that our instrumental variables will be appropriate to solve the endogeneity problem that the use of parental and students' expectations could present.

5.2 Second step of the analysis

Once the first step of our analysis is completed and "endogeneity-free" parental and students' expectations have been predicted, we performed the second step, whose results are reported in Table 4 (columns 1 and 2).

Table 4 Estimation of the conditional effect on students' achievement in reading and mathematics – columns 1 and 2– and the likelihood of selecting a determined high school track –columns 3 and 4– of the parental and children's coincidences/discordances in expectations, parental household, student and school variables

Variables	Reading	Maths	High school track of sciences and technology	High school track of social and human
------------------	----------------	--------------	-----------------------------------------------------	----------------------------------------------

⁹ The estimations for parental and students' expectations presented in Table 2 were replicated by removing the level of studies of fathers or mothers –alternatively–. In both cases, the coefficient of semi-private schools for parental expectations turned positive and significant, while its effect on students' expectations was negative and significant – as in Table 2–. These tables are available upon request to the authors.

	sciences			
Predicted endogenous variables				
Parental and students' coincidences/discordances in predicted expectations (<i>Reference group: Predicted parental expectations are similar to predicted students'</i>)				
Predicted parental expectations are higher than predicted students'	-0.797***	-0.614**	-0.884*	-0.458
	(0.272)	(0.272)	(0.524)	(0.490)
Predicted parental expectations are lower than predicted students'	-1.027***	-1.157***	-1.814***	-0.576*
	(0.209)	(0.210)	(0.412)	(0.336)
Household variables				
Mother answers the questionnaire	-0.220*	-0.165	-0.354	-0.403
	(0.132)	(0.132)	(0.292)	(0.284)
Father's education level (<i>Reference group: Lower than primary</i>)				
Primary	-0.250	-0.111	-0.586	-0.556
	(0.335)	(0.339)	(0.731)	(0.711)
Secondary	0.095	-0.092	-0.237	-0.088
	(0.290)	(0.295)	(0.684)	(0.667)
High school	0.277	0.137	0.488	0.328
	(0.305)	(0.310)	(0.727)	(0.713)
University	0.160	0.021	-0.203	-0.228
	(0.310)	(0.314)	(0.721)	(0.708)
Mother's education level (<i>Reference group: Lower than primary</i>)				
Primary	-0.049	-0.166	0.388	0.285
	(0.350)	(0.351)	(0.687)	(0.655)
Secondary	0.138	0.016	0.323	0.413
	(0.307)	(0.307)	(0.611)	(0.580)
High school	0.307	0.210	0.246	0.264
	(0.317)	(0.318)	(0.630)	(0.602)
University	0.651**	0.467	1.104	0.800
	(0.327)	(0.327)	(0.681)	(0.658)
Household structure (<i>Reference group: Lives with both parents</i>)				
Lives only with mother	0.113	-0.080	1.568**	1.172*
	(0.248)	(0.248)	(0.719)	(0.711)
Lives only with father	-0.370	-1.065	-0.264	-0.947
	(0.678)	(0.671)	(1.177)	(1.292)
Monthly income level of the household (<i>Reference group: 1100 Euros or less</i>)				
From 1101 to 1800 Euros	0.245	0.001	0.273	0.023
	(0.207)	(0.208)	(0.427)	(0.402)
From 1801 to 2700 Euros	0.192	0.070	0.515	0.199
	(0.229)	(0.231)	(0.478)	(0.454)
More than 2700 Euros	0.398	0.472*	1.017	0.627
	(0.270)	(0.272)	(0.633)	(0.615)
Income level missing flag	0.578**	0.687**	0.906	0.367
	(0.273)	(0.277)	(0.584)	(0.563)
Students' variables				
Female (<i>Reference group: Male</i>)	0.512***	0.236*	0.113	0.551**
	(0.122)	(0.122)	(0.262)	(0.254)
Immigrant (<i>Reference group: Native</i>)	-0.942**	-0.792**	-2.265***	-1.813***
	(0.385)	(0.389)	(0.611)	(0.527)
Time devoted to do the homework by the student (<i>Reference group: Less than 30 minutes</i>)				

From 30 minutes to less than 1 hour	0.579*	0.101	0.847*	0.965*
	(0.310)	(0.322)	(0.502)	(0.494)
From 1 hour to less than 2 hours	0.653**	0.090	0.837*	1.292***
	(0.295)	(0.307)	(0.476)	(0.466)
From 2 hours to less than 3 hours	1.049***	0.513	1.601***	1.489***
	(0.307)	(0.318)	(0.531)	(0.524)
More than 3 hours	1.579***	1.064***	2.488***	2.137***
	(0.328)	(0.339)	(0.692)	(0.686)
School variables				
Semi-private school (<i>Reference group:</i> <i>Public school</i>)	-0.017	-0.174	-0.487*	-0.318
	(0.139)	(0.141)	(0.290)	(0.282)
Constant	4.886***	5.708***	0.198	0.224
	(0.496)	(0.505)	(0.988)	(0.951)
Observations	1,043	1,008	1,011	1,011
R-Squared	0.148	0.131		
Pseudo R-Squared			0.075	0.075

Source: Authors' own calculations from ESOC10-SEN.

Standard errors in parentheses.

Columns 3 and 4: The reference category of the dependent variable is "Repeat the course". Coefficients represent the multinomial log-odds of the variables.

*** denotes variable significant to level 1%; ** to 5%; * to 10%.

From the view of these results, it can be established that the coincidence between parental and students' expectations is positive for students' achievement, whereas their discordance would mean a reduction in students' achievement, which is higher for both competences when parental expectations are lower than children's. Mother's university education level has a positive effect on students' achievement in reading (increasing achievement in 0.651 points) and high family income level positively influences achievement in mathematics.

Female students show high achievement in reading and mathematics once we control for the differences in expectations –the literature usually highlights the higher scores of female students in reading (OECD 2009; OECD 2010), although none of these papers control for expectations–, while immigrant students obtain lower results –as indicated by authors as Ammermüller (2007)–. Finally, the variable of effort shows that, as it increases, students' achievement also does. This is a relevant result which can indicate that those students with a low socio-economic background can compensate this situation by devoting more time to study.

The results obtained for the alternative specification modeling children's choices after finishing secondary education are shown in Table 4 (columns 3 and 4), being them comparable to that of students' achievement. As it can be seen, the discordance between parental and students' expectations reduces the probability of students to attend sciences and technology track or social and human sciences track in relation to repeating a course –in terms of relative risk ratios (RRR)¹⁰; e.g., when parental expectations are lower than students' this discordance supposes a RRR for high school track of sciences and technology of 0.163, while it is of 0.562 for social and human sciences track–. Hence, this discordance reduces specially the likelihood of taking the high school track of sciences and technology, as it may be more demanding due to the higher level of achievement and effort that it requires, what could be interpreted as evidence of the importance of parental influence on students' degree election when parental expectations are relatively low –compared to those of students–.

The effect of female students –only for the high school track of social and human sciences– and immigrant status is similar to that obtained for children's achievement, increasing and reducing, respectively, the likelihood of attending to both high school tracks. In addition, a high amount of study hours also increases the likelihood of electing any of the two high school tracks. However, there is the interesting result of students who live only with their mother, what increases their probability to attend to any of the two high school tracks, reflecting the previously stated result that mothers are more able to lead the academic life of their children.

Also relevant is the reduction in the likelihood of attending to the high school track of sciences and technology when students are enrolled in a semi-private school. This might be showing that, in the

¹⁰ Relative risk ratios are calculated by the exponentiation of the values of the coefficients in Table 4 (columns 3 and 4).

case of Andalusia, where non-compulsory education is not publicly funded in semi-private schools, students whose families afford the cost of attending to these –private– high schools are –in general– those less academically “successful”.

6 Conclusions

We have analyzed the effect of parental and children’s expectations agreement –or disagreement– on children’s achievement and on their elections of alternative high school tracks in the context of the Spanish autonomous community of Andalusia. A noteworthy result, which has also been highlighted in the literature for other regions, is the reciprocal relationship that exists between parental and children’s expectations, due to them being simultaneously determined. This has supposed the need to employ an “endogeneity-free” approach, which has successfully dealt with this problem and has provided us with more reliable results.

Thus, once managed this issue, the coincidence between parental and children’s expectations has been found to be a relevant aim, to the extent that it could foster children’s achievement and the likelihood of electing both analyzed high school tracks. Because of that, to achieve this objective, schools should provide an adequate environment of communication and feedback for parents in order to keep them informed about the performance and the problems that their children could be facing, and also to encourage them to discuss these topics with their children. In addition, investment on university degree and professional tracks information ought to be done, which should be supplied to both students and parents before the election of high school specialization –e.g., by university and professional orientation visits or conferences– and not in the last course of high school –as usually happens–. This may also have a positive economic repercussion, in so far as the costs of wrong degree choices could be attenuated. Then, students and parents should have more information on academic possibilities, so we could be moving towards an agreement between their expectations and, thus, a higher education achievement and the reduction in the waste of economic resources.

Another relevant result is that the effect of parental involvement –i.e., their help with school tasks– on expectations has appeared to be of opposite sign for parents and students, what denotes the existence of a trade-off between them. Consequently, when these practices are performed, parental and children’s expectations may be moving in opposite directions, what could be causing them to disagree more and, hence, contributing to reduce students’ achievement and their likelihood of selecting both analyzed high school tracks. It is important to bear in mind that these negative results of parental involvement are shown by students aged 14-15 –an age in which, additionally, the contents of the subjects are harder and parents are less able to help students with them–, as the literature has stated that parental involvement in earlier ages is positive (Froiland et al. 2012). Because of that, it is essential that both schools and parents had provided to children a proper education on their autonomy and problem resolution procedures before adolescence, so they would not need the help of their parents with schoolwork at this age. In the case that this autonomy has not been reached by the student at that time, teachers’ curriculum should have prepared them to supply their students with study, comprehensive reading, scheduling and synthesizing techniques in order to provide them with learning autonomy –practices which frequently receive less attention when conducting lessons, limiting them only to teach the contents of the subject–. In addition, these procedures should not only be known by students, but also by their parents, so they would be aware of their children’s need to develop these skills by themselves, avoiding their excessive involvement in schoolwork and, thus, the obstruction of children’s academic development.

The conclusions of our research have an extension in terms of the resilience concept. From the analyses of expectations we can conclude that they hamper the opportunities of students from less economically advantaged social groups, due to parental expectations being widely affected by the level of income of the household. This is a problem which should be solved to reach a more meritocratic society. In this respect the –above mentioned– greater interaction of teachers and parents to foster a better understanding of the actual development of the student and therefore an adjustment of parental expectations should be particularly intensive for parents from low socioeconomic environments. Likewise the implementation of external assessment tests at different stages of the academic track, as a consequence of the recently approved law for the improvement of the Spanish primary and secondary educational quality (LOMCE¹¹), could also contribute to improve the knowledge of parents on the actual competences of the students.

¹¹ BOE 10th December 2013, Organic Law 8/2013.

Last but not least, effort –proxied by the number of study hours– has been found to play a relevant role in students’ achievement, so encouraging it among students could compensate the effect of a low socio-economic background. This effort could also be fostered and rewarded by grants and monetary help for students with high achievement and low available resources. Again, the delivery of proper information to students and parents in order to make them more aware of their options and the importance of education would improve their future elections –or, at least, make them more realistic–, so that expectations’ coincidence and accomplishment could also increase social mobility.

The results provided do not necessarily imply a higher cost to the public budget, to the extent that greater interaction between teachers and parents is more related to awareness campaigns of both parents and teachers about the importance of this interaction and the effects for the students of the mismatch of students and parents’ expectations. On the other hand, the link of financial help (scholarships) to students’ performance could be achieved with a policy adjustment for the allocation of this funding. Obviously, in order to have a better understanding of the benefits of such actions, it would be important to have longitudinal data on the long-term effect of mismatches in expectations on the academic success of young people; unfortunately such data are not available for researchers in the Spanish case.

References

- Aldous, J. (2006). Family, Ethnicity, and Immigrant Youths' Educational Achievements. *Journal of Family Issues*, 27(12), 1633–1667.
- Ammermüller, A. (2007). Poor Background or Low Returns? Why Immigrant Students in Germany Perform so Poorly in the Programme for International Student Assessment. *Education Economics*, 15(2), 215–230.
- Arce, M. E., Crespo, B., & Míguez-Álvarez, C. (2015). Higher Education Drop-Out in Spain—Particular Case of Universities in Galicia. *International Education Studies*, 8(5), 247–264.
- Bodovski, K. (2014). Adolescents' emerging habitus: the role of early parental expectations and practices. *British Journal of Sociology of Education*, 35(3), 389–412.
- Carabaña, J. (2013). Repetición de curso y puntuaciones pisa ¿cuál causa cuál? In INEE (Ed.), *PISA 2012: Programa para la evaluación internacional de los alumnos. Informe español. Volumen II: Análisis secundario* (pp. 32–66). Madrid: Ministerio de Educación, Cultura y Deporte, Instituto Nacional de Evaluación Educativa.
- Cordero, J. M., Cebada, E. C., & Pedraja, F. (2013). Rendimiento educativo y determinantes según PISA: Una revisión de la literatura en España. *Revista de Educación*, 362, 273–297.
- Cragg, J. G., & Donald, S. G. (1993). Testing identifiability and specification in instrumental variable models. *Econometric Theory*, 9(2), 222–240.
- Davis-Kean, P. E. (2005). The Influence of Parent Education and Family Income on Child Achievement: The Indirect Role of Parental Expectations and the Home Environment. *Journal of Family Psychology*, 19(2), 294–304.
- De la Fuente, A., & Serrano, J. F. J. (2013). La rentabilidad privada y fiscal de la educación en España y sus regiones. *Moneda Y Crédito*, 235, 179–246.
- Froiland, J. M., & Davison, M. L. (2014). Parental expectations and school relationships as contributors to adolescents' positive outcomes. *Social Psychology of Education*, 17(1), 1–17.
- Froiland, J. M., Peterson, A., & Davison, M. L. (2012). The long-term effects of early parent involvement and parent expectation in the USA. *School Psychology International*, 34(1), 33–50.
- Hanson, T. L., McLanahan, S., & Thomson, E. (1997). Economic Resources, Parental Practices and Child Well-being. In G. Duncan, & J. Brooks-Gunn (Eds.), *Consequences of Growing Up Poor* (pp. 190–239). New York: Russell Sage Foundation.
- Hao, L., & Bonstead-Bruns, M. (1998). Parent-Child Differences in Educational Expectations and the Academic Achievement of Immigrant and Native Students. *Sociology of Education*, 71(3), 175–198.
- Hossain, B., & Tsigaris, P. (2015). Are grade expectations rational? A classroom experiment. *Education Economics*, 23(2), 199–212.
- Howe, M. J. A., Davidson, J. W., & Sloboda, J. A. (1998). Innate talents: Reality or myth? *Behavioral and Brain Sciences*, 21(3), 399–442.
- IECA (2015). *Tasa de abandono escolar prematuro por sexo*. Retrieved from <http://www.juntadeandalucia.es/institutodeestadisticaycartografia/indsoc/indicadores/1038.htm>. Last time accessed on September 2015.
- Kinnunen, U., & Mauno, S. (2001). Dual-earner Families in Finland: Differences Between and Within Relation to Work and Family Experiences. *Community, Work & Family*, 4(1), 87–107.
- Marcenaro, O., Micklewright, J., & Vignoles, A. (2015). Social Mobility, parental help, and the importance of networks: evidence for Britain. *Longitudinal and Life Course Studies*, 6(2), 190–211.
- Neuenschwander, M. P., Vida, M., Garrett, J. L., & Eccles, J. S. (2007). Parents' expectations and students' achievement in two western nations. *International Journal of Behavioral Development*, 31(6), 594–602.
- Nurmi, J. E. (2004). Socialization and self-development: Channeling, selection, adjustment, and reflection. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 85–124). New York: John Wiley, Hoboken.

- OECD (2006). Parent and community “voice” in schools. In OECD (Ed.), *Demand-Sensitive Schooling?: Evidence and Issues* (pp. 83–102). OECD Publishing.
- OECD (2009). *Equally prepared for life? How 15-year-old boys and girls perform in school*. OECD Publishing.
- OECD (2010). *PISA 2009 at a Glance*. OECD Publishing.
- Phillipson, S. (2010). Modeling Parental Role in Academic Achievement: Comparing High-Ability to Low- and Average-Ability Students. *Talent Development & Excellence*, 2(1), 83–103.
- Portes, A., Aparicio, R., Haller, W., & Vickstrom, E. (2010). Moving Ahead in Madrid: Aspirations and Expectations in the Spanish Second Generation. *International Migration Review*, 44(4), 767–801.
- Räty, H. (2006). What comes after compulsory education? A follow-up study on parental expectations of their child’s future education. *Educational Studies*, 32(1), 1–16.
- Reynolds, J. R., & Burge, S. W. (2008). Educational expectations and the rise in women’s post-secondary attainments. *Social Science Research*, 37(2), 485–499.
- Rimkute, L., Hirvonen, R., Tolvanen, A., Aunola, K., & Nurmi, J. E. (2012). Parents’ Role in Adolescents’ Educational Expectations. *Scandinavian Journal of Educational Research*, 56(6), 571–590.
- San Román, A. G., & Goiricelaya, S. R. (2012). *Gender Gap in PISA Test Scores: The Impact of Social Norms and the Mother’s Transmission of Role Attitudes*. IZA Discussion Paper No. 6338.
- Sewell, W. H., Haller, A. O., & Ohlendorf, G. W. (1970). The Educational and Early Occupational Status Attainment Process: Replication and Revision. *American Sociological Review*, 35(6), 1014–1027.
- Sewell, W. H., & Vimal, P. S. (1968). Social Class, Parental Encouragement, and Educational Aspirations. *American Journal of Sociology*, 73(5), 559–572.
- Steven, I. P. (2002). Identifying Gifted and Talented Students. Recurring Issues and Promising Solutions. *Journal of Applied School Psychology*, 19(1), 31–50.
- Torío, S., Hernández, J., & Peña, J. V. (2007). Capital social familiar y expectativas académico-formativas y laborales en el alumnado de Educación Secundaria Obligatoria. *Revista de educación*, 343, 559–586.
- Vincent, C. D., & Neis, B. L. (2011). Work and family life: parental work schedules and child academic achievement. *Community, Work & Family*, 14(4), 449–468.
- Wang, Y., & Benner, A. D. (2014). Parent–Child Discrepancies in Educational Expectations: Differential Effects of Actual Versus Perceived Discrepancies. *Child Development*, 85(3), 891–900.
- Wierda-Boer, H., & Rönkä, A. (2004). “I wished my mother enjoyed her work” Adolescents’ perceptions of parents’ work and their links to adolescent psychosocial well-being. *Young - Nordic Journal of Youth Research*, 12(4), 317–335.
- Winner, E., & Martino, G. (1993). Giftedness in the visual arts and music. In K. A. Heller, F. J. Monks, & A. H. Passow (Eds.), *International handbook of research and development of giftedness and talent* (pp. 253–281). New York: Pergamon.
- Wolfe, J. R. (1982). The impact of family resources on childhood IQ. *Journal of Human Resources*, 17(2), 213–235.
- Zhang, Y., Haddad, E., Torres, B., & Chen, C. (2011). The Reciprocal Relationships Among Parents’ Expectations, Adolescents’ Expectations, and Adolescents’ Achievement: A Two-Wave Longitudinal Analysis of the NELS Data. *Journal of Youth and Adolescence*, 40(4), 479–489.

Appendix

Table A1 Bivariate analysis

		Reading					Mathematics					Parental expectations					Students' expectations				
		Obs.	Mean	S. d.	Min. value	Max. value	Obs.	Mean	S. d.	Min. value	Max. value	Obs.	Mean	S. d.	Min. value	Max. value	Obs.	Mean	S. d.	Min. value	Max. value
Who answers the questionnaire	Father	351	6.56	1.97	1	10	345	6.31	1.91	1	10	368	15.44	1.35	10	16	368	15.42	1.34	10	16
	Mother	692	6.24	2.01	1	10	663	6.06	1.98	1	10	724	15.21	1.61	10	16	724	15.22	1.53	10	16
Father's education level	Lower than primary	29	5.83	2.28	1	10	27	5.70	2.15	1	10	29	14.28	1.98	10	16	29	14.69	1.87	10	16
	Primary	106	5.71	2.27	1	10	101	5.79	1.88	1	10	110	14.49	1.99	10	16	110	14.69	1.76	10	16
	Secondary	367	6.17	2.04	1	10	356	5.89	2.03	1	10	374	15.11	1.66	10	16	374	15.09	1.65	10	16
	High school	212	6.53	1.79	1	10	204	6.29	1.82	1	10	227	15.54	1.29	10	16	227	15.42	1.35	10	16
	University	298	6.73	1.91	1	10	289	6.54	1.90	1	10	319	15.69	1.04	10	16	319	15.68	0.98	10	16
Mother's education level	Lower than primary	38	5.71	2.32	1	10	37	5.70	2.17	1	10	39	14.15	2.17	10	16	39	14.21	2.09	10	16
	Primary	99	5.80	2.14	1	10	96	5.67	1.99	1	10	102	14.75	1.99	10	16	102	14.82	1.79	10	16
	Secondary	375	6.07	1.86	1	10	362	5.83	1.87	1	10	381	14.94	1.76	10	16	381	15.02	1.65	10	16
	High school	243	6.46	2.06	1	10	232	6.28	2.01	1	10	259	15.56	1.21	10	16	259	15.44	1.27	10	16
	University	282	6.88	1.92	1	10	275	6.66	1.89	1	10	304	15.81	0.81	10	16	304	15.79	0.85	10	16
Household structure	Lives only with mother	82	6.32	1.43	2	10	81	5.95	1.97	1	10	85	15.25	1.60	10	16	85	15.39	1.42	10	16
	Lives only with father	8	5.88	2.03	2	9	8	5.13	2.42	2	9	9	15.11	2.03	10	16	9	15.11	2.03	10	16
	Does not live with parents¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lives with both parents	953	6.35	2.04	1	10	919	6.17	1.95	1	10	998	15.29	1.52	10	16	998	15.28	1.47	10	16
Monthly income level of the household	1100 Euros or less	110	5.85	2.02	1	10	106	5.78	2.18	1	10	113	14.50	2.08	10	16	113	14.85	1.75	10	16
	From 1101 to 1800 Euros	403	6.18	2.03	1	10	390	5.87	1.96	1	10	415	15.12	1.66	10	16	415	15.11	1.60	10	16
	From 1801 to 2700 Euros	258	6.35	1.86	1	10	250	6.12	1.78	1	10	270	15.45	1.33	10	16	270	15.37	1.41	10	16
	More than 2700 Euros	179	6.89	1.99	1	10	174	6.78	1.80	2	10	199	15.80	0.88	10	16	199	15.76	0.91	10	16
	Income level missing flag	93	6.57	2.03	1	10	88	6.61	2.09	1	10	95	15.39	1.31	12	16	95	15.33	1.39	12	16
Parental implication in homework	A lot	166	6.37	1.92	1	10	160	5.91	1.85	1	10	176	15.28	1.52	10	16	176	15.27	1.47	10	16
	Some	524	6.15	2.00	1	10	504	6.03	1.94	1	10	545	15.13	1.68	10	16	545	15.18	1.56	10	16
	A little	311	6.64	2.05	1	10	302	6.47	2.01	1	10	328	15.52	1.28	10	16	328	15.49	1.28	10	16
	Not at all	42	6.50	1.70	2	10	42	6.12	2.03	2	10	43	15.53	1.22	12	16	43	15.12	1.59	12	16

Sex	Male	497	6.01	2.04	1	10	479	5.96	1.98	1	10	519	15.16	1.60	10	16	519	15.10	1.59	10	16
	Female	546	6.65	1.91	1	10	529	6.31	1.93	1	10	573	15.40	1.46	10	16	573	15.46	1.33	10	16
Immigrant status	Native	1018	6.37	1.98	1	10	984	6.17	1.94	1	10	1066	15.29	1.53	10	16	1066	15.29	1.47	10	16
	Immigrant	25	5.28	2.54	1	10	24	5.25	2.47	1	9	26	15.23	1.70	10	16	26	15.31	1.59	10	16
Ownership of the school	Public school	774	6.27	2.03	1	10	758	6.12	1.95	1	10	780	15.20	1.62	10	16	780	15.26	1.48	10	16
	Semi-private school	269	6.55	1.92	1	10	250	6.22	1.99	1	10	312	15.51	1.27	10	16	312	15.34	1.45	10	16
Time devoted to do the homework by the student	No tasks²	3	7.33	2.52	5	10	3	6.00	4.00	2	10	3	16.00	0.00	16	16	3	16.00	0.00	16	16
	Less than 30 minutes	39	5.56	2.52	1	9	36	5.92	2.22	1	9	40	14.80	1.96	10	16	40	14.70	2.00	10	16
	From 30 minutes to less than 1 hour	189	5.97	2.08	1	10	181	5.84	1.76	1	10	199	15.07	1.75	10	16	199	15.10	1.64	10	16
	From 1 to less than 2 hours	431	6.16	1.92	1	10	416	5.91	1.99	1	10	450	15.19	1.60	10	16	450	15.18	1.54	10	16
	From 2 to less than 3 hours	242	6.65	1.82	1	10	242	6.38	1.92	1	10	254	15.47	1.29	10	16	254	15.53	1.18	10	16
	More than 3 hours	135	7.27	1.74	1	10	128	7.00	1.73	2	10	141	15.76	0.94	12	16	141	15.70	0.92	12	16
Parental expectations' instrumental variable: Parental opinion on student's manual skills	6 or less	314	6.10	1.89	1	10	303	5.97	1.75	1	10	333	15.15	1.68	10	16	333	15.17	1.59	10	16
	More than 6 and 8 or less	476	6.44	1.96	1	10	462	6.16	1.93	1	10	493	15.29	1.51	10	16	493	15.28	1.47	10	16
	More than 8	253	6.49	2.18	1	10	243	6.33	2.22	1	10	266	15.45	1.35	10	16	266	15.44	1.30	10	16
Students' expectations instrumental variable: The person of reference:	Works more than eight hours every day	181	6.58	2.03	1	10	172	6.30	1.84	1	10	193	15.39	1.46	10	16	193	15.41	1.36	10	16
	Works eight hours or less every day	862	6.30	1.99	1	10	836	6.11	1.98	1	10	899	15.26	1.55	10	16	899	15.26	1.49	10	16

Source: Authors' own calculations from ESOC10-SEN.

Notes:

¹ Due to the zero observations presented the reference category in estimations is "Lives with both parents".

² Due to the reduced number of observations the reference category in estimations is "Less than 30 minutes".