

Parents' and students' gender-interaction: the effect of parental expectations

Oscar David Marcenaro-Gutierrez

Corresponding author. Departamento de Economía Aplicada (Estadística y Econometría), Universidad de Málaga

C/ Ejido, 6, 29013, Málaga, España. Tel.: +34 95 213 7003; Fax: +34 95 213 7262. e-mail: odmarcenaro@uma.es

Claudia Prieto Latorre

Departamento de Economía Aplicada (Estadística y Econometría), Universidad de Málaga

C/ Ejido, 6, 29013, Málaga, España. Tel.: +34 95 213 7003; Fax: +34 95 213 7262. email: cprietolatorre@gmail.com

Luis Alejandro Lopez-Agudo

Departamento de Economía Aplicada (Estadística y Econometría), Universidad de Málaga

C/ Ejido, 6, 29013, Málaga, España. Tel.: +34 95 213 7003; Fax: +34 95 213 7262. email: lopezagudo@uma.es

The study of the effect on students' academic achievement of their parents' expectations has been widely explored; nevertheless, most of the existing evidence for the Spanish case is purely correlational and subject to endogeneity, due to the lack of longitudinal information. The current research intends to provide further insight into this subject by analysing whether parental expectations play a relevant role in determining students' progression from primary to secondary education, and the use of time fixed effects let to deal with the mentioned problems. This progression is studied by analysing the effect of parental expectations on students' academic achievement and their likelihood of grade repetition. In addition, all possible interactions between parents' and children's genders are explored to study this issue. The main results indicate that both higher fathers' and mothers' expectations increase students' academic achievement and decrease their likelihood of grade repetition, although parents may be more demanding with girls' level of education. These results have motivated the suggestion of many education policies.

Keywords: expectations; students' progression; census data; primary education; secondary education.

Acknowledgements: The data used in this research has been provided by *Agencia Andaluza de Evaluación Educativa, Consejería de Educación, Junta de Andalucía*. This work has been partly supported by the *Ministerio de Economía y Competitividad* under Research Project ECO2017-88883-R,

*Consejería de Innovación, Ciencia y Empresa de la Junta de Andalucía under PAI group SEJ-532 and
Ministerio de Educación, Cultura y Deporte under scholarship FPU2014 04518.*

1 Introduction

During their compulsory education in Spain, students go through many grades until reaching the end of secondary education (at age 16), in which they can access either higher level studies or start working. In this advancement to higher grades there is an important milestone, which is determined by their transition from primary to secondary education. Throughout this transition process students have to face new challenges and difficulties which can affect their attainment and, as an ulterior consequence, increase their likelihood of grade repetition (Zeedyk, Gallacher, Henderson, Hope, Husband, & Lindsay, 2003; West, Sweeting, & Young, 2008). In this context, the current research focuses on how the expectations that parents set about their children's future level on education, which adapt during this transition process, affect students' progression; particularly, their academic achievement and likelihood of grade repetition. The interest in parental expectations can be found in the high influence that they have on students' performance, which has been reported by many researchers (Goldenberg, Gallimore, Reese, & Garnier, 2001; Neuenschwander, Vida, Garrett, & Eccles, 2007; Yamamoto & Holloway, 2010; Wang & Benner, 2014; Khattab & Modood, 2017, among others).

Particularly, the current research aims to study the potential differences that the effect of parental expectations on students' academic achievement can present conditioned on the gender of the student and the parents. Many educational research have acknowledged the existence of gender differences in academic achievement, as e.g. influential international large scale assessment tests such as PISA or TIMSS; gender differences which have been perpetuated in all of their cycles along the years (OECD, 2104; Martin, Mullis, Foy, & Stanco, 2012; Mullis, Martin, Foy, & Arora, 2012). Hence, the study of this issue is a relevant topic, to the extent that these gender differences in academic achievement can have ulterior consequences in society as, e.g., they can significantly affect the fertility rates of a country (Steiber & Haas, 2012) or even its economic growth (Klassen 2002)¹.

Thus, the current research combines the existence of these gender differences in students' academic achievement with the adaptation of parental expectations, and how these expectations – depending on the gender of the parent – interact with children's gender to affect their academic progression. In this subject, authors like Koshy, Dockery, and Seymour (2017) have highlighted the existence of these gender differences in expectations; concretely, mothers' educational expectations were higher for their daughters – for 15-year-old Australian students. For this same country, according to the Australian Institute of Family Studies (2015), in 2014

¹ As reported by OECD (2015), the overall increase of students' performance in the last 50 years in OECD countries explains 50% of the economic growth. Concretely, more than half of that growth is due to women's higher performance.

mothers' expectations for their children of a University education level or superior were higher for girls than for boys, but the proportion of mothers' who expected their children to achieve a 12 Year level of education level or lower was the same for both boys and girls. This issue of the gender interaction of parents' and children's gender in the effect of expectations is so relevant that Jacobs, Chhin, and Bleeker (2006) – following students in the USA from 15 to 28 years – found that parents' gender-typed expectations about their children's occupation were highly related to the final occupation that they chose and also to their levels of satisfaction with their occupation. Flouri and Hawkes (2008) also found that mothers' high expectations had a positive effect on their daughters' adult outcomes – following British individuals from 10 to 30 years – but they did not influence their sons' outcomes.

Specifically, this research analyses this issue on gender-typed expectations and their effect on students' academic achievement focusing in the Spanish region of Andalusia. There are many characteristics of this region that make its study of particular interest. First, it is one of the worst performing regions within Spain in terms of international large scale assessments tests. In PISA 2012 Andalusia obtained scores which were 11 points below the Spanish average and 19 below the OECD average. It also presented gender differences in academic achievement, as girls scored 26 points higher than boys in reading but 16 points lower than boys in mathematics (OECD, 2014). Furthermore, Andalusia presents high dropout rates (around 34% of boys and 24% of girls did not finish their studies, dropping out before finishing compulsory education in 2012; IECA, 2017). In terms of success in University studies, 59% of students who finished their University studies in the course 2012-13 were girls (MECD, 2017), which can be denoting not only the existence of gender differences in academic achievement, but also the perpetuation of these differences in higher levels of study.

In this context, the main objective of this research is to analyse whether parental expectations play a relevant role in determining students' progression from primary to secondary education and to delve into the potential existence of gender-typed differences – through the interaction of children's and parents' gender – in this effect of expectations. The effect of parental expectations on students' progression is analysed for students' academic achievement and also on their likelihood of grade repetition. This study presents the novelty that we employ census and longitudinal data for the region of Andalusia which – to the best of our knowledge – has not been employed before. The used methodology – time fixed effects – let us obtain this effect of parental expectations, taking advantage of the high variability of these expectations between primary and secondary education and overcoming potential endogeneity problems.

The research is structured as follows: first, the data and methodology employed to perform this analysis are explained, followed by the obtained results and final conclusions.

2 Data

The data used in this research is a census and longitudinal data provided by the *Agencia Andaluza de Evaluación Educativa* (AGAEVE) of the *Consejería de Educación* of the *Junta de Andalucía*. AGAEVE was responsible of conducting a “Diagnostic Assessment” (*Evaluación de Diagnóstico*) – DA from now on² – for the whole Andalusian population of students in an annual basis, from the course 2006-07 to 2012-13. This assessment was aimed at improving the Andalusian education system and students’ learning, by the evaluation of students’ basic curricular competences.

A total of DA seven cycles were performed; the current research is focused on the 2008-09, 2011-12 and 2012-13 waves. Particularly, we use the students who were in 5th course of primary education (5th grade) in 2008-09 and followed them in 2011-12 in the 2nd course of secondary education (8th grade). The 2012-13 wave (8th grade) was used in the case that the student repeated between 2008-09 and 2011-12³. Departing from the total 78,413 Andalusian students in grade 5th we can follow 70,131 in 8th grade. Specifically, we focused on the assessed competences of linguistic communication in Spanish language⁴ (“reading” from now on) and mathematic reasoning⁵ (mathematics from now on). We standardised students’ scores⁶ to mean 1 and standard deviation of 0 to facilitate the interpretation of the results.

² This DA was regulated in the education law which was applicable for the courses under analysis (*Ley Orgánica 2/2006, de 3 de mayo, de Educación* – LOE; BOE, 2006, art. 21, for the application of DA in primary education; art. 29, for secondary education and art. 144 for the competences of Administrations in this DA).

³ We identified repeaters following, first, the applicable Spanish education law during the previous courses to 2008/09 – *Ley Orgánica 10/2002, de 23 de diciembre, de Calidad de la Educación*, i.e., LOCE (BOE, 2002), from 2002 to 2006. This law indicated that students can only repeat once in primary education (BOE, 2002, art. 17.3). The next education law, *Ley Orgánica 2/2006, de 3 de mayo, de Educación*, i.e., LOE (BOE, 2006) also highlighted this (BOE, 2006, art. 20.2) and lasted from 2006 to 2013.

⁴ This competence is defined as “the use of language as an instrument of oral and written communication, of presentation, interpretation and comprehension of reality; to construct and communicate the knowledge, to organize and to auto-regulate thinking, emotions and behavior” (AGAEVE, 2009, p. 7).

⁵ This competence is defined as “the ability to use and relate numbers, their basic operations, symbols and expression forms and mathematic reasoning, to produce and interpret different types of information and to increase knowledge on quantitative and spatial aspects of reality and to solve problems related to daily life and to the labor world” (AGAEVE, 2009, p. 7).

These DAs also gathered contextual information about students, families, schools and teachers. The 5th grade students' questionnaire contained the following question for parents, which is the focus of our analysis: “*What level of education do you expect your child to obtain?*”⁷ – with two individual questions, one for the father and another one for the mother. The options were:

- Secondary education
- Medium grade formation course
- High school
- High grade formation course
- University degree

The main descriptive statistics for these expectation variables and additional background characteristics, for the whole sample and for boys and girls, are presented in Table A1 – Appendix.

3 Methodology

The identification strategy in this research relies on the use of time fixed effects and the adaptation process of parental expectations based on their children's performance between primary and secondary education. This methodology allows to eliminate every characteristic which is the same within students and parents between years – i.e. socio-demographic characteristics, intelligence, etc. – and let to obtain the effect of parental expectations on students' progression during their transition from primary to secondary education.

Beginning with the analysis of the effect of parental expectations on students' academic achievement, departing from the education production function for two-year data:

$$Y_{ijt} = \alpha + \beta EXP_{ijt} + \gamma X_{ijt} + \delta SC_{jt} + \varepsilon_{ijt} \quad (1)$$

i represents the student.

j represents the school.

t is the grade ($t = 1$ in 5th and $t = 2$ in 8th grade).

⁶ For the purpose of interpreting the results' section we provide here the mean and standard deviation of the population in each course and subject used to standardize students' scores: in 2008-09 the mean score in reading (mathematics in brackets) was 68.14 (48.92) with a standard deviation of 17.21 (12.74); in 2011-12, the mean score in reading was 78.92 (39.75) with a standard deviation of 18.38 (11.50); in 2012-13, the mean score in reading was 70.24 (40.78) with a standard deviation of 18.44 (11.92).

⁷ The percentage of fathers who did not answer the expectations' question in 2008-09 is 44.14%; in contrast, 24.89% of mothers did not answer it. This could be due to a higher proportion of single-mother households; however, DA does not provide information about parents living in the household.

where Y_{ijt} represents the academic achievement of the student in reading or mathematics⁸; EXP_{ijt} are parental expectations – for fathers or mothers; X_{ijt} are observable student characteristics which are the same between years (within-student invariant characteristics); SC_{jt} are school characteristics which are the same between years; ε_{ijt} is the unobserved error term.

When estimating this education production function by the use of time fixed effects we get our base model. Denoting as t_1 5th grade data and t_2 8th grade data, erasing sub-indexes in equation (1) and applying differences between years, our base model is obtained as follows:

$$Y_{ijt_2} - Y_{ijt_1} = \Delta Y = \beta \Delta EXP + \gamma \Delta X + \delta \Delta SC + \Delta \varepsilon \quad (2)$$

As X and SC are the same between years, their differences are zero, what allows us to obtain the effect of parental expectations (β). As we are focusing in the variation of parental expectations, the potential endogeneity problems of this variable when explaining academic achievement do not appear. Additionally, a year dummy variable has been included in (2) so that it gathers the variation in students' academic achievement between years which is not due to variation in parental expectations. Furthermore, school dummies have been included, so that they take the variation in students' academic achievement due to school change – for the cases of students who changed school⁹. This base model in (2) has been estimated for the whole sample and using all the possible combinations of specifications between students' gender – for academic achievement – and parents-gender – for parental expectations.

In order to make this identification strategy to work we need enough variation in parental expectations' variables. The period we have employed in the current research – the transition between primary and secondary education – supposes a key milestone in which students have to face new challenges; this means that parental expectations are very likely to adapt more than in other period of compulsory education to their children's performance. In this sense, 28% of both fathers and mothers had to adapt their expectations to the change in their children's performance – in the case of boys, 31% of both fathers and mothers adapted their expectations while, in the case of girls, 25% of both fathers and mothers. Another requirement is that parental expectations have to be measured before they can influence the scores obtained by students; in the case of our data, these expectations are measured before parents can see their children's performance in the current term, so our data fulfils this condition.

Finally, the effect of parental expectations on students' likelihood of grade repetition in the transition from primary to secondary education is measured. Particularly, the variation in parental expectations between 5th grade and 8th grade is used to study the likelihood of grade

⁸ Using both subjects let us check the robustness of our results.

⁹ Around 75% of students changed school between primary and secondary education, as public schools in Andalusia do not usually offer both primary and secondary education courses.

repetition of those students who did not repeat between 2008-09 and 2011-12. These students could have passed in 2011-12 or failed in that course; in the latter case, they had to repeat 8th grade in 2012-13. To do this analysis, a model similar to the base model in (2) is specified, but now the dependent variable is binary: in t_1 (5th grade) its value is “0” (as these students did not repeat between 2008-09 and 2011-12); in t_2 (8th grade) it takes the value “1” if the student failed in 2011-12 and repeated in 2012-13, and the value “0” if he/she passed to 9th after finishing 8th grade in 2011-12¹⁰. A linear probability model with time fixed effects has been employed to study the effect of parental expectations on grade repetition¹².

4 Results

The main results of the base model aimed at analysing the effect of parental expectations on students’ academic achievement during their transition from primary to secondary education are presented in Table 1. Parental expectation variables have been included in their original categorical form – specification I – and also translated into a quasi-continuous variable using their equivalency in years of education¹³ – specification II. Both fathers’ and mothers’ expectations show similar results: higher level of expectations than medium grade formation course increase students’ academic achievement. Particularly, a one-year increase in parental expectations departing from a minimum level of compulsory education (10 years, i.e., secondary education) increases students’ academic achievement between 0.19 and 0.28 standard

¹⁰ This model’s objective is to avoid the inverse causality of parental expectations on grade repetition, based on the group of students chosen – those students who did not repeat between 2008-09 and 2011-12 – and the way that parental expectations are used to explain the dependent variable; particularly, parental expectations in 5th grade are employed to explain the grade repetition dependent variable in t_1 , while parental expectations in 8th grade are employed to explain it in t_2 .

¹¹ We know that students passed to 9th grade when finishing 8th grade in the course 2011-12 because we find them in 8th grade data of the course 2011-12 but we cannot find them in 8th grade data of the course 2012-13.

¹² It may seem that using a logistic regression with time fixed effects would be more adequate in this case, as the dependent variable is binary. Nevertheless, using this estimation procedure supposes dropping all the observations of the dependent variable which did not vary between years – those students who did not repeat in t_1 and t_2 . In spite of the critics made to linear probability models, i.e., heteroscedasticity and the prediction of probabilities which are not between 0 and 1, we overcome the first one by the use of robust standard errors and, as we are not interested in predictions, the second problem does not affect our analysis.

¹³ The value of 10 years was assigned to the category “Secondary education”, 12 years for “Medium grade formation course” and “High school”, 14 years for “High grade formation course” and 16 years for “University degree”.

deviations (SD); hence, a University level of education (16 years) would suppose an increase in academic achievement between 1.14 and 1.68 SDs, what shows the high impact of expectations¹⁴.

Estimations have been replicated by the use of Ordinary Least Squares (OLS) to check for the effect of omitted variables when not using time fixed effects. These estimations show a much higher effect of expectations on students' academic achievement – between three and eight times higher – which can be caused by the omission of relevant variables which are controlled when employing time fixed effects.

¹⁴ It is important to highlight that these estimations have been performed using the DA data of 2011-12 for students who were in 8th in 2011-12 but did not pass that course, so they repeated 8th grade in 2012-13. As a robustness check, these estimations have been replicated using for this group of students the information of 2012-13 and results hold. These estimations will be provided by authors upon request.

Table 1. The effect of expectations on students' academic achievement

Variables	Father's expectations specifications								Mother's expectations specifications								
	Specification I				Specification II				Specification I				Specification II				
	Reading		Mathematics		Reading		Mathematics		Reading		Mathematics		Reading		Mathematics		
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	
Parental expectations (Ref.: Secondary education)																	
Medium grade formation course	-0.014 (0.026)	0.015 (0.027)	0.004 (0.025)	0.027 (0.027)					0.051** (0.020)	0.025 (0.021)	0.069*** (0.019)	0.022 (0.021)					
High school	0.280*** (0.027)	0.076*** (0.028)	0.231*** (0.026)	0.050* (0.028)					0.331*** (0.021)	0.084*** (0.023)	0.316*** (0.020)	0.068*** (0.022)					
High grade formation course	0.383*** (0.024)	0.072*** (0.025)	0.359*** (0.023)	0.064** (0.025)					0.437*** (0.019)	0.117*** (0.021)	0.413*** (0.018)	0.050** (0.020)					
University degree	0.856*** (0.021)	0.145*** (0.023)	0.798*** (0.020)	0.125*** (0.023)					0.902*** (0.017)	0.171*** (0.019)	0.858*** (0.016)	0.116*** (0.018)					
Parental expectations in equivalent years of education					0.169*** (0.002)	0.025*** (0.003)	0.158*** (0.002)	0.022*** (0.003)					0.171*** (0.002)	0.028*** (0.002)	0.161*** (0.002)	0.019*** (0.002)	
8 th Grade (Ref.: 5 th Grade)	0.191*** (0.012)	0.190*** (0.009)	0.257*** (0.013)	0.264*** (0.010)	0.187*** (0.012)	0.189*** (0.009)	0.254*** (0.013)	0.264*** (0.010)	0.200*** (0.010)	0.196*** (0.008)	0.257*** (0.011)	0.261*** (0.008)	0.196*** (0.010)	0.196*** (0.008)	0.254*** (0.011)	0.261*** (0.008)	
School dummies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Constant	-0.666*** (0.219)	0.850** (0.331)	-0.816** (0.401)	0.954** (0.414)	-2.526*** (0.207)	0.598* (0.329)	-2.545*** (0.402)	0.734* (0.415)	-1.014*** (0.162)	0.800** (0.313)	-1.405*** (0.162)	1.012*** (0.378)	-2.842*** (0.164)	0.535* (0.319)	-3.126*** (0.165)	0.814** (0.377)	
Observations	55,330	55,330	55,690	55,690	55,330	55,330	55,690	55,690	81,106	81,106	81,534	81,534	81,106	81,106	81,534	81,534	

Notes: Standard errors are in parentheses and robust. The thick (✓) means that a dummy for each school has been included. Parental expectations' independent variables are fathers' or mothers' according to the indication in the first row of the table.

Estimation method: OLS and Time Fixed Effects.

Dependent variable: Standardised scores using the mean and standard deviations of the total population for that particular DA cycle.

Coefficient: ***Significant at 1%, ** significant at 5%, * significant at 10%.

Source: Authors' own calculations.

Table 2 and 3 show the effect of expectations on students' academic achievement when dividing the sample in boys and girls. The effect of fathers' and mothers' expectations are similar for boys, what also happens for girls, with the exception of high school expectations of mothers for boys, which seem to increase boys' academic achievement. Nevertheless, there are differences between the effect of parental expectations between boys and girls. It seems that high school (in the case of mothers' expectations) and high grade formation course expectations increase boys' academic achievement but, in the case of girls, their academic achievement is only increased by University expectations of fathers and mothers¹⁵. This may be showing a gender difference in the effect of expectations; concretely, boys' higher dropout rates (IECA, 2017) may be a plausible explanation, as boys are more likely to drop out before finishing their compulsory studies, so higher expectations than secondary education may help them to perform higher. In the case of the effect of University expectations for girls, it may show a higher exigency by parents to them, as they are more likely to finish their studies and get higher level of studies¹⁶.

¹⁵ These estimations were performed using the DA data of 2011-12 for students who were in 8th in 2011-12 but did not pass that course and repeated 8th grade in 2012-13; as a robustness check, these estimations have been replicated using for this group of students the information of 2012-13 and results hold. These estimations will be provided by authors upon request.

¹⁶ Spinath, Eckert, and Steinmayr (2014) indicated that girls' attitudes make them better adapted to today's school environment due to their verbal intelligence, higher agreeableness, stronger self-discipline and motivation, so that they usually obtain better academic results than boys.

Table 2. The effect of expectations on students' academic achievement. Boys

Variables	Father's expectations specifications				Mother's expectations specifications			
	Specification I		Specification II		Specification I		Specification II	
	Reading	Mathematics	Reading	Mathematics	Reading	Mathematics	Reading	Mathematics
Parental expectations (Ref.: Secondary education)								
Medium grade formation course	0.005 (0.037)	0.030 (0.036)			0.013 (0.029)	0.028 (0.029)		
High school	0.059 (0.040)	0.040 (0.038)			0.098*** (0.032)	0.079** (0.031)		
High grade formation course	0.062* (0.036)	0.078** (0.035)			0.133*** (0.030)	0.070** (0.029)		
University degree	0.151*** (0.034)	0.143*** (0.033)			0.181*** (0.027)	0.152*** (0.027)		
Parental expectations in equivalent years of education			0.028*** (0.004)	0.026*** (0.004)			0.030*** (0.004)	0.026*** (0.004)
8 th Grade (Ref.: 5 th Grade)	0.151*** (0.014)	0.241*** (0.014)	0.151*** (0.014)	0.241*** (0.014)	0.162*** (0.012)	0.239*** (0.012)	0.161*** (0.012)	0.238*** (0.012)
School dummies	✓	✓	✓	✓	✓	✓	✓	✓
Constant	0.477 (0.465)	1.366*** (0.395)	0.205 (0.466)	1.100*** (0.397)	-0.212 (0.502)	0.332 (0.447)	-0.537 (0.507)	0.076 (0.450)
Observations	27,884	28,144	27,884	28,144	39,582	39,858	39,582	39,858

Notes: Standard errors are in parentheses and robust. The thick (✓) means that a dummy for each school has been included. Parental expectations' independent variables are fathers' or mothers' according to the indication in the first row of the table.

Estimation method: Time Fixed Effects.

Dependent variable: Standardised scores using the mean and standard deviations of the total population for that particular DA cycle.

Coefficient: ***Significant at 1%, ** significant at 5%, * significant at 10%.

Source: Authors' own calculations.

Table 3. The effect of expectations on students' academic achievement. Girls

Variables	Father's expectations specifications				Mother's expectations specifications			
	Specification I		Specification II		Specification I		Specification II	
	Reading	Mathematics	Reading	Mathematics	Reading	Mathematics	Reading	Mathematics
Parental expectations (Ref.: Secondary education)								
Medium grade formation course	0.009 (0.043)	0.034 (0.043)			0.034 (0.033)	0.014 (0.032)		
High school	0.041 (0.043)	0.054 (0.043)			0.041 (0.034)	0.054* (0.032)		
High grade formation course	0.038 (0.039)	0.041 (0.039)			0.072** (0.031)	0.028 (0.030)		
University degree	0.097*** (0.035)	0.103*** (0.035)			0.126*** (0.028)	0.067** (0.027)		
Parental expectations in equivalent years of education			0.018*** (0.005)	0.017*** (0.004)			0.022*** (0.004)	0.010*** (0.003)
8 th Grade (Ref.: 5 th Grade)	0.231*** (0.013)	0.288*** (0.014)	0.231*** (0.013)	0.288*** (0.014)	0.231*** (0.011)	0.284*** (0.012)	0.231*** (0.011)	0.284*** (0.012)
School dummies	✓	✓	✓	✓	✓	✓	✓	✓
Constant	0.669 (0.449)	-0.747 (0.480)	0.502 (0.455)	-0.911* (0.485)	1.302** (0.527)	0.173 (0.404)	1.076** (0.528)	0.075 (0.406)
Observations	27,446	27,546	27,446	27,546	41,524	41,676	41,524	41,676

Notes: Standard errors are in parentheses and robust. The thick (✓) means that a dummy for each school has been included. Parental expectations' independent variables are fathers' or mothers' according to the indication in the first row of the table.

Estimation method: Time Fixed Effects.

Dependent variable: Standardised scores using the mean and standard deviations of the total population for that particular DA cycle.

Coefficient: ***Significant at 1%, ** significant at 5%, * significant at 10%.

Source: Authors' own calculations.

Finally, Table 4 gathers the estimations to analyse the effect of parental expectations on the likelihood of students' grade repetition in their transition between primary and secondary education. In this case, we are focusing on students who did not repeat between 2008-09 and 2011-12 to study the effect of the variation in parental expectations on students' likelihood to fail 8th grade in 2011-12 and, then, repeat in 2012-13¹⁷. The underlying idea is that the variation of parental expectations in 2008-09 to parental expectations in 2011-12 can explain students' failing 8th grade in 2011-12 and, hence their grade repetition of 8th grade in 2012-13, avoiding inverse causality problems. Results show that fathers' expectations higher than medium grade formation course seem to decrease students' likelihood of grade repetition for boys, decreasing this likelihood with the level of education; in the case of girls, only University expectations decrease their likelihood of grade repetition, showing a similar pattern to that with student academic achievement, i.e., higher exigency from parents to their daughters. In the grade repetition case it is also relevant to highlight that mothers' expectations of medium grade formation course increase girls' likelihood of grade repetition, what may be denoting that mothers are more aware of their daughters' difficulties at school – maybe because of their higher confidence and time spent with them (Updegraff, McHale, Crouter, & Kupanoff, 2001; Updegraff, Delgado, & Wheeler, 2009).

¹⁷ As we do not have information about 8th grade students in 2013-14 (DA finished on 2012-13) we cannot know if students who repeated between 2008-09 and 2011-12 (who we find in 8th grade 2012-13 DA data) failed 8th grade in 2012-13 and repeated that grade in 2013-14, so we cannot include them in the current analysis.

Table 4. The effect of expectations on grade repetition

Variables	Father's expectations specifications						Mother's expectations specifications					
	Whole sample		Boys		Girls		Whole sample		Boys		Girls	
	Spec. I	Spec. II	Spec. I	Spec. II	Spec. I	Spec. II	Spec. I	Spec. II	Spec. I	Spec. II	Spec. I	Spec. II
Parental expectations (Ref.: Secondary education)												
Medium grade formation course	0.016 (0.016)		-0.014 (0.023)		0.039 (0.024)		0.027* (0.014)		0.002 (0.020)		0.054*** (0.020)	
High school	-0.040*** (0.015)		-0.075*** (0.022)		-0.005 (0.021)		-0.024* (0.013)		-0.059*** (0.019)		0.012 (0.019)	
High grade formation course	-0.059*** (0.014)		-0.097*** (0.021)		-0.024 (0.018)		-0.039*** (0.012)		-0.065*** (0.018)		-0.010 (0.017)	
University degree	-0.101*** (0.013)		-0.143*** (0.020)		-0.060*** (0.017)		-0.091*** (0.012)		-0.119*** (0.018)		-0.060*** (0.016)	
Parental expectations in equivalent years of education		-0.019*** (0.001)		-0.024*** (0.002)		-0.014*** (0.002)		-0.019*** (0.001)		-0.021*** (0.002)		-0.017*** (0.002)
8 th Grade (Ref.: 5 th Grade)	0.037*** (0.002)	0.037*** (0.002)	0.043*** (0.003)	0.043*** (0.003)	0.030*** (0.003)	0.030*** (0.003)	0.044*** (0.002)	0.044*** (0.002)	0.051*** (0.003)	0.051*** (0.003)	0.037*** (0.003)	0.038*** (0.003)
School dummies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Constant	-0.520*** (0.169)	-0.342* (0.184)	0.172* (0.088)	0.380*** (0.092)	-0.125 (0.110)	0.046 (0.114)	0.051 (0.391)	0.269 (0.393)	-0.521*** (0.110)	-0.307*** (0.114)	0.803*** (0.174)	1.019*** (0.176)
Observations	52,844	52,844	26,030	26,030	26,814	26,814	76,060	76,060	36,230	36,230	39,830	39,830

Notes: Standard errors are in parentheses and robust. The sample is that of students who did not repeat between 2008-09 and 2011-12. The thick (✓) means that a dummy for each school has been included. Parental expectations' independent variables are fathers' or mothers' according to the indication in the first row of the table.

Estimation method: Time Fixed Effects.

Dependent variable: Binary variable with value "0" in 5th grade and, in 8th grade, with value "1" if the student failed 8th grade in 2011-12 and repeated that grade in 2012-13 and "0" if he/she passed to 9th grade when finishing 8th grade in 2011/12.

Coefficient: ***Significant at 1%, ** significant at 5%, * significant at 10%.

Source: Authors' own calculations.

5 Conclusions

Our main results have shown that parental expectations do affect students' progression from primary to secondary education, either when measuring this progression using students' academic achievement or grade repetition: parental expectations increase academic achievement (reduce students' likelihood of grade repetition) when these expectations are higher than medium grade formation course, having both fathers' and mothers' expectations a similar effect.

Furthermore, the current study has also revealed some gender-typed effects of parental expectations on their children's progression. In this sense, it has been found that mothers' higher confidence and time spent with their daughters may make mothers more aware of their daughters' problems, so that they can detect the difficulties that their daughters can be facing at school. However, this does not happen with fathers; hence, a better communication between fathers' and daughters has to be achieved.

Our results (both in the case of students' academic achievement and grade repetition) have also shown that parents seem to be more demanding with girls, as the latter are only benefited by University expectations, while boys are benefited from high school or higher parental expectations. Hence, this higher parental exigency for girls in comparison to boys may be indicating the perpetuation of gender roles in academic achievement, as boys are supposed to have worse behaviour than girls at schools, while girls are supposed to have a better attitude for school life (Spinath, Eckert, & Steinmayr, 2014). This means that there is still a lot of work to do in order to overcome the gender stereotypes that boys and girls are attributed at school; an issue which should be included in teachers' curriculum in order to prepare them to deal with it.

Thus, this research also highlights the importance that expectations have in the determination of academic progression, this meaning that parental beliefs are a good predictor of academic progression and that they adapt to students' performance. In this context, schools play a relevant role when helping parents to define their expectations, as these institutions are the main source of information that parents have about the academic progression of their children. Hence, schools should keep parents informed about the progression of their children and contact them as soon as possible in the case that any kind of negative deviation in students' performance is detected.

To conclude, although potential endogeneity problems of expectations have been dealt with, it is important to have into account that the conclusions obtained from this research are referred to the region under analysis. Hence, the particular case of each region has to be studied to understand the way expectations influence on students' performance for that region.

References

- AGAEVE (2009). *Evaluación de Diagnóstico. Curso 2008-2009*. Andalucía: Consejería de Educación, Junta de Andalucía.
- Australian Institute of Family Studies (2015). *The Longitudinal Study of Australian Children Annual Statistical Report 2014*. Melbourne: AIFS
- BOE (2002). *Organic Law 10/2002, 23rd December, of the Quality of Education (LOCE)*. Spain: N° 307, 24th December 2002, 45188–45220.
- BOE (2006). *Organic Law 2/2006, 3rd May, of Education (LOE)*. Spain: N° 106, 4th May 2006, 17158–17207.
- Flouri, E., & Hawkes, D. (2008). Ambitious mothers – successful daughters: Mothers’ early expectations for children’s education and children’s earnings and sense of control in adult life. *British Journal of Educational Psychology* 78(3), 411–433. doi: 10.1348/000709907X251280
- Goldenberg, C., Gallimore, R., Reese, L., & Garnier, H. (2001). Cause or Effect? A Longitudinal Study of Immigrant Latino Parents’ Aspirations and Expectations, and Their Children’s School Performance. *American Educational Research Journal* 38(3), 547–582. doi: 10.3102/00028312038003547
- IECA (2017). Premature dropout rate by sex. Last accessed February 2018 from <http://www.juntadeandalucia.es/institutodeestadisticaycartografia/indsoc/indicadores/1038.htm>
- Jacobs, J. E., Chhin, C. S., & Bleeker, M. M. (2006). Enduring links: Parents’ expectations and their young adult children’s gender-typed occupational choices. *Educational Research and Evaluation* 12(4), 395–407. doi: 10.1080/13803610600765851
- Khattab, N., & Modood, T. (2017). Accounting for British Muslim’s educational attainment: gender differences and the impact of expectations. *British Journal of Sociology of Education*, in press. doi: 10.1080/01425692.2017.1304203
- Klassen, S. (2002). Low schooling for Girls, slower Growth for All? Cross Country Evidence on the Effect of Gender Inequality in Education on Economic Development. *World Bank Economic Review* 16(3), 345–373. doi: 10.1093/wber/lhf004
- Koshy, P., Dockery, A. M., & Seymour, R. (2017). Parental expectations for young people’s participation in higher education in Australia. *Studies in Higher Education*, in press. doi: 10.1080/03075079.2017.1363730
- Martin, M. O., Mullis, I. V. S., Foy, P., & Stanco, G. M. (2012). *TIMSS 2011 International Results in Science*. Chesnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- MECD (2017). Graduated students in the course 2012-13. Last accessed February 2018 from <http://www.mecd.gob.es/servicios-al-ciudadano-mecd/estadisticas/educacion/universitaria/estadisticas/alumnado/2012-2013.html>

- Mullis, I. V. S., Martin, M. O., Foy, P., & Arora, A. (2012). *TIMSS 2011 International Results in Mathematics*. Chesnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- Neuenschwander, M. P., Vida, M., Garrett, J. L., & Eccles, J. S. (2007). Parents' expectations and students' achievement in two western nations. *International Journal of Behavioural Development* 31(6), 594–602. doi: 10.1177/0165025407080589
- OECD (2014). *PISA 2012 Results: What Students Know and Can Do – Student Performance in Mathematics, Reading and Science (Volume I, Revised edition, February 2014)*. PISA, OECD Publishing. doi: 10.1787/9789264208780-en
- OECD (2015). *The ABC of Gender Equality in Education: Aptitude, Behaviour, Confidence*. PISA, OECD Publishing. doi: 10.1787/9789264229945-en
- Spinatha, B., Eckert, C., & Steinmayr, R. (2014). Gender differences in school success: what are the roles of students' intelligence, personality and motivation? *Educational Research* 56(2), 230–243. doi: 10.1080/00131881.2014.898917
- Steiber, N., & Haas, B. (2012). Advances in explaining women's employment patterns. *Socio-Economic Review* 10(2), 343–367. doi: 10.1093/ser/mwr039
- Updegraff, K. A., Delgado, M. Y., & Wheeler, L. A. (2009). Exploring Mothers' and Fathers' Relationships with Sons Versus Daughters: Links to Adolescent Adjustment in Mexican Immigrant Families. *Sex Roles* 60, 559–574. doi: 10.1007/s11199-008-9527-y
- Updegraff, K. A., McHale, S. M., Crouter, A. C., & Kupanoff, K. (2001). Parents' Involvement in Adolescents' Peer Relationships: A Comparison of Mothers' and Fathers' Roles. *Journal of Marriage and Family* 63(3), 655–668. doi: 10.1111/j.1741-3737.2001.00655.x
- 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. doi: 10.1111/cdev.12171
- West, P., Sweeting, H., & Young, R. (2008). Transition matters: pupils' experiences of the primary–secondary school transition in the West of Scotland and consequences for well-being and attainment. *Research Papers in Education* 25(1), 21–50. doi: 10.1080/02671520802308677
- Yamamoto, Y., & Holloway, S. D. (2010). Parental Expectations and Children's Academic Performance in Sociocultural Context. *Educational Psychology Review* 22(3), 189–214. doi: 10.1007/s10648-010-9121-z
- Zeedyk, M. S., Gallacher, J., Henderson, M., Hope, G., Husband, B., & Lindsay, K. (2003). Negotiating the Transition from Primary to Secondary School. Perceptions of Pupils, Parents and Teachers. *School Psychology International* 24(1), 67–79. doi: 10.1177/0143034303024001010

Appendix

Table A1. Descriptive statistics in 5th grade

Variables	Complete sample			Boys			Girls			
	Obs.	Mean	S.d.	Obs.	Mean	S.d.	Obs.	Mean	S.d.	
Scores 2008-09	Reading	76,244	68.139	17.208	39,185	66.008	17.548	37,059	70.393	16.546
	Mathematics	76,224	48.921	12.736	39,184	49.281	12.908	37,040	48.539	12.541
Father's expected level of education for the student	Secondary education	43,798	0.057	0.23	22,653	0.063	0.244	21,145	0.049	0.215
	Medium grade formation course	43,798	0.056	0.23	22,653	0.069	0.253	21,145	0.042	0.201
	High school	43,798	0.053	0.225	22,653	0.058	0.233	21,145	0.049	0.215
	High grade formation course	43,798	0.082	0.275	22,653	0.090	0.286	21,145	0.074	0.262
	University	43,798	0.752	0.432	22,653	0.720	0.449	21,145	0.786	0.410
Mother's expected level of education for the student	Secondary education	58,893	0.057	0.231	29,877	0.065	0.244	29,016	0.049	0.216
	Medium grade formation course	58,893	0.06	0.237	29,877	0.071	0.258	29,016	0.048	0.213
	High school	58,893	0.05	0.218	29,877	0.055	0.228	29,016	0.045	0.208
	High grade formation course	58,893	0.082	0.275	29,877	0.090	0.287	29,016	0.074	0.262
	University	58,893	0.751	0.432	29,877	0.719	0.449	29,016	0.784	0.412
Sex	Male	78,413	0.514	0.5	X	X	X	X	X	X
	Female	78,413	0.486	0.5	X	X	X	X	X	X
Repeater student in 2008-09	No	60,747	0.911	0.285	30,795	0.896	0.306	29,952	0.926	0.261
	Yes	60,747	0.089	0.285	30,795	0.104	0.306	29,952	0.074	0.261
Level of education of the father	Incomplete primary education or did not attend school	58,376	0.17	0.376	29,870	0.169	0.375	28,506	0.171	0.377
	EGB or Compulsory Secondary Education	58,376	0.372	0.483	29,870	0.372	0.483	28,506	0.371	0.483
	High school, First Grade Professional Formation, Elemental Arts School and Artistic Professions, BUP, COU, Official Language School or Medium Grade Professional Formation Cycle	58,376	0.304	0.46	29,870	0.304	0.460	28,506	0.305	0.460
	Second Grade Professional Formation, Arts Speciality and Artistic Professions or High Grade Professional Formation Cycle	58,376	0	0	29,870	0	0	28,506	0	0
	University degree, PhD	58,376	0.154	0.361	29,870	0.155	0.362	28,506	0.153	0.359
Level of education of the mother	Incomplete primary education or did not attend school	62,677	0.141	0.348	31,985	0.140	0.347	30,692	0.142	0.350
	EGB or Compulsory Secondary Education	62,677	0.406	0.491	31,985	0.404	0.491	30,692	0.408	0.491
	High school, First Grade Professional Formation, Elemental Arts School and Artistic Professions, BUP, COU, Official Language School or Medium Grade Professional Formation Cycle	62,677	0.289	0.453	31,985	0.290	0.454	30,692	0.288	0.453
	Second Grade Professional Formation, Arts Speciality and Artistic Professions or High Grade Professional Formation Cycle	62,677	0	0	31,985	0	0	30,692	0	0
	University degree, PhD	62,677	0.164	0.37	31,985	0.166	0.372	30,692	0.162	0.368
Occupation of the father	Business managers or public administration	57,981	0.055	0.228	29,680	0.054	0.226	28,301	0.056	0.230
	Technicians, professionals, scientists and intellectuals. Army (officials and high ranks)	57,981	0.125	0.33	29,680	0.126	0.332	28,301	0.124	0.329
	Technicians and support professionals. Administrative employees. Little business people	57,981	0.195	0.396	29,680	0.197	0.398	28,301	0.191	0.393
	Hotel workers, personnel, protection and sellers. Army	57,981	0.149	0.356	29,680	0.147	0.355	28,301	0.151	0.358

	(sub-officials and low ranks)									
	Agriculture and fishing qualified workers. Artisans and qualified manufacturing, construction and mining workers	57,981	0.38	0.485	29,680	0.381	0.486	28,301	0.380	0.485
	Non-qualified workers	57,981	0.068	0.252	29,680	0.067	0.250	28,301	0.070	0.255
	Performing housework	57,981	0.007	0.083	29,680	0.008	0.088	28,301	0.006	0.077
	Inactive	57,981	0.021	0.142	29,680	0.020	0.139	28,301	0.022	0.146
Occupation of the mother	Business managers or public administration	61,551	0.021	0.142	31,426	0.021	0.143	30,125	0.021	0.142
	Technicians, professionals, scientists and intellectuals. Army (officials and high ranks)	61,551	0.105	0.307	31,426	0.107	0.309	30,125	0.104	0.306
	Technicians and support professionals. Administrative employees. Little business people	61,551	0.15	0.357	31,426	0.153	0.359	30,125	0.148	0.355
	Hotel workers, personnel, protection and sellers. Army (sub-officials and low ranks)	61,551	0.138	0.345	31,426	0.136	0.343	30,125	0.139	0.346
	Agriculture and fishing qualified workers. Artisans and qualified manufacturing, construction and mining workers	61,551	0.067	0.25	31,426	0.067	0.251	30,125	0.067	0.249
	Non-qualified workers	61,551	0.124	0.329	31,426	0.122	0.328	30,125	0.125	0.331
	Performing housework	61,551	0.379	0.485	31,426	0.379	0.485	30,125	0.379	0.485
	Inactive	61,551	0.016	0.127	31,426	0.015	0.123	30,125	0.017	0.131

Notes: "Obs." means "Observations" and "S.D." stands for "standard deviation".

Source: Authors' own calculations from DA 2008-09.