NOVAFRICA
Working Paper Series

Teachers' and Students' Expectations on Pursuing Higher Education

Catia Batista
Nova SBE, CEPR, CReAM, IZA, and NOVAFRICA

Pedro Freitas
Nova SBE, Blavatnik School of Government - University of Oxford, and Economics of Education Knowledge Center

Maria Vaz Pato
Nova SBE

Ana Balcão Reis
Nova Nova SBE, and Economics of Education Knowledge Center

ISSN 2183-0843
Working Paper No 2603
March 2026

NOVAFRICA Working Paper

Any opinion expressed here are those of the author(s) and not those of NOVAFRICA. Research published in this series may include views on policy, but the center itself takes no institutional policy positions.

NOVAFRICA is a knowledge center created by the Nova School of Business and Economics of the Nova University of Lisbon. Its mission is to produce distinctive expertise on business and economic development in Africa. A particular focus is on Portuguese-speaking Africa, i.e., Angola, Cape Verde, Guinea-Bissau, Mozambique, and Sao Tome and Principe. The Center aims to produce knowledge and disseminate it through research projects, publications, policy advice, seminars, conferences and other events.

NOVAFRICA Working Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

Teachers' and Students' Expectations on Pursuing Higher Education*

Catia Batista† Pedro Freitas‡ Maria Vaz Pato§ Ana Reis**

March 2026

Abstract

Teacher expectations significantly impact students' educational outcomes, yet little research examines how they align with students' own expectations. This study explores how student characteristics influence teacher and student expectations for university completion, using residual analysis to control for students' demonstrated ability. Analyzing a novel dataset from 9th-grade disadvantaged students in Portugal, findings show higher expectations, among teachers and students, towards female and engaged students. However, teachers hold lower expectations for foreign-born students, especially older, experienced teachers, despite students' own higher expectations. The study provides a basis for understanding unconscious bias in teachers' and students' expectations to complete university.

JEL Keywords: Discrimination; Educational Attainment; Expectations; Teacher Judgment

* This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209). Survey data used in the work project results from the project funded by FCT (PTD-C/EGEECO/3674/2021).

† Nova SBE; NOVAFRICA; CEPR; CReAM; IZA

‡ Blavatnik School of Government, University of Oxford; Economics of Education Knowledge Center, Nova SBE

§ Nova SBE

** Nova SBE; Economics of Education Knowledge Center, Nova SBE.

1 Introduction

It is well-established that individuals with higher education degrees earn proportionally more in the future than those without such qualifications (*e.g* Angrist and Krueger (1991) ; Card (1999)). Students from lower socioeconomic backgrounds are also known to face greater challenges in achieving this level of education, often worsened by a tendency to underestimate the benefits of education (Betts, 1996). Parental education, particularly mothers wise, is among the most thoroughly researched factors affecting educational attainment (Dickson, Gregg, and Robinson, 2016). A less explored, yet equally important factor in the economics literature, is the effect of external expectation of individuals on students' daily lives, such as peers or parents (Gil-Flores, Padilla-Carmona, and Suárez-Ortega, 2011; Wu and Bai, 2015). Adding to this, teachers' expectations also play a role in impacting students' academic achievement, acting as self-fulfilling prophecies (Rosenthal and Jacobson, 1968; Jacob and Wilder, 2010; Wu and Bai, 2015).

Notably, in Portugal, completing higher education is associated with an average earning premium of 49% compared to individuals who have only completed upper secondary education (Fundação José Neves, 2024[1]), revealing significant long-term implications. Moreover, Banerjee and Duflo (2011) argue that when students have high ambitions but face low expectations from external sources, such as parents and teachers, the mismatch can be highly damaging. This disconnect may lead students to abandon their goals, potentially reinforcing a poverty trap.

Existing studies have focused only on either students or teachers' perceptions about educational paths. An integrated framework that analyzes and compares both points of view is still lacking. In this study we propose a cross-comparison examining how teachers' and students' differ in their expectations of students' educational path, and an analysis of their determinants, after accounting for an objective measure of academic performance. In this way, our study seeks to understand whether these characteristics might be the source of a teacher's unconscious bias. In particular, it aims to evaluate how student characteristics influence differently teachers´ and students' expectations, further examining how these effects vary based on teacher characteristics. As an additional analysis, we explore the correlation between students' perceptions of their teachers' expectations and the teachers' actual expectations.

1. In *"Estado da Nação 2024: Educação, Emprego e Competências em Portugal", Fundação José Neves*.

This study offers the first attempt to describe how teachers' and students' expectations are shaped. This exercise is done using a large sample of ninth-grade students from economically disadvantaged backgrounds in Portugal and their teachers. In our analysis, 82% of students aspire to complete higher education, while teachers expect that only 54% will achieve this goal. In the Portuguese context, examining these expectations is especially relevant. Teacher motivation, already low, continues to decline—a trend that is likely to impact students' learning outcomes and, consequently, the alignment of expectations between teachers and students. In 2018, only 29% of surveyed Portuguese teachers reported satisfaction with their contract terms, the lowest percentage among the OECD countries studied. This was followed by Denmark at 37%, and Hungary and Japan at 40% (TALIS, 2018[2]).

The main finding of this dissertation is that, after accounting for academic performance, various student characteristics significantly contribute to the conditional expectation for both teachers and students, albeit with differing impacts. Key characteristics such as gender, country of origin, and student engagement levels stand out as particularly influential, with their effects being more pronounced particularly on students'. For instance, being a female student is linked with a greater increase in students' conditional expectations compared to teachers', with a difference of 5.5 percentage points (p.p.). Country of origin exhibits contrasting effects: students born abroad positively influence their own expectations but negatively impact teachers', resulting in a 15.3 p.p. difference. Student engagement level has the most substantial effect, showing a striking 21.9 p.p. gap between teachers' and students' expectations, affecting both with a positive sign. The analysis on teacher characteristics highlights that more experienced teachers are less inclined to exhibit a positive bias in their expectations toward female students compared to less experienced teachers. However, they are more likely to hold negative expectations for students born outside the country.

The remainder of the paper is structured as follows. Section 2 provides a literature review. Section 3 provides an overview of the Portuguese educational system. Section 4 details the datasets used and the data collection process. Section 5 explains the empirical strategy. Results are presented in Section 6 and discussed in Section 7, providing directions for further research.

2. OECD (2020), TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals, TALIS, OECD Publishing, Paris, https://doi.org/10.1787/19cf08df-en.

2 Literature Review

When it comes to educational paths, students' choices are shaped by several factors, including Socioeconomic Status (SES) and expectations. Additionally, prior research highlights the significant role of educational aspirations in the decision to undertake further studies, and therefore, in educational attainment (Serneels and Dercon, 2021). Previous research underlines how students' expectations serve as strong determinants of their academic achievement and vary significantly across different student characteristics. Jacob and Wilder (2010) analyzed the impact of educational expectations on educational attainment between mid-1970 and early 2000 in the United States of America. The authors concluded that, over time, educational expectations remained strong predictors of actual attainment even accounting for social background, school and individual characteristics. However, recent research suggests that teachers also play a crucial role in influencing students' decisions to pursue higher education.

Seminal research on the impact of teacher expectations has identified two key complementary phenomena: the "Pygmalion Effect" and the "Golem Effect" (Babad, Inbar, and Rosenthal, 1982). The Pygmalion Effect occurs when individuals internalize positive expectations about their potential, leading to improved performance. In contrast, the Golem Effect describes how internalizing negative expectations results in lower performance. Rosenthal and Jacobson (1968) demonstrated the Pygmalion Effect phenomenon in an experiment where teachers were told that a randomly selected group were expected to be "growth spurters". A year later these students improved performance, and the expectations were more effective on students which, prior to the study, had lower grades when compared to the average class performance. Wu and Bai (2015) found that teachers' expectations positively affect university attainment, supporting the hypothesis which states that teachers exert positive influences on higher education pursuit. It can be further said that teachers' expectations for student's intellectual development act as a self-fulfilling prophecy. Indeed, strong self-fulling prophecies affect more students belonging to stigmatized social communities (Jussim and Harber, 2005).

Teacher biases toward minorities and disadvantaged student groups, usually expressed as stereotypical negative expectations from teachers tend to significantly affect these students, whereas the expression of higher expectations by teachers improve students' school success. In a recent

work, Papageorge, Gershenson, and Kang (2020) examined the impact of expectations set by two different teachers for each student on their educational outcomes. The study found that black students and male students were often subjected to lower expectations. Moreover, when evaluated by black teachers, there was a positive bias toward black students. In fact, non-black teachers have significantly lower expectations than black teachers when assessing black students (Gershenson, Holt, and Papageorge, 2016).

Concerning other minorities, a study in Italy suggests that immigrant boys tend to opt for the vocational track over the academic or the technical tracks, which could be explained by the influence exerted by teachers when recommending the educational option for these same students (Carlana, La Ferrara, and Pinotti, 2022).

In reality, it has been reported that a pattern of academic underachievement of high-ability minority students may persist in a regular classroom context due to teachers' low expectations (Card and Giuliano, 2016).

Complementarily to these studies, research has also offered valuable insights on teachers´ predictions, particularly concerning students' test performance (Hoge and Coladarci, 1989; Südkamp, Kaiser, and Möller, 2012; Kaufmann, 2020). Using data from India and Bangladesh, Djaker, Ganimian, and Sabarwal (2024) discovered that teachers often misestimate test outcomes. Furthermore, teachers tend to invest on students from the top of the grade ranking (Banerjee and Duflo, 2011). For this reason, it is expected that teachers' underestimate the potential of students at the bottom of the grade ranking to pursue higher education. Contreras (2023) observe that, in terms of the grading gender gap, female students tend to receive higher grades than male students for the same effort level. Student engagement also emerges in the literature as a significant factor influencing teachers' expectations. For instance, Kaiser et al. (2013) observed a positive relationship between students' learning engagement and teachers' evaluations of their academic achievement.

Building on the evidence presented earlier in this section, we hypothesize that teachers tend to have lower expectations for male students who are born abroad and come from lower socioeconomic backgrounds.

3 Portuguese Educational System

Portuguese compulsory education is set between 6 and 18 years old and divided into four main cycles (see Table A.1). Elementary Education is subdivided into two cycles. The 1st cycle, which includes grades 1 to 4, and the 2nd cycle which covers grades 5 and 6. Students then advance to lower secondary education (3rd cycle), which comprises grades 7 to 9, and finally to upper secondary education, from grades 10 to 12.

At the upper secondary education students can be either in the academic (*Cursos Científico-Humanísticos*) or vocational (*Cursos Profissionais*) track with different specializations (see Table A.2). The first option is the most frequently chosen by the students, accounting for 61% of the total in 2022/2023, compared to 32% who choose the vocational track, among the young population. The remaining 7% correspond mainly to learning courses, specialized artistic courses, among other possible tracks (DGEEC, 2024[3]). Upon completing 12th grade, students may choose to pursue their studies in higher education. Academic students typically enroll in higher education programs at a higher rate than vocational students.

For the past 30 years the Portuguese educational attainment has been improving. For example, the proportion of the population between 25 and 34 years old with at least the upper secondary level increased from 28% in 1998 to 81.6% in 2023 (Eurostat, 2024). In 2023, the share of people with a higher education degree from this same age group was 41.5% (Eurostat, 2024), a value still below the EU average (43.1%). Between 2002 and 2022, the rate of early school leaving (among individuals aged 18-24) saw a dramatic decline, dropping from 45% to 6.5%, being more concentrated among male students (Eurostat, 2024). Notably, the proportion of female students enrolled in university has been steadily growing and, during the 2021/2022 academic year, women accounted for 54% of higher education enrollments.[4]

The Portuguese educational system faces a significant challenge in the socioeconomic attainment gap. As mentioned in the Introduction (1), low parental education level is the most critical factor influencing academic outcomes. In Portugal, students whose parents hold higher education degrees are 60% more likely to complete higher education compared to those whose parents

3. In *"Estatísticas da Educação 2022/2023"*, Direção-Geral de Estatísticas da Educação e Ciência (DGEEC).

4. This trend is evident with the exception of the TeSP, Higher Vocational Technical Courses - *Cursos Técnicos Superiores Profissionais* (Conselho Nacional de Educação, 2023).

have less than lower secondary education (EU-SILC, 2019). This disparity is exacerbated by Portugal's high percentage of adults (25–64 years) without upper secondary education — 41.1% in 2023, the highest among OECD countries (Eurostat, 2024).

Teachers' expectations of students gain even greater importance in the context of a public school system facing a teacher shortage problem, largely driven by an aging workforce. Between 2014 and 2023, the percentage of teachers over the age of 60 rose from 3.5% to 20% (Eurostat, 2024). This issue is further exacerbated by the declining prestige of the teaching profession and the lack of stable working conditions, with only 9% of the teachers thinking that their profession was valued to the society (TALIS, 2018[2]).

4 Data and Descriptive Statistics

This study combines two sources of data: the students survey and the teachers survey. The analyzed sub-sample of schools was taken from an original group identified through administrative data. From the list of public schools, 400 schools were selected based on having the lowest percentage of students with at least one parent holding a higher education degree, a key socioeconomic indicator. Of these, 234 schools agreed to take part in the project. Therefore, this is a representative sample of the Portuguese 9th grade students with the lowest parental educational attainment. Between September 2022 and February 2023, 234 public schools were visited, and data was collected through face-to-face survey of students and teachers within the context of the ongoing project "Raising Educational Aspirations - An Experimental Evaluation". For more details on sampling procedures please refer to Batista et al. (2024). The resulting dataset is composed of 191[5] public schools, 9378 9th grade students and 505 teachers.

The student survey was conducted by enumerators using handheld tablets while, at the same time, the teachers were given paper questionnaires to record their answers. The student survey measured beliefs, study effort and educational performance whereas the teacher survey captured their expectations on whether these students would complete a higher education degree.

5. Due to noncompliance by teachers and the fact that some questionnaires were completed by psychologists, 43 schools were excluded from the analysis.

4.1 Student Survey

The survey participants correspond to approximately 10%[3] of all 9th-grade students enrolled in public schools during the 2022/2023 academic year and are distributed across different Portuguese regions. Table 1 summarizes the main descriptive statistics of the sample.

The average age of students is 15, which reflects a significant portion of retained students, as the standard age for 9th-grade is between 13 and 14 years old (DGEEC, 2024[6]). Furthermore, the collected data is gender balanced (49% female) and 9% of the students were born outside of Portugal, aligning closely with the national average for this education level. Approximately 64% is prone to choose the academic track next year, nearly identical to the national average of 61%, among younger students (DGEEC, 2024[6]). Only 35% of the students have at least one parent who completed higher education.

Additionally, 76% of the students expects and feels capable of finishing university, and 82% aspire to do so. Even though 67% of the question answers had missing data, 83% of those with responses believe their closest teacher expects them to graduate from university.

The survey incorporated a measure of internal locus of control, assessing how students perceive the importance of merit *versus* destiny in achieving their goals (original question in Table B.1). Based on this, a binary variable representing an internal locus of control was created, assigned a value of 1 if merit was considered more important than destiny, with a mean value of 0.92.

The questionnaire also included 15 engagement questions (Table B.2) used to calculate the engagement index, which ranges from 0 to 1. In the dataset, the average engagement index is approximately 0.74. This index represents a measure of students' behavioral, emotional, and social involvement in school activities, both with their teachers and classmates.

The final section of the survey included an assessment of academic ability. The assessment included a Raven's Progressive Matrices (RPM) section, a non-verbal test to measure abstract reasoning[7] (Appendix Section B.2 presents the Raven's questions). For the two raven questions there was an average of 69% correct answers. The assessment in Language (Portuguese) and Mathematics utilized questions from previous Programme for International Student Assessment

6. In *"Perfil do Aluno 2022/2023"*, Direção-Geral de Estatísticas da Educação e Ciência (DGEEC).
7. For a more detailed explanation, please refer to the book: Raven and Court (1998).

(PISA[8]) evaluations (Appendix Sections B.3 and B.4 present the original Portuguese and Mathematics questions). For the Portuguese and Mathematics questions there was a 76% and 42% correct response rate, respectively. Combining both sets of questions, the overall assessment had a 61% average score, out of the total 8 questions. For the remainder of this paper, the term "PISA score" will refer to the overall assessment score as the percentage of correct answers, including both PISA and Raven Matrices sections.

At the end of the questionnaire, students were given the option to answer an additional mathematics question, designed to potentially assess their persistence and motivation to take on extra challenges. This resulted in a binary variable set to 1 if the student chose to answer the question. The sample data shows that 72% of students opted to answer it.

For the dependent variable representing students' expectations, their response to the question, "Do you think you will complete a higher education program (in a university or polytechnic)?" is captured by the binary variable $student\_exp$, where a value of 1 indicates "Yes" and 0 indicates "No".

For a more comprehensive version of the full student descriptive data, see Table B.3.

Table 1: Descriptive Statistics: 9378 students' characteristics

	Mean	**Std. Dev**	**Obs**
Calculated Age based on Birthday	15.20	0.73	9331
Binary variable = 1 if female student	0.50	0.50	9378
Binary variable = 1 if student was born outside of Portugal	0.10	0.29	7880
Binary Variable = 1 if student has more than 25 books at home	0.44	0.50	8319
Binary Variable = 1 if one of the parents completed higher education	0.35	0.48	9173
Binary Variable = 1 if student is more inclined to choose the Academic track	0.64	0.48	9378
Binary Variable = 1 if student is more inclined to choose the Vocational track	0.30	0.46	9378
Binary variable = 1 if the student expects to finish university	0.76	0.43	8238
Binary variable = 1 if the student ideally wants to finish university	0.82	0.39	8662
Binary variable = 1 if the student believes he/she is capable of finishing university	0.77	0.42	8264
Binary variable = 1 if student believes the closest teacher expects them to finish university	0.83	0.38	3141
Internal Locus of Control (0-1)	0.92	0.27	8753
Engagement Index (0-1), derived as the average of 15 engagement-related questions	0.74	0.11	8779
Proportion of correct overall assessment answers (out of 8)	0.61	0.23	9378
Proportion of correct raven PISA answers (out of 2)	0.69	0.30	9378
Proportion of correct Portuguese PISA answers (out of 3)	0.76	0.30	9378
Proportion of correct math PISA answers (out of 3)	0.42	0.34	9378
Binary Variable = 1 if student wants to answer an extra math question	0.72	0.45	9378
Observations	9378		

8. OECD initiative which evaluates the skills and knowledge 15 year-old students in Mathematics, Reading and Science. Each subject is assessed on a three-year cycle.

4.2 Teacher Survey

The survey sample is composed of answers regarding 592 classes, from 505 different teachers. Table 2 presents the Summary Statistics of teachers´ characteristics. Female teachers constitute 80% of the sample, exceeding the national average of 71.8% for lower and upper secondary levels (DGEEC, 2024[9]). The sample's average teacher age is 51, closely aligned with the national average of 52 for public-school teachers at the same levels.[9] Moreover, they have, on average, 27 years of experience and have been teaching at their current school for 11 years.[10] On average, teachers have been teaching the class for two years (Figure B.12). Finally, the full dataset encompasses over 15 teaching subjects, with the majority represented by teachers of Portuguese, Mathematics, and Citizenship (Figure B.13). For a more comprehensive version of the full teacher descriptive data, see Table B.4.

The dependent variable representing teachers' expectations was constructed through the four possible answers to the first question: "Do you think this student will complete a higher education program (in a university or polytechnic)?".

$$teach\_exp\_scale: \begin{cases} 0 & \text{if } \textit{Unlikely} \\ 0.25 & \text{if } \textit{Maybe} \\ 0.75 & \text{if } \textit{Probably} \\ 1 & \text{if } \textit{Almost certainly} \end{cases}$$

Table 2: Descriptive Statistics: 505 teachers' characteristics covering 592 classes

	Mean	**Std. Dev**	**Obs**
Binary Variable = 1 if female teacher (0 otherwise)	0.80	0.40	494
Calculated Age based on Birthday	51.41	7.21	484
Years of lecturing experience based on year started teaching	26.93	7.31	493
Years of lecturing at that school	10.98	10.14	493
Years of lecturing to the class	2.27	1.04	494
Number of Subjects taught by the teacher	1.16	0.38	488
Observations	505		

9. In *"Perfil do Docente 2022/2023", Direção-Geral de Estatísticas da Educação e Ciência (DGEEC)*.
10. See Figures B.9, B.10 and B.11 for additional details on the distribution of age, experience and years lecturing at the school, respectively.

To approximate teacher expectations, a binary variable was created, assigning a value of 0 to the responses "Unlikely" and "Maybe," and a value of 1 to "Probably" and "Almost certainly." Using this variable, we find that 54% of teachers expect these students to complete university.

5 Empirical Strategy

The data analysis for this work considered the challenging disentanglement of the effect of teacher's expectations on students as it raises fundamental endogeneity problems. The goal of this study is to identify which student characteristics (*e.g.* gender, country of origin) significantly explain variations in teachers' and students' expectations of student's college completion, after accounting for student's academic performance as measured by the PISA score variable. To estimate this effect a two stage procedure was adopted. First, two regressions were performed to examine how PISA scores impact teachers' (t) and students' (i) expectations of completing university, followed by the residuals extraction. These residuals represent the part of teacher and student expectations that cannot be explained by the most objective criterion - the PISA score. A similar residual analysis was performed in previous literature (Ballou, Sanders, and Wright, 2004; Chetty, Friedman, and Rockoff, 2014). The following regressions constitute the initial specification of the model:

$$teach\_exp\_scale_{its} = \alpha_1 + \beta_1 PISA_{is} + \gamma_1 S_{ts} + \omega_{its} \tag{1}$$

$$student\_exp_{is} = \alpha_2 + \beta_2 PISA_{is} + \gamma_2 S_s + \epsilon_{is} \tag{2}$$

Where $PISA_{is}$ corresponds to the PISA score from 0 to 1 and S are School Fixed Effects (FE). To determine whether student characteristics significantly explain the residual variation, the residuals were regressed on student individual characteristics (X_i), controlling for Teacher individual characteristics ($T_t{}'$) and including School Fixed Effects (S):

$$\omega_{its} = \sigma_1 + \phi_i X_i + \delta_1 T_t' + \gamma_3 S_{ts} + \eta_{its} \tag{3}$$

$$\epsilon_{is} = \sigma_2 + \lambda_i X_i + \delta_2 T_t' + \gamma_4 S_s + \mu_{is} \tag{4}$$

Identification in this specification comes from differences in explaining the teacher and student residual variation across student characteristics. To address potential correlations among students within the same class, as well as their teacher's expectations, the standard errors were clustered at the class level. Moreover, the teachers' individual characteristics that may be relevant in shaping these expectations were taken into consideration (*e.g.* age, gender, years lecturing to the class).

Another critical consideration was the inclusion of school fixed effects to control for unobserved heterogeneity among the 191 sampled schools, as these factors are plausible to influence both teachers' expectations of their students and the students' own educational expectations. While these schools share similarities, they also exhibit distinct characteristics as, for instance, some schools offer university counseling programs while others do not, which could independently affect student outcomes regardless of teacher expectations. In addition to these arguments, teachers are not randomly assigned to schools, leading to a selection bias problem that, in the absence of control, could result in variations in teacher expectations unrelated to students' individual characteristics. After running the regressions presented above, the difference between the student and teacher expectation is measured through a bootstrapping method with 1000 replications (to account for computing difference in coefficients for different regression specifications).

We also performed a heterogeneity analysis of breaks in samples based on various student characteristics, with the sample divided into two groups using the median value of each characteristic as the threshold. As an example, a binary variable was created to indicate whether a teacher falls above or below the median value for a given characteristic, such as identifying teachers with high experience or a high number of years at the school. Each regression controls for the remaining teacher characteristics. For instance, in the regressions examining different experience levels, factors such as the number of years teaching the class or at the school are still accounted for. To estimate the SES at the school cluster level, a variable was created as the average SES score (ranging from 0 to 1) based on parents' education level, the proportion of students receiving school social action services, and the number of books at home. To examine differences between coefficients on either side of the break, a Chow Test[11] was conducted. The Chow Test

11. For more details on the Chow Test procedure, please refer to Wooldridge (2013).

includes a full set of interaction variables with a group dummy indicator (*e.g.* identifying highly experienced teachers).[12]

6 Results

Our analysis begins by analyzing the main results on the effects observed in the residuals (Section 6.1). Furthermore, we examine potential heterogeneities based on different teacher characteristics and the socioeconomic status level of school clusters, as detailed in Section 6.2. In Section 6.3 we conduct a robustness analysis for different teacher expectations scaling variables. Finally, Section 6.4 presents results examining the relationship between students' predictions of their teacher's expectations and their self-expectations.

6.1 Residual Analysis

Teachers' and students' expectations were initially regressed on the PISA Score controlling for school fixed effects, with the results presented in Table 3.

Table 3: Regression Output of Teacher and Student Expectations on PISA score

Dep. Var	**Teacher Expectation Scale** (1)	**Student Expectation** (2)	**(Teacher - Student)** (1) - (2)
PISA Score	0.677***	0.430***	0.247***
	(0.024)	(0.025)	(0.024)
Constant	0.129***	0.491***	-
	(0.016)	(0.017)	(-)
Observations	9,378	8,238	8,238
R-squared	0.224	0.098	-
School FE	✓	✓	✓

Notes: The table presents OLS regressions for both teachers' and students' expectations to complete university. The dependent variable is the teacher expectation scale (0-1) for the teacher's case and the binary variable *student_exp* for the student's case. The PISA score corresponds to a standardized percentage of overall correctly answered questions (0-1). Results for the specification of 1 and 2 are presented in column 1 and 2, respectively. Column 3 presents the difference between the two coefficients, computed using bootstrapping procedure with 1,000 replications. The regressions presented include school fixed effects. Standard errors are clustered at class-level and presented in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

12. Prior to its application, a Breusch-Pagan test was performed to verify the validity of the homoskedasticity assumption, specifically the equality of error variances between the two groups (For detailed p-value results from this test, refer to Table C.1).

Results show that PISA scores serve as a statistically significant factor in explaining variations in both teacher and student expectations of completing a university course, with a notably stronger impact observed for teachers. In particular, the gap between teacher and student expectations is 24.7 percentage points (p.p.) and is significant at the 1% level.

The regression results are robust to clustering the standard errors at the school level and including class fixed effects (Table C.2).

The regression results based on the extracted residuals for various student characteristics are presented in Table 4. Columns 1 and 2 display the regression results of teacher and student residuals on student characteristics. Column 3 shows the differences in the coefficients for each variable, calculated using the bootstrapping method.

Table 4: Regression Output of Teacher and Student Residuals on Student characteristics

Dep. Var	**Teacher Residual** (1)	**Student Residual** (2)	**Difference Residual** (1)-(2)
Female (0,1)	0.065***	0.120***	-0.055***
	(0.010)	(0.011)	(0.013)
Age	-0.087***	-0.088***	0.001
	(0.007)	(0.012)	(0.011)
More than 25 books (0,1)	0.097***	0.072***	0.025**
	(0.009)	(0.011)	(0.013)
Born Abroad (0,1)	-0.055***	0.098***	-0.153***
	(0.016)	(0.021)	(0.024)
Internal Locus of Control (0,1)	0.058***	0.014	0.044
	(0.015)	(0.021)	(0.023)
Engagement Level (0 - 1)	0.622***	0.841***	-0.219***
	(0.046)	(0.053)	(0.059)
Extra Math Question (0,1)	0.058***	0.056***	0.002
	(0.011)	(0.014)	(0.016)
Constant	0.709***	0.557***	-
	(0.118)	(0.192)	(-)
Observations	6,273	5,689	5,689
R-squared	0.147	0.152	-
School FE	✓	✓	✓
Teacher Characteristics Controls	✓	✓	✓

Notes: The table presents OLS regressions for both teachers' and students' residuals extracted from expectations regressions. The dependent variable in column 1 and 2 is the residual extracted from 1 and 2, respectively. Results for the specification 3 and 4 are presented in column 1 and 2, respectively. The dependent variable in the third column represents the outcome of the difference between the coefficients in columns 1 and 2, calculated using a bootstrapping procedure with 1,000 replications. The regressions presented include school fixed effects. Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. Standard errors are clustered at class-level and presented in parentheses. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results show that the coefficients for all variables have the same sign for both teachers and students, with the sole exception of the "Born Abroad" variable. Additionally, all selected stu-

dent characteristic variables are statistically significant at the 1% level in explaining the variation in both teachers' and students' conditional expectations.

The analysis indicates that being a female student is associated, on average, with a 6.5 p.p. increase in the teacher's conditional expectations and a 12 p.p. in the student's case. In fact, there is a -5.5 p.p. coefficient difference statistically significant at the 1% level. The result aligns with the gap between female and male student's expectation to complete a university course (Figure B.14).

For the SES indicator variable, represented by the binary variable for having more than 25 books at home, the effect on the teacher conditional expectation is slightly greater, showing a 2.5 p.p. difference, which is significant at the 5% level. The findings also highlight a contrasting effect for the "Born Abroad" variable, revealing a negative impact on the teacher's but a positive, and larger in absolute terms, effect on the student's conditional expectations. There is a -15.3 p.p. difference between the two, which is statistically significant at the 1% level.

The engagement level variable presents the largest absolute coefficients in explaining variations in both teachers' and students' conditional expectations. It also shows the greatest disparity in its effects on teachers compared to students, with a deviation of -21.9 p.p.. This suggests that engagement level has a much stronger impact on students' than on teachers' expectations. In addition, the regressions in columns 1 and 2 show similar coefficients of determination.

The remaining variables — age, internal locus of control, and the extra math question — do not show significant results for the teacher-student difference. However, the signs of their individual coefficients align with the respective correlations of each variable with teacher and student expectations, as shown in Tables C.4 and C.5.

When including class fixed effects and clustering the standard errors at the school level, the magnitude of the coefficients changes slightly. Notably, there is only a change in the significance for the born abroad variable, which is not significant in explaining the teachers' conditional expectation, though it still indicates a negative coefficient and a statistically significant teacher-student difference (see Table C.3).

6.2 Heterogeneity Analysis: Teacher and School Characteristics

Tables 5 and 6 analyze teacher and student residuals based on teacher and school characteristics. Only teacher gender was not considered in this analysis due to the disproportionate representation of females in the sample. Table 5 examines residuals by teacher experience, school tenure, and years lecturing a class, while Table 6 focuses on teacher age and school cluster SES level. Groups are compared based on median thresholds for various characteristics. Following the same approach as in the case of teacher characteristics, a binary variable was generated to indicate whether a school cluster was above or below the median SES value (0.4), within a subset of low SES schools.

The analysis shows that more experienced teachers exhibit smaller conditional expectations for the female variable, with a 4.9 p.p. difference compared to 8.2 p.p. for less experienced teachers. For the SES indicator, significant teacher-student differences are found for more experienced teachers, with a 4.3 p.p. difference, particularly pronounced in high SES clusters. Teachers with fewer years at a school are more influenced by student SES, as higher conditional expectations are linked to students having a larger number of books at home. For the country of origin factor, more experienced and older teachers display more negative expectations effects, with larger teacher-student differences. However, teachers with over two years in a class are less affected by the ”born abroad” variable, showing consistent coefficients across tenure. Additionally, in low SES clusters, the ”born abroad” variable has a more negative impact on teacher conditional expectations, while in high SES clusters, effects on student conditional expectations are more positive. Regarding engagement and age, older teachers have lower gender-related effects, with a 4.8 p.p. difference compared to 7.8 p.p. for younger teachers, and show larger contrasts in engagement coefficients (-24.9 p.p. compared to -18.3 p.p.).

Table 7 displays the results of the Chow Test, examining structural differences across various sample splits using interaction terms for different groups. Columns 1 to 4 define the structural breaks based on binary variables indicating high experience, high number of years in school, high number of years in the class, and older teacher status. In Column 5, the structural break is determined by a cluster SES level below the median. As mentioned in before, the remaining teacher characteristics are also controlled for in this analysis.

For clarity in interpretation, we will focus only on the significant interaction terms. The results show that the effect of being a female student on teacher conditional expectations decreases by 3.7 p.p. when the teacher has been at the school for more than six years, compared to when they have been there for less (significant at the 1% level). Moreover, the extra math question is statistically significant at the 5% level, with an effect of 5.4 p.p. for teachers who have been lecturing the class for more than two years. In clusters with a low average SES level, the positive effect of having more than 25 books at home declines by 6.2 p.p., significant at the 1% level. For the same sub-sample, the internal locus of control is correlated to higher teacher conditional expectations compared to higher SES clusters, with significance at the 5% level.

Experience and age are the only presented factors that do not show any statistically significant interaction terms.

Table 5: Regression Output of Teacher and Student Residuals for Lecturing Experience and Years Lecturing to the School and Class

Characteristic	**Years of Experience**						**Years at the School**						**Years at the Class**					
Sample Break	Low Experience			High Experience			Less Years at School			More Years at School			Less Years at Class			More Years at Class		
Dep. Var	**resid_teacher**	**resid_student**	**(t-s)**	**resid_teacher**	**resid_student**	**(t-s)**	**resid_teacher**	**resid_student**	**(t-s)**	**resid_teacher**	**resid_student**	**(t-s)**	**resid_teacher**	**resid_student**	**(t-s)**	**resid_teacher**	**resid_student**	**(t-s)**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Female (0,1)	0.082***	0.115***	-0.033*	0.049***	0.117***	-0.068***	0.086***	0.110***	-0.023	0.044***	0.121***	-0.077***	0.074***	0.105***	-0.030*	0.055***	0.129***	-0.074***
	(0.013)	(0.015)	(0.018)	(0.014)	(0.016)	(0.018)	(0.013)	(0.016)	(0.017)	(0.015)	(0.016)	(0.017)	(0.013)	(0.015)	(0.018)	(0.015)	(0.016)	(0.018)
Age	-0.077***	-0.089***	0.012	-0.094***	-0.085***	-0.009	-0.078***	-0.095***	0.017	-0.094***	-0.082***	-0.012	-0.078***	-0.087***	0.010	-0.104***	-0.086***	-0.019
	(0.011)	(0.018)	(0.018)	(0.009)	(0.017)	(0.015)	(0.011)	(0.017)	(0.017)	(0.010)	(0.018)	(0.016)	(0.009)	(0.016)	(0.016)	(0.011)	(0.018)	(0.016)
More than 25 books (0,1)	0.094***	0.082***	0.012	0.101***	0.057***	0.043**	0.111***	0.079***	0.032*	0.085***	0.067***	0.018	0.094***	0.058***	0.037**	0.099***	0.081***	0.017
	(0.013)	(0.014)	(0.018)	(0.014)	(0.017)	(0.019)	(0.013)	(0.015)	(0.018)	(0.015)	(0.016)	(0.020)	(0.013)	(0.015)	(0.017)	(0.013)	(0.016)	(0.019)
Born Abroad (0,1)	-0.039*	0.088***	-0.127***	-0.064***	0.113***	-0.176***	-0.044**	0.079***	-0.123***	-0.054**	0.124***	-0.179***	-0.045**	0.083***	-0.128***	-0.044*	0.129***	-0.173***
	(0.022)	(0.030)	(0.036)	(0.022)	(0.030)	(0.034)	(0.021)	(0.028)	(0.034)	(0.024)	(0.032)	(0.034)	(0.020)	(0.029)	(0.034)	(0.025)	(0.032)	(0.036)
Internal Locus of Control (0,1)	0.042**	0.004	0.038	0.076***	0.028	0.048	0.046**	0.013	0.033	0.075***	0.019	0.056	0.060***	0.017	0.043	0.039	0.008	0.032
	(0.020)	(0.028)	(0.032)	(0.024)	(0.034)	(0.036)	(0.020)	(0.027)	(0.032)	(0.024)	(0.035)	(0.039)	(0.020)	(0.028)	(0.033)	(0.025)	(0.034)	(0.035)
Engagement Level (0 - 1)	0.666***	0.854***	-0.188**	0.570***	0.814***	-0.244***	0.594***	0.884***	-0.291***	0.619***	0.799***	-0.180*	0.564***	0.860***	-0.296***	0.685***	0.782***	-0.097
	(0.064)	(0.072)	(0.081)	(0.066)	(0.078)	(0.091)	(0.065)	(0.072)	(0.079)	(0.066)	(0.080)	(0.094)	(0.059)	(0.071)	(0.081)	(0.073)	(0.083)	(0.091)
Extra Math Question (0,1)	0.058***	0.049**	0.009	0.052***	0.054***	-0.002	0.043***	0.058***	-0.016	0.076***	0.044**	0.032	0.026*	0.053***	-0.026	0.082***	0.056***	0.025
	(0.016)	(0.021)	(0.022)	(0.016)	(0.020)	(0.024)	(0.015)	(0.020)	(0.021)	(0.017)	(0.020)	(0.023)	(0.015)	(0.019)	(0.021)	(0.016)	(0.021)	(0.024)
Constant	0.522***	0.583**		0.848***	0.531*		0.586***	0.637**		0.821***	0.508*		0.611***	0.549**		0.942***	0.574*	
	(0.180)	(0.284)		(0.155)	(0.273)		(0.171)	(0.272)		(0.159)	(0.290)		(0.150)	(0.262)		(0.187)	(0.298)	
Observations	3,321	3,007	3,007	2,835	2,574	2,574	3,288	2,976	2,976	2,864	2,603	2,603	3,331	3,011	3,011	2,829	2,577	2,577
R-squared	0.177	0.166		0.189	0.170		0.169	0.174		0.182	0.164		0.160	0.168		0.207	0.169	
Teacher Characteristics Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
School FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table presents OLS regressions for both teachers' and students' residuals extracted from expectations regressions. The dependent variable in columns 1,4,7,10,13 and 16 is the residual extracted from 1 and in columns 2,5,8,11,14 and 17 is the one extracted from 2. Columns 3,6,9,12,15 and 18 represent the outcome of the difference between the teacher and student coefficients for that specification, calculated using a bootstrapping procedure with 1,000 replications. The regressions presented include school fixed effects. Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. For each sample-break only the remaining characteristics were controlled for (if observing change in years of experience this variable was excluded from the teacher controls). Standard errors are clustered at class-level and presented in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 6: Regression Output of Teacher and Student Residuals depending on Teacher Age and School Cluster SES

Characteristic	**Teacher Age**						**School Cluster SES**					
Sample Break	Older Teacher			Younger Teacher			Low SES			High SES		
Dep. Var	**resid_teacher**	**resid_student**	**(t-s)**	**resid_teacher**	**resid_student**	**(t-s)**	**resid_teacher**	**resid_student**	**(t-s)**	**resid_teacher**	**resid_student**	**(t-s)**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Female (0,1)	0.048***	0.113***	-0.065***	0.078***	0.117***	-0.039**	0.074***	0.126***	-0.052***	0.054***	0.112***	-0.058***
	(0.014)	(0.016)	(0.018)	(0.014)	(0.016)	(0.019)	(0.014)	(0.016)	(0.019)	(0.013)	(0.014)	(0.017)
Age	-0.099***	-0.093***	-0.005	-0.077***	-0.081***	0.004	-0.088***	-0.086***	-0.003	-0.085***	-0.090***	0.006
	(0.010)	(0.018)	(0.015)	(0.011)	(0.018)	(0.018)	(0.010)	(0.019)	(0.016)	(0.010)	(0.015)	(0.017)
More than 25 books (0,1)	0.102***	0.062***	0.039**	0.089***	0.076***	0.012	0.065***	0.077***	-0.012	0.130***	0.068***	0.062***
	(0.014)	(0.016)	(0.019)	(0.013)	(0.015)	(0.020)	(0.013)	(0.015)	(0.019)	(0.013)	(0.015)	(0.017)
Born Abroad (0,1)	-0.061***	0.145***	-0.207***	-0.029	0.070**	-0.099***	-0.063***	0.088***	-0.151***	-0.044*	0.108***	-0.152***
	(0.023)	(0.029)	(0.032)	(0.022)	(0.030)	(0.037)	(0.021)	(0.029)	(0.035)	(0.023)	(0.030)	(0.034)
Internal Locus of Control (0,1)	0.061***	0.005	0.056	0.053**	0.027	0.026	0.090***	0.036	0.055	0.019	-0.014	0.032
	(0.023)	(0.031)	(0.035)	(0.021)	(0.031)	(0.033)	(0.023)	(0.031)	(0.037)	(0.019)	(0.029)	(0.032)
Engagement Level (0 - 1)	0.573***	0.822***	-0.249***	0.683***	0.867***	-0.183**	0.670***	0.957***	-0.288***	0.567***	0.720***	-0.153*
	(0.064)	(0.075)	(0.087)	(0.067)	(0.076)	(0.086)	(0.065)	(0.078)	(0.086)	(0.065)	(0.069)	(0.084)
Extra Math Question (0,1)	0.057***	0.055***	0.002	0.040**	0.038*	0.002	0.048***	0.073***	-0.025	0.069***	0.038*	0.032
	(0.015)	(0.020)	(0.024)	(0.017)	(0.021)	(0.023)	(0.015)	(0.020)	(0.021)	(0.016)	(0.020)	(0.023)
Constant	0.928***	0.663**		0.526***	0.451		0.686***	0.417		0.727***	0.720***	
	(0.158)	(0.289)		(0.184)	(0.277)		(0.168)	(0.301)		(0.167)	(0.240)	
Observations	3,046	2,762	2,762	3,004	2,723	2,723	3,242	2,896	2,896	3,031	2,793	2,793
R-squared	0.190	0.169		0.174	0.165		0.142	0.164		0.159	0.141	
Teacher Characteristics Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
School FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Notes: The table presents OLS regressions for both teachers' and students' residuals extracted from expectations regressions. The dependent variable in columns 1,4,7 and 10 is the residual extracted from 1 and in columns 2,5,8 and 11 is the one extracted from 2. Columns 3,6,9 and 12 represent the outcome of the difference between the teacher and student coefficients for that specification, calculated using a bootstrapping procedure with 1,000 replications. The regressions presented include school fixed effects. Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. For each sample-break only the remaining characteristics were controlled for (if observing change in years of experience this variable was excluded from the teacher controls). Standard errors are clustered at class-level and presented in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 7: Chow Test Output Results for assessing teacher residual coefficient difference across different sub-samples

Dep. Var			**Teacher Residual**		
Sample Break	High Exper	High Nr Years School	High Nr Years Class	Older Teacher	Low Cluster SES
	(1)	(2)	(3)	(4)	(5)
Female (0,1)	0.078***	0.082***	0.074***	0.076***	0.056***
	(0.013)	(0.013)	(0.013)	(0.014)	(0.013)
Age	-0.081***	-0.079***	-0.080***	-0.080***	-0.081***
	(0.011)	(0.010)	(0.009)	(0.011)	(0.009)
More than 25 books (0,1)	0.098***	0.109***	0.094***	0.096***	0.124***
	(0.013)	(0.013)	(0.014)	(0.013)	(0.013)
Born Abroad (0,1)	-0.044**	-0.045**	-0.058***	-0.039*	-0.033
	(0.022)	(0.021)	(0.020)	(0.022)	(0.022)
Internal Locus of Control (0,1)	0.036*	0.044**	0.063***	0.056***	0.020
	(0.020)	(0.021)	(0.020)	(0.021)	(0.020)
Engagement Level (0 - 1)	0.668***	0.602***	0.558***	0.672***	0.540***
	(0.064)	(0.065)	(0.060)	(0.068)	(0.065)
Extra Math Question (0,1)	0.058***	0.044***	0.030**	0.043***	0.067***
	(0.016)	(0.015)	(0.015)	(0.017)	(0.015)
Female*Group	-0.026	-0.037*	-0.019	-0.025	0.017
	(0.019)	(0.019)	(0.019)	(0.020)	(0.019)
Age*Group	-0.011	-0.017	-0.020	-0.017	0.006
	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)
More than 25 Books*Group	-0.002	-0.026	0.008	0.005	-0.062***
	(0.020)	(0.020)	(0.019)	(0.019)	(0.019)
Born Abroad * Group	-0.028	-0.024	0.005	-0.027	-0.014
	(0.032)	(0.031)	(0.032)	(0.032)	(0.031)
Internal Locus of Control * Group	0.044	0.029	-0.024	0.005	0.066**
	(0.032)	(0.031)	(0.032)	(0.031)	(0.030)
Engagement Level * Group	-0.089	0.016	0.129	-0.086	0.084
	(0.091)	(0.092)	(0.094)	(0.093)	(0.090)
Extra Math * Group	-0.003	0.028	0.054**	0.017	-0.029
	(0.023)	(0.022)	(0.022)	(0.023)	(0.021)
Group Indication Var	0.223	0.263	0.240	0.317	-0.167
	(0.238)	(0.234)	(0.238)	(0.240)	(0.226)
Constant	0.583***	0.588***	0.633***	0.569***	0.688***
	(0.178)	(0.167)	(0.150)	(0.181)	(0.159)
Observations	6,156	6,152	6,161	6,050	6,273
R-squared	0.149	0.149	0.152	0.149	0.134
School FE	✓	✓	✓	✓	✓
Teacher Characteristics Controls	✓	✓	✓	✓	✓

Notes: The table presents the Chow Test regressions for teachers' residuals extracted from expectations regressions. From columns 1 to 5 the dependent variable in the extracted residual from equation 1. The independent variables comprise individual student characteristics and their interactions with the sub-sample factor under consideration, represented by the binary variable "Group". In Column 1, the group variable is equal to 1 for teachers with more than 27 years of teaching experience. In Column 2, it represents teachers who have been teaching at the school for more than 6 years. In Column 3, it applies to teachers who have been teaching the class for more than 2 years. In Column 4, the group variable is equal to 1 for teachers older than 51 years. Finally, in Column 5, it represents schools that are part of clusters with an average socioeconomic status below 0.4. The factor determining each column was excluded from the set of included controls for that specific regression. The Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. Standard errors are clustered at class-level and presented in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

6.3 Robustness Analysis

Table 8 displays the regression analysis of teacher and student expectations on the PISA scale using various methods to construct the $teach\_exp\_scale$ variable. In Columns 1 and 2, the dependent variable are the binary variables $teach\_exp\_0011$ and $teach\_exp\_0001$, respectively:

$$teach\_exp\_0011 : \begin{cases} 0 & \text{if } \textit{Unlikely} \vee \textit{Maybe} \\ 1 & \text{if } \textit{Probably} \vee \textit{Almost certainly} \end{cases}$$

$$teach\_exp\_0001 : \begin{cases} 0 & \text{if } \textit{Unlikely} \vee \textit{Maybe} \vee \textit{Probably} \\ 1 & \text{if } \textit{Almost certainly} \end{cases}$$

In Column 3, the dependent variable is the student expectation variable $student\_exp$. Columns 4 and 5 represent the teacher and student coefficient difference for the two different teacher dependent variables.

Table 8: Regression output of Teacher and Student Expectations on PISA for different teacher scaling methods

Dep. Var	**Teacher Expectation (0011)** (1)	**Teacher Expectation (0001)** (2)	**Student Expectation** (3)	**Difference(0011)** (1)-(3)	**Difference (0001)** (2)-(3)
PISA Score	0.756***	0.660***	0.430***	0.326***	0.230***
	(0.029)	(0.026)	(0.025)	(0.028)	(0.027)
Constant	0.075***	-0.092***	0.491***	-	-
	(0.019)	(0.017)	(0.017)	(-)	(-)
Observations	9,378	9,378	8,238	8,238	8,238
R-squared	0.187	0.165	0.098	-	-
School FE	✓	✓	✓	✓	✓

Notes: The table presents OLS regressions for both teachers' and students' expectations to complete university. In Columns 1 and 2 dependent variables are the teacher expectations variables $teach\_exp\_0011$ and $teach\_exp\_0001$. In Column 3 the dependent variable is the binary variable *student_exp*. The PISA score corresponds to a standardized percentage of overall correctly answered questions (0-1). Column 4 presents the difference between the two coefficients in columns 1 and 3, using bootstrapping procedure with 1,000 replications to compute the standard errors difference. Column 5 presents the difference between the two coefficients in columns 2 and 3, using the bootstrapping procedure with 1,000 replications to compute the standard errors difference. The regressions presented include school fixed effects. Standard errors are clustered at class-level and presented in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Overall, these initial results appear robust across alternative specifications, maintaining the same level of statistical significance as the ones presented in Table 3. The second alternative (presented in column 2) is the one which presents a closer coefficient to the first specification one. Table 9 presents the residuals derived from the regressions on student characteristics described above. In Columns 1 and 2, the dependent variables are the teacher residuals obtained from the regressions reported in Columns 1 and 2 of Table 8.

Table 9: Regression output of Teacher and Student Residuals on Student Characteristics for different teacher scaling methods

Dep. Var	**Teacher Residual (0011)** (1)	**Teacher Residual (0001)** (4)	**Student Residual** (3)	**Difference (0011)** (1)-(3)	**Difference (0001)** (4)-(3)
Female (0,1)	0.082***	0.052***	0.120***	-0.038**	-0.068***
	(0.012)	(0.012)	(0.011)	(0.015)	(0.015)
Age	-0.096***	-0.044***	-0.088***	-0.009	0.044***
	(0.009)	(0.007)	(0.012)	(0.013)	(0.012)
More than 25 books (0,1)	0.112***	0.111***	0.072***	0.040***	0.040***
	(0.012)	(0.012)	(0.011)	(0.015)	(0.015)
Born Abroad (0,1)	-0.065***	-0.091***	0.098***	-0.163***	-0.189***
	(0.021)	(0.018)	(0.021)	(0.028)	(0.025)
Internal Locus of Control (0,1)	0.074***	0.045**	0.014	0.060**	0.031
	(0.020)	(0.018)	(0.021)	(0.027)	(0.026)
Engagement Level (0-1)	0.656***	0.809***	0.841***	-0.185***	-0.032
	(0.058)	(0.058)	(0.053)	(0.068)	(0.070)
Extra Math Question (0,1)	0.075***	0.052***	0.056***	0.019	-0.004
	(0.014)	(0.013)	(0.014)	(0.018)	(0.017)
Constant	0.786***	-0.069	0.557***	-	-
	(0.143)	(0.115)	(0.192)	(-)	(-)
Observations	6,273	6,273	5,689	5,689	5,689
R-squared	0.116	0.102	0.152	-	-
School FE	✓	✓	✓	✓	✓
Teacher Characteristics Controls	✓	✓	✓	✓	✓

Notes: The table presents OLS regressions for both teachers' and students' residuals extracted from expectations regressions present in Table 8. The dependent variables in columns 1 and 2 are the residual extracted from columns 1 and 2 in Table 8, respectively. Result for the specification 4 is presented in column 3. The dependent variable in the fourth column represents the outcome of the difference between the coefficients in columns 1 and 3, with standard errors calculated using a bootstrapping procedure with 1,000 replications. The dependent variable in the fifth column represents the outcome of the difference between the coefficients in columns 4 and 3. The regressions presented include school fixed effects. Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. Standard errors are clustered at class-level and presented in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

From the table, we can observe that the significance of the differences is largely consistent, with a few exceptions. Specifically, the difference regarding the age variable becomes significant when regressing $teach\_exp\_0001$, while the engagement variable difference loses significance under the same specification. However, the results for the difference remain robust for the variables female, books at home, and born abroad.

Furthermore, regarding the individual effects of each variable on explaining the variation in teachers' conditional expectations, the coefficient signs remain consistent and retain the same significance levels as previously observed.

6.4 Student Predictions of Teacher Expectations

In this subsection, we aim to explore the relationship between students' perceptions of their teachers' expectations, particularly regarding the question: "Does your closest teacher believe you will complete a higher education program at a university or polytechnic?".

Figure C.2 reveals that, on average, 72% teachers hold the same expectation as students perception, 24% below and 4% above. The direct comparison between teacher and student expectations show similar results with Figure C.1 revealing that 67% of teachers share the same expectations

as students, 26% have lower expectations, and 7% have higher expectations. The y-axis of Figure 1 shows the predicted probability that a student holds a positive perception of teacher expectation, while the x-axis represents the teacher expectation scale, with the 95% confidence intervals. It reveals a positive relationship between the student prediction and the actual teacher expectation. For regression outputs considering the student perception, see Table C.6.

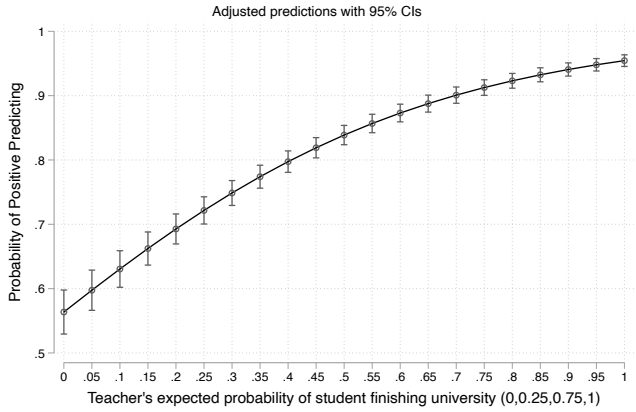

Figure 1: Logit Regression Model for Student Perception on Teacher Expectation to finish higher education

7 Discussion and Conclusions

Our findings validated the primary motivation behind our study, revealing that teachers' and students' expectations regarding university completion are shaped in distinct ways. Furthermore, we can potentially detect an unconscious bias related to gender, country of origin, and socioeconomic status that shapes the expectations of both students and teachers.

Due to the distinctive design of the surveys analyzed, direct and valid comparisons with prior studies are not feasible. Moreover, since it remains uncertain whether these students ultimately complete a university degree, comparisons with teacher prediction studies conducted in other countries are also not possible. To the best of my knowledge, this research makes a unique contribution to the literature by being one of the first studies to directly compare teachers' and students' expectations using a residual analysis. Furthermore, it represents the first dataset constructed to examine teachers' expectations regarding 9^{th}-grade students' higher education attainment in Portugal.

Our findings suggest that the factors influencing teachers' and students' expectations for completing higher education differ primarily in magnitude. Among all the characteristics, only the "born abroad" indicator shows a difference in sign when explaining the variation between teachers' and students' conditional expectations. Specifically, we observed that, between teachers and students, academic performance plays a more prominent role in influencing teachers' conditional expectations. Once controlling for student test score, these differences between teacher and student perspectives are particularly notable for certain student characteristics. For instance, while teachers tend to have higher expectations for female students, these expectations are not as high as the expectations female students have for themselves. The results concerning students' country of origin also raise important questions. Teachers generally have lower expectations for immigrant students, whereas these students often have higher expectations for themselves. This aligns with existing literature suggesting that immigrant students tend to have higher aspirations (Salikutluk, 2016). Lastly, student engagement has the largest coefficient in shaping teachers' expectations and an even greater impact on students' expectations for themselves, showing a teacher-student difference of 21.9 percentage points.

The second set of results shows that teacher and student expectations differ according to teacher characteristics. For instance, more experienced teachers exhibit a lower positive bias toward female students in their expectations compared to less experienced teachers. However, these same experienced and older teachers demonstrate more negative expectations for students born outside of Portugal. Additionally, in school clusters with low average SES, teachers tend to have particularly low expectations for students born abroad.

Several policy interventions can be applied to address the issue at hand. Okonofua, Paunesku, and Walton (2016) conducted a randomized experiment where teachers were encouraged to adopt an empathetic approach to discipline. This intervention led to improvements in both student behavior and the quality of teacher-student relationships, particularly among disadvantaged students. A similar approach could be implemented to address expectations, aiming to enhance guidance and motivation among these more vulnerable groups of students. The findings reveal that teachers' expectations are particularly biased regarding students' who were born abroad in low-SES school clusters, potentially widening the attainment gap for these students. Research

has shown that students from minority groups gain the most from positive teacher expectations, highlighting the potential effectiveness of policies targeted toward these groups.

Another potentially relevant public policy could involve implementing a training program similar to the Initial Teacher Training (ITT)[13] in the UK, designed for early-career lecturers. This program includes a component that emphasizes the importance of maintaining high expectations for all students to enhance student outcomes.[14]

From the students' perspective, Carlana, La Ferrara, and Pinotti (2022) demonstrated the effectiveness of an intervention that combined tutoring and career counseling for high-achieving immigrant students, substantially improving their chances of enrolling in high-track education. Similarly, for our sample of students from lower socioeconomic backgrounds and born abroad, implementing a tutoring program and providing support to ease their transition to the upper secondary level could be a valuable approach.

One limitation of this study is the potential fragility of the socioeconomic status variable, as it is derived from student survey responses. However, this issue could be addressed by utilizing administrative data.

Further research on this subject holds significant potential. First, it would be interesting to study how these results vary based on the number of years a teacher has spent at a specific school and that school profile, by integrating administrative data. Second, from a long-run perspective, it could be valuable to cross-reference and compare the teacher's expectations with the student's higher-education completion rates. Third, extending the current analysis to high SES public schools composition could provide value inputs on how these results differ, offering a more comprehensive analysis considering school segregation.

To conclude, this research analyzes students' expectations and further support the believe that, in my grandfather's words, "Teachers are agents of change and revelation through what they intentionally teach, but, less deliberately yet importantly, through what they demonstrate through their attitudes and behaviors. The teacher becomes a master and marks moments of a destiny that, in many ways, influences others" (Baptista, 2024).

13. Click link for the ITT Core Content framework.
14. Click module theory link for access to course material.

References

Angrist, Joshua D, and Alan B Krueger. 1991. “Does compulsory school attendance affect schooling and earnings?” *The Quarterly Journal of Economics* 106 (4): 979–1014.

Babad, Elisha Y, Jacinto Inbar, and Robert Rosenthal. 1982. “Pygmalion, Galatea, and the Golem: Investigations of biased and unbiased teachers.” *Journal of Educational Psychology* 74 (4): 459.

Ballou, Dale, William Sanders, and Paul Wright. 2004. “Controlling for student background in value-added assessment of teachers.” *Journal of educational and behavioral statistics* 29 (1): 37–65.

Banerjee, Abhijit V, and Esther Duflo. 2011. *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty.* Chap. 4, 168–180. Chapter title: ”Top of the Class - The Curse of Expectations”. Public Affairs.

Baptista, António Manuel. 2024. *A Ciência no Grande Teatro do Mundo.* 303–313. Tinta da China.

Batista, Cátia, Pedro Freitas, Ana Balcão Reis, Wayne Sandholtz, and José Tavares. 2024. “Raising Educational Aspirations - An Experimental Evaluation.” Unpublished manuscript, *Nova SBE.*

Betts, Julian R. 1996. “What do students know about wages? Evidence from a survey of undergraduates.” *Journal of human resources,* 27–56.

Card, David. 1999. “The Causal Effect of Education on Earnings.” *Handbook of Labor Economics 3.*

Card, David, and Laura Giuliano. 2016. “Universal screening increases the representation of low-income and minority students in gifted education.” *Proceedings of the National Academy of Sciences* 113 (48): 13678–13683.

Carlana, Michela, Eliana La Ferrara, and Paolo Pinotti. 2022. “Goals and gaps: Educational careers of immigrant children.” *Econometrica* 90 (1): 1–29.

Chetty, Raj, John N Friedman, and Jonah E Rockoff. 2014. “Measuring the impacts of teachers I: Evaluating bias in teacher value-added estimates.” *American economic review* 104 (9): 2593–2632.

Contreras, David. 2023. “Gender differences in grading: teacher bias or student behaviour?” *Education Economics,* 1–24.

Dickson, Matt, Paul Gregg, and Harriet Robinson. 2016. “Early, late or never? When does parental education impact child outcomes?” *The Economic Journal* 126 (596): F184–F231.

Djaker, Sharnic, Alejandro J Ganimian, and Shwetlena Sabarwal. 2024. “Out of sight, out of mind? The gap between students’ test performance and teachers’ estimations in India and Bangladesh.” *Economics of Education Review* 102:102575.

Gershenson, Seth, Stephen B Holt, and Nicholas W Papageorge. 2016. “Who believes in me? The effect of student–teacher demographic match on teacher expectations.” *Economics of education review* 52:209–224.

Gil-Flores, Javier, M Teresa Padilla-Carmona, and Magdalena Suárez-Ortega. 2011. “Influence of gender, educational attainment and family environment on the educational aspirations of secondary school students.” *Educational review* 63 (3): 345–363.

Hoge, Robert D, and Theodore Coladarci. 1989. “Teacher-based judgments of academic achievement: A review of literature.” *Review of educational research* 59 (3): 297–313.

Jacob, Brian A, and Tamara Wilder. 2010. *Educational expectations and attainment.* Technical report. National Bureau of Economic Research.

Jussim, Lee, and Kent D. Harber. 2005. “Teacher Expectations and Self-Fulfilling Prophecies: Knowns and Unknowns, Resolved and Unresolved Controversies.” *Personality and Social Psychology Review* 9 (2): 131–155.

Kaiser, Johanna, Jan Retelsdorf, Anna Südkamp, and Jens Möller. 2013. "Achievement and engagement: How student characteristics influence teacher judgments." *Learning and Instruction* 28:73–84.

Kaufmann, Esther. 2020. "How accurately do teachers' judge students? Re-analysis of Hoge and Coladarci (1989) meta-analysis." *Contemporary Educational Psychology* 63:101902.

Okonofua, Jason A, David Paunesku, and Gregory M Walton. 2016. "Brief intervention to encourage empathic discipline cuts suspension rates in half among adolescents." *Proceedings of the National Academy of Sciences* 113 (19): 5221–5226.

Papageorge, Nicholas W, Seth Gershenson, and Kyung Min Kang. 2020. "Teacher expectations matter." *Review of Economics and Statistics* 102 (2): 234–251.

Raven, John C, and John Hugh Court. 1998. *Raven's progressive matrices and vocabulary scales.* Oxford Psychologists Press Oxford.

Rosenthal, Robert, and Lenore Jacobson. 1968. "Pygmalion in the classroom." *The Urban Review* 3 (1): 16–20.

Salikutluk, Zerrin. 2016. "Why do immigrant students aim high? Explaining the aspiration–achievement paradox of immigrants in Germany." *European Sociological Review* 32 (5): 581–592.

Serneels, Pieter, and Stefan Dercon. 2021. "Aspirations, poverty, and education. Evidence from India." *The Journal of Development Studies* 57 (1): 163–183.

Südkamp, Anna, Johanna Kaiser, and Jens Möller. 2012. "Accuracy of teachers' judgments of students' academic achievement: A meta-analysis." *Journal of educational psychology* 104 (3): 743.

Wooldridge, Jeffrey M. 2013. "Multiple Regression Analysis with Qualitative Information." Chap. 7 in *Introductory Econometrics: A Modern Approach,* 5th, 247–248. South-Western, Cengage Learning.

Wu, Ching-Ling, and Haiyan Bai. 2015. “From early aspirations to actual attainment: The effects of economic status and educational expectations on university pursuit.” *Higher Education* 69:331–344.

A Appendix Section 3 - Portuguese Educational System

Table A.1: Four cycles of the Portuguese Educational System

Education Level	Cycle	Grades	Standard Age Interval
Pre-School	–	–	3 to 5
Elementary Education	1st	1st to 4th	6 to 9
	2nd	5th to 6th	10 to 11
	3rd	7th to 9th	12 to 14
Secondary Education	Secondary	10th to 12th	15 to 18

Table A.2: Available Tracks and Specializations for the 10th grade

Academic Track
Science and Technology
Languages and Humanities
Socioeconomic Sciences
Visual Arts
Vocational Track
Audiovisual
Commerce
Computing
Electronics
Engineering
Gastronomy
Health
Hospitality
Social Work
Sports
Youth
Other

B Appendix Section 4 - Data and Descriptive Statistics

B.1 Student Survey

Table B.1: Internal Locus of Control Question

D1: Select the option you agree with the most	**%**
Each person is primarily responsible for their own success or failure in life (Merit)	91.2
A person's success or failure is a matter of destiny (Destiny)	8.20

Table B.2: 15 questions used for the Engagement Index

Full Survey Question	**Obs**	**Never/Rarely (%)**	**Few Times (%)**	**Sometimes (%)**	**Many Times/Always (%)**
E1: I try to use the knowledge I acquire at school to solve new problems	9116	3.92	17.42	52.03	26.63
E2: I submit my homework on the agreed date and time	9118	2.11	7.78	34.39	55.72
E3: The classroom is an interesting place to be	9121	8.46	24.90	53.32	13.32
E4: I feel excited about school homework and projects	9143	15.41	31.84	43.56	9.19
E5: I am interested in school homework and projects	9123	7.38	21.96	50.04	20.63
E6: I usually actively participate in school group work	9133	3.02	11.89	40.83	44.26
E7: When I am outside school, I talk about topics I am learning during classes	9122	14.14	31.13	41.82	12.90
E8: I like being at school	9121	8.47	17.39	52.43	21.71
E9: I pay attention in class	9145	0.70	5.07	54.27	39.96
E10: When I read a book, I ask myself if I am understanding its content	9113	10.46	19.34	36.00	34.20
E11: I try to integrate the different topics I am learning across different subjects	9101	2.47	16.89	54.64	26.00
E12: When I have questions, I ask them and try to participate in debates during class	9133	7.99	28.27	43.03	20.71
E13: I feel dissatisfied at this school	9121	28.68	30.85	31.48	8.99
E14: If I do not understand the meaning of a word, I try to solve this problem	9121	3.09	13.13	38.59	45.18
E15: I follow the school rules and norms	9111	0.36	2.18	24.86	72.59

B.2 Raven's Progressive Matrices

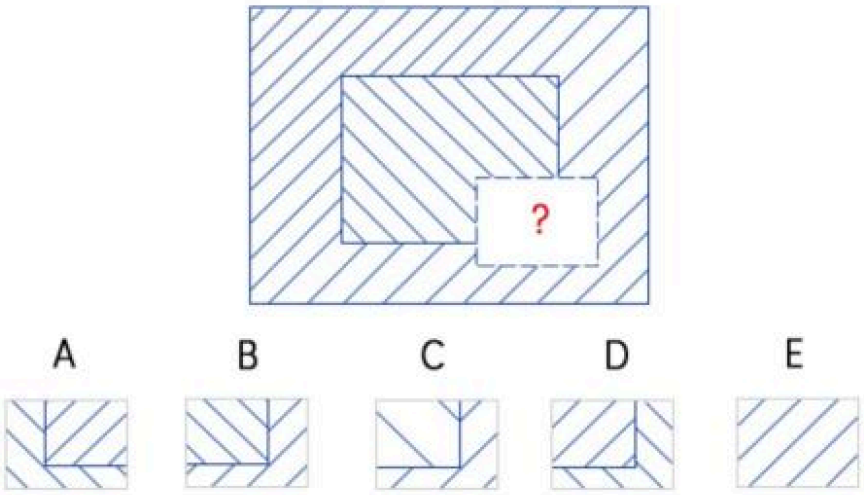

Figure B.1: Among the different options, choose the one you consider to be the missing figure

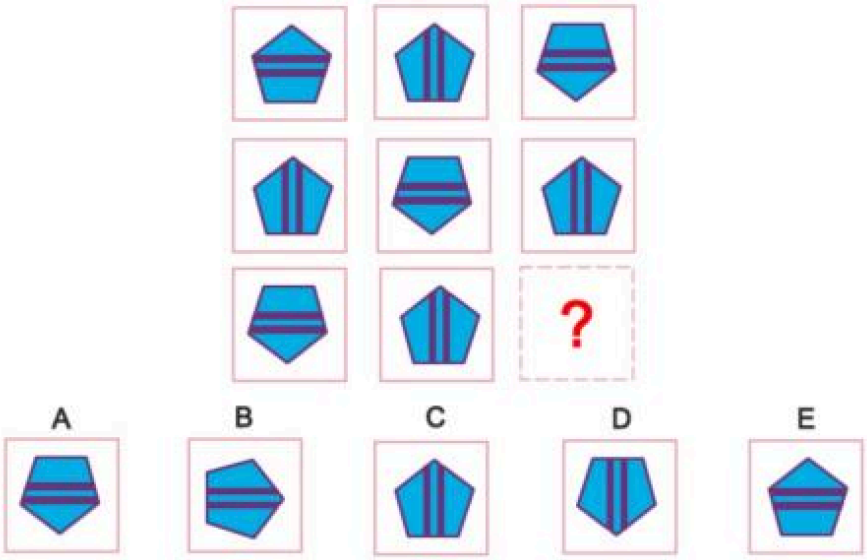

Figure B.2: Among the different options, choose the one you consider to be the missing figure

B.3 Portuguese PISA Questions

A Mota

Já te aconteceu acordares e sentires que algo está errado?
Foi um dia assim para mim.
Sentei-me na cama.
Pouco depois abri as cortinas.
O tempo estava horrível - chovia a potes.
Então olhei lá para baixo, para o pátio.
Pois é! Lá estava ela - a mota.
Estava tão espatifada como ontem à noite.
E a perna começava a doer-me.

Fundamenta-te na história "A Mota" para responder às questões que se seguem.

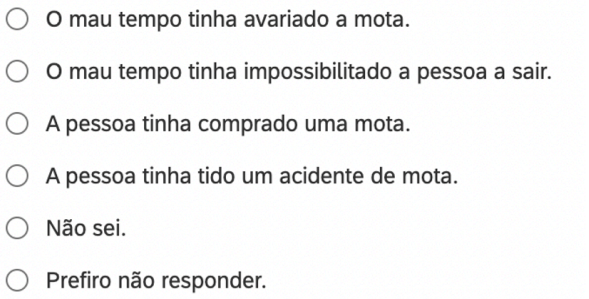

Figure B.3: Algo tinha acontecido à pessoa da história na noite anterior. O quê?

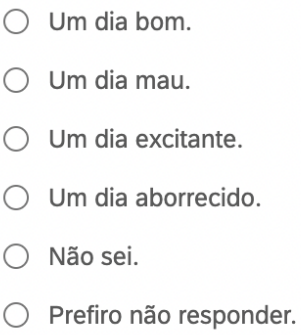

Figure B.4: ”Foi um dia assim para mim.” Que tipo de dia acabou por ser este?

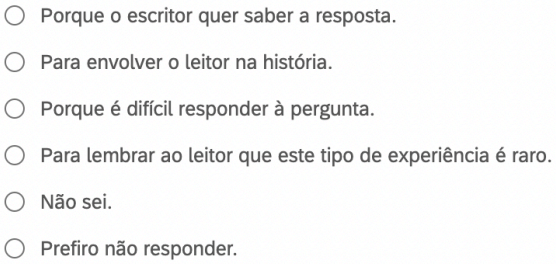

Figure B.5: Por que começa o escritor a história com uma pergunta?

B.4 Mathematics PISA Questions

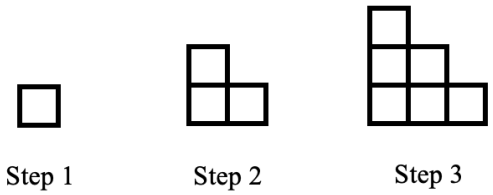

Figure B.6: Roberto is building a staircase pattern using squares. Here are the steps he follows. As you can see, Roberto uses one square in Step 1, three squares in Step 2, and six squares in Step 3. How many squares will he need to use in Step 4?

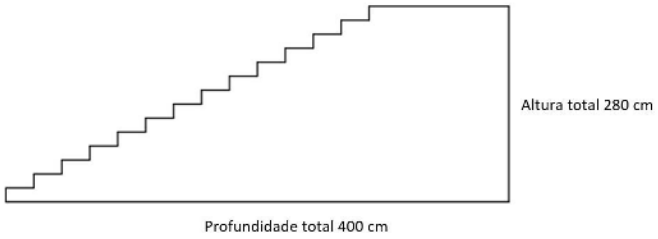

Figure B.7: The figure below represents a staircase with 14 steps, which has a total height of 280 cm. What is the height (in centimeters) of each step of the staircase?
(Below it is written: ”Total depth of 400 cm”)

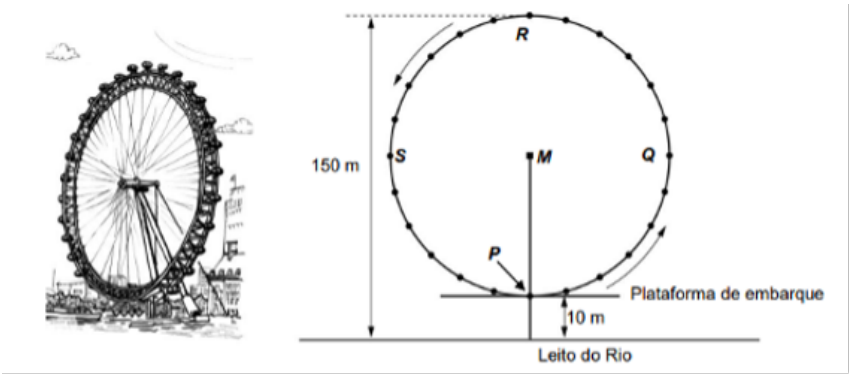

Figure B.8: A Ferris wheel is located on the banks of a river. Observe the photograph and the diagram below: The Ferris wheel has an outer diameter of 140 meters, and its highest point is 150 meters above the riverbed (*Leito do Rio*). It rotates in the direction indicated by the arrows. The letter M in the diagram represents the center of the wheel. How many meters above the riverbed is point M located?

Table B.3: Descriptive Statistics: Student Characteristics

	Mean	Std. Dev.	Obs
Sociodemographic Variables			
Calculated Age based on Birthday	15.193	0.726	9331
Binary variable = 1 if female student	0.491	0.500	9378
Binary variable = 1 if student was born outside of Portugal	0.090	0.286	7880
Socioeconomic Status Variables			
Binary Variable = 1 if student has more than 25 books at home	0.435	0.496	8319
Highest schooling level of your mother: 9th grade	0.246	0.431	9378
Highest schooling level of your mother: 12th grade	0.248	0.432	9378
Highest schooling level of your mother: College	0.190	0.392	9378
Highest schooling level of your mother: I don't know	0.277	0.447	9378
Highest schooling level of your mother: Prefer not to answer	0.039	0.194	9378
Mother's Education: prefers not to answer or does not know	0.316	0.465	9378
Who do you know that completed university: Mother	0.281	0.450	9378
Who do you know that completed university: Father	0.203	0.403	9378
Who do you know that completed university: Brother(s) or Sister(s)	0.224	0.417	9378
Who do you know that completed university: Other family member(s)	0.573	0.495	9378
Who do you know that completed university: Friend(s)	0.265	0.441	9378
Who do you know that completed university: neighbor(s)	0.105	0.306	9378
Who do you know that completed university: Other(s)	0.128	0.334	9378
Who do you know that completed university: Nobody	0.115	0.319	9378
Binary Variable = 1 if one of the parents completed higher education	0.349	0.477	9173
Assessment Variables			
Proportion of correct overall assessment answers (out of 8)	0.613	0.225	9378
Proportion of correct raven PISA answers (out of 2)	0.687	0.300	9378
Proportion of correct Portuguese PISA answers (out of 3)	0.757	0.299	9378
Proportion of correct math PISA answers (out of 3)	0.420	0.339	9378
Internal Locus of Control Variable			
Internal locus of control (binary variable = 1 if student considers merit to be more relevant than destiny)	0.918	0.274	8753
Engagement Indicator			
Engagement Index (0-1), derived as the average of 15 engagement-related questions	0.738	0.109	8779
Grit Identification Variable			
Binary Variable = 1 if student wants to answer an extra math question	0.716	0.451	9378
Variables on Expectations to Complete University			
Binary Variable = 1 if the student expects to finish University	0.759	0.428	8238
Binary Variable = 1 if the student ideally wants to finish University	0.817	0.387	8662
Binary Variable = 1 if the student believes he/she is capable of finishing University	0.769	0.421	8264
Binary Variable = 1 if student believes their best friend expect them to finish University	0.864	0.343	5369
Binary Variable = 1 if student believes their best friend want them to finish University	0.963	0.190	6139
Binary Variable = 1 if student believes their parents expect them to finish University	0.870	0.336	7008
Binary Variable = 1 if student believes their parents ideally want them to finish University	0.982	0.132	8500
Binary Variable = 1 if student believes the closest teacher expects them to finish University	0.831	0.375	3141
Binary Variable = 1 if student believes the closest teacher ideally wants them to finish University	0.979	0.142	5193
10^{th} grade course choices			
Binary Variable = 1 if student is more inclined to choose the Academic track	0.636	0.481	9378
Binary Variable = 1 if student is more inclined to choose the Vocational track	0.304	0.460	9378
Binary Variable = 1 if student is more inclined to choose Other track	0.059	0.236	9378
Binary Variable = 1 if student is sure or very sure about the course decision	0.670	0.470	9378
Binary Variable = 1 if the academic track is Visual Arts	0.125	0.331	5969
Binary Variable = 1 if the academic track is Humanities	0.274	0.446	5969
Binary Variable = 1 if the academic track is Economics	0.096	0.295	5969
Binary Variable = 1 if the academic track is Science and Technology	0.494	0.500	5969
Binary Variable = 1 if the vocational track is Audiovisual	0.025	0.157	2854
Binary Variable = 1 if the vocational track is Commerce	0.033	0.179	2854
Binary Variable = 1 if the vocational track is Sports	0.313	0.464	2854
Binary Variable = 1 if the vocational track is Electronics	0.100	0.299	2854
Binary Variable = 1 if the vocational track is Gastronomy	0.066	0.247	2854
Binary Variable = 1 if the vocational track is Computing	0.129	0.335	2854
Binary Variable = 1 if the vocational track is Other	0.120	0.325	2854
Binary Variable = 1 if the vocational track is Health	0.030	0.171	2854
Binary Variable = 1 if the vocational track is Social work	0.012	0.110	2854
Binary Variable = 1 if the vocational track is Youth	0.029	0.169	2854
Binary Variable = 1 if the vocational track is Hospitality	0.044	0.206	2854
Identified Difficulties in reaching their educational goals			
Binary variable = 1 if the student identifies financial resources as a difficulty in reaching their educational goals	0.212	0.409	7226
Binary variable = 1 if the student identifies needs and opinions of the family a difficulty in reaching their educational goals	0.146	0.353	7226
Binary variable = 1 if the student identifies racial discrimination as a difficulty in reaching their educational goals	0.022	0.147	7226
Binary variable = 1 if the student identifies plans of building a family as a difficulty in reaching their educational goals	0.111	0.314	7226
Binary variable = 1 if the student identifies not feeling good enough as a difficulty in reaching their educational goals	0.722	0.448	7226

Note: Descriptive statistics for the analyzed 9378 baseline students

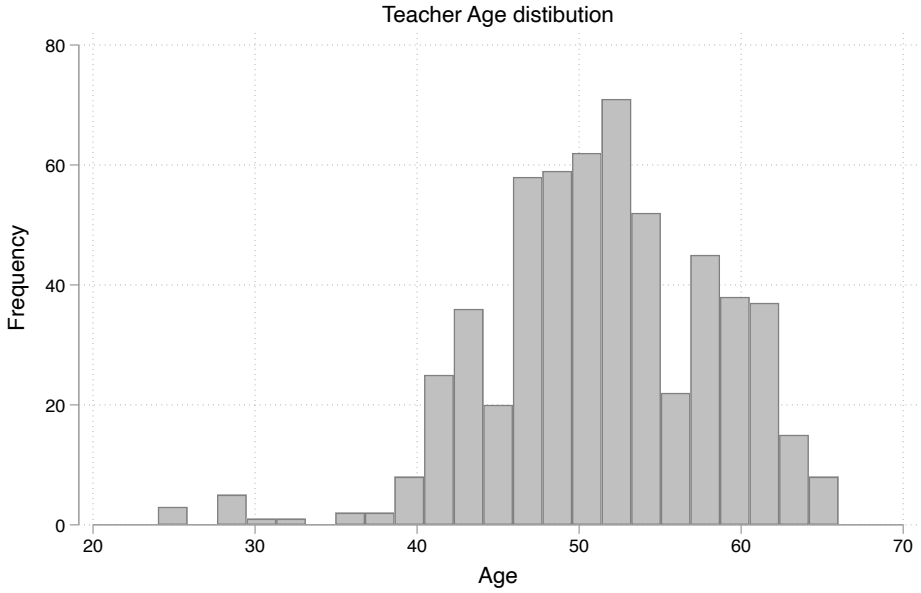

Figure B.9: Teacher Age Distribution
Note Median of 51 years old

Figure B.10: Teacher Years of Experience Distribution
Note Median of 27 years

Figure B.11: Teacher Years lecturing to the school Distribution
Note Median of 6 years

Figure B.12: Teacher Years lecturing to the class Distribution
Note Median of 2 years

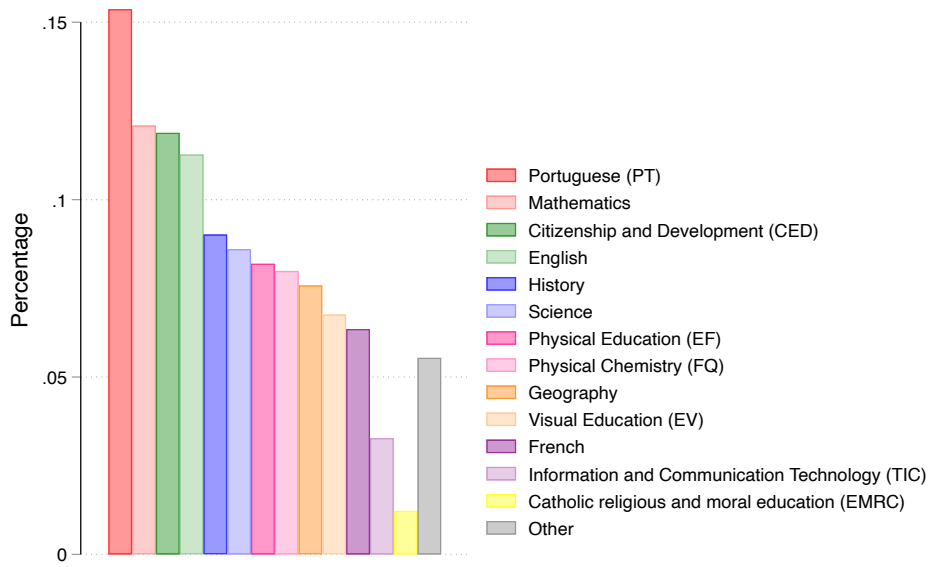

Figure B.13: Teacher's top 15 courses lectured by the 505 teachers

Table B.4: Descriptive Statistics: Teacher Characteristics

	Mean	Std. Dev.	Obs
Sociodemographic Variables			
Binary Variable = 1 if female teacher	0.798	0.402	494
Calculated Age based on Birthday	51.410	7.211	484
Lecturing Years Variables			
Years of lecturing experience based on year started teaching	26.933	7.312	493
Years of lecturing at that school	10.978	10.140	493
Years of lecturing to that class	2.267	1.040	494
Lecturing Subjects Variables			
Binary Variable = 1 if teacher lectures Portuguese	0.154	0.361	488
Binary Variable = 1 if teacher lectures Mathematics	0.121	0.326	488
Binary Variable = 1 if teacher lectures Citizenship and Development	0.119	0.324	488
Binary Variable = 1 if teacher lectures English	0.113	0.317	488
Binary Variable = 1 if teacher lectures History	0.090	0.287	488
Binary Variable = 1 if teacher lectures Physical Chemistry	0.080	0.271	488
Binary Variable = 1 if teacher lectures Science	0.086	0.281	488
Binary Variable = 1 if teacher lectures Physical Education	0.082	0.275	488
Binary Variable = 1 if teacher lectures Visual Education	0.068	0.251	488
Binary Variable = 1 if teacher lectures Geography	0.076	0.265	488
Binary Variable = 1 if teacher lectures French	0.064	0.244	488
Binary Variable = 1 if teacher lectures Information and Communication Technology (TIC)	0.033	0.178	488
Binary Variable = 1 if teacher lectures Catholic religious and moral education (EMRC)	0.012	0.110	488
Binary Variable = 1 if teacher lectures Other Subject	0.055	0.229	505
Number of Subjects taught by the teacher	1.150	0.374	505

Note: Descriptive statistics for the analyzed 505 teachers

Figure B.14: Student's Expectation to complete University across student gender

C Appendix Section 6 - Results

Table C.1: Breusch–Pagan p-values results

Variable	p-value	H0	Result	Chow Validity
Experience	0.339	Not reject	Homoskedastic	✓
Years at School	0.412	Not reject	Homoskedastic	✓
Years at Class	0.846	Not reject	Homoskedastic	✓
Years at Class	0.147	Not reject	Homoskedastic	✓
School SES (Teacher)	0.741	Not reject	Homoskedastic	✓
School SES (Student)	0.002	Reject	Heteroskedastic	

Table C.2: Regression Output of Teacher and Student Expectations on PISA Score for different model specifications

Dep. Var	**Teacher Expectation Scale**		**Student Expectation**	
	(1)	(2)	(3)	(4)
PISA_standard	0.700***	0.677***	0.430***	0.414***
	(0.019)	(0.024)	(0.025)	(0.024)
Constant	0.115***	0.129***	0.491***	0.501***
	(0.012)	(0.016)	(0.017)	(0.015)
Observations	9,376	9,378	8,238	8,236
R-squared	0.343	0.224	0.098	0.162
School FE		✓	✓	
Class FE	✓			✓
Teacher Characteristics Controls	✓	✓	✓	✓
Cluster SE level	school	class	class	school

Notes: The table presents OLS regressions for teachers' and students' expectations to complete university. The dependent variable is the teacher expectation scale (0-1) for the teacher's case and the binary variable *student_exp* for the student's case. The PISA score corresponds to a standardized percentage of overall correctly answered questions (0-1). Columns 1 show regressions of teacher expectations with class fixed effects and standard errors clustered at the school level. Column 2 show regressions of teacher expectations with school fixed effects and standard errors clustered at the class error. Column 3 show regressions of student expectations with school fixed effects and standard errors clustered at the class level. Column 4 show regressions of teacher expectations with class fixed effects and standard errors clustered at the school level. Results for the specification of 1 and 2 are presented in columns 2 and 3, respectively. Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. The robust standard errors are presented in parentheses. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table C.3: Regression Output of Student Expectations on PISA Score with class fixed effects

Dep. Var	**Teacher Residual** (1)	**Student Residual** (2)	**Difference** (1)-(2)
Female	0.067***	0.114***	-0.047***
	(0.010)	(0.012)	(0.013)
Age	-0.085***	-0.079***	-0.006
	(0.008)	(0.011)	(0.012)
More than 25 Books	0.091***	0.069***	0.022*
	(0.009)	(0.010)	(0.013)
Born Abroad	-0.019	0.090***	-0.109***
	(0.015)	(0.022)	(0.025)
Internal Locus of Control (0,1)	0.056***	0.017	0.039
	(0.015)	(0.021)	(0.025)
Engagement Level (0 - 1)	0.584***	0.836***	-0.252***
	(0.046)	(0.055)	(0.060)
Extra Math Question	0.060***	0.046***	0.014
	(0.012)	(0.013)	(0.015)
Constant	0.704***	0.444**	-
	(0.122)	(0.174)	(-)
Observations	6,272	5,688	5,688
R-squared	0.289	0.217	-
Teacher Characteristics Controls	✓	✓	✓
Class Fixed Effects	✓	✓	✓

Notes: The table presents OLS regressions for both teachers' and students' residuals extracted from expectations regressions. he dependent variable in column 1 and 2 is the residual extracted from 1 and 2, respectively. The dependent variable in the third column represents the outcome of the difference between the coefficients in columns 1 and 2, with standard errors calculated using a bootstrapping procedure with 1,000 replications. The regressions presented include class fixed effects. Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. Standard errors are clustered at the school level ad presented in parentheses. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table C.4: Regression Output of Teacher Expectations on students individual Characteristics

Dep. Var:	**Teacher Expectation Scale**						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female (0,1)	0.110***						
	(0.009)						
Age		-0.153***					
		(0.008)					
More than 25 books (0,1)			0.213***				
			(0.009)				
Born Abroad (0,1)				-0.142***			
				(0.016)			
Internal Locus of Control (0-1)					0.133***		
					(0.015)		
Engagement Level (0-1)						1.108***	
						(0.040)	
Extra Math Question (0,1)							0.205***
							(0.009)
Constant	0.490***	2.864***	0.470***	0.550***	0.432***	-0.262***	0.397***
	(0.008)	(0.121)	(0.007)	(0.007)	(0.015)	(0.031)	(0.009)
Observations	9,378	9,331	8,319	7,880	8,753	8,779	9,378
R-squared	0.111	0.163	0.160	0.101	0.101	0.177	0.144
Teacher Characteristics Controls	✓	✓	✓	✓	✓	✓	✓
School FE	✓	✓	✓	✓	✓	✓	✓

Notes: The table presents OLS regressions for teachers' expectations to complete university on each of the independent variables. The dependent variable is the teacher expectation index (0-1). The regressions include school fixed effects.Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. The robust standard errors are presented in parentheses and clustered at the class level. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table C.5: Regression Output of Student Expectations on students individual Characteristics

Dep. Var:	**Student Expectation**						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female (0,1)	0.174***						
	(0.010)						
Age		-0.130***					
		(0.010)					
More than 25 books (0,1)			0.167***				
			(0.010)				
Born Abroad (0,1)				0.026			
				(0.020)			
Internal Locus of Control (0-1)					0.083***		
					(0.020)		
Engagement Level (0-1)						1.296***	
						(0.045)	
Extra Math Question (0,1)							0.175***
							(0.012)
Constant	0.672***	2.725***	0.699***	0.750***	0.685***	-0.202***	0.631***
	(0.008)	(0.153)	(0.007)	(0.006)	(0.019)	(0.035)	(0.011)
Observations	8,238	8,197	7,440	6,927	7,808	7,767	8,238
R-squared	0.093	0.095	0.090	0.056	0.057	0.160	0.084
Teacher Characteristics Controls	✓	✓	✓	✓	✓	✓	✓
School FE	✓	✓	✓	✓	✓	✓	✓

Notes: The table presents OLS regressions for students' expectations to complete university on each of the independent variables. The dependent variable is the student expectation binary variable *student_exp*. The regressions school fixed effects. Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. The robust standard errors are presented in parentheses and clustered at the class level. Significance levels: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

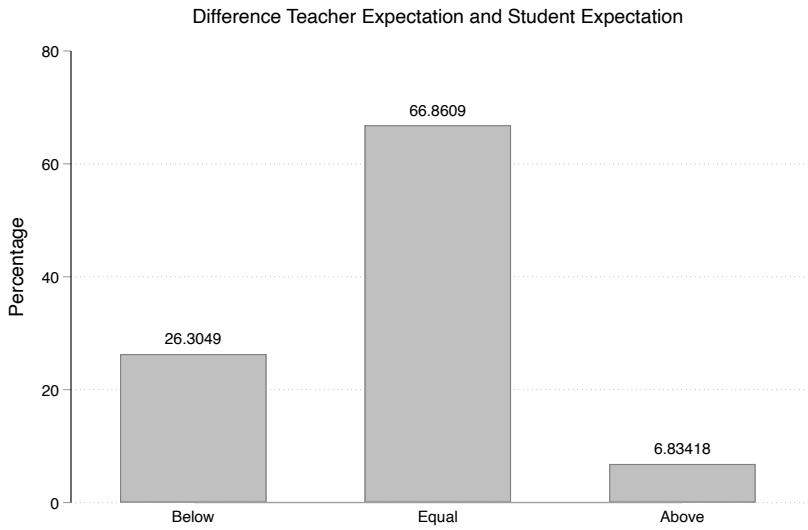

Figure C.1: Difference between Teacher and Student Expectation to finish Higher Education

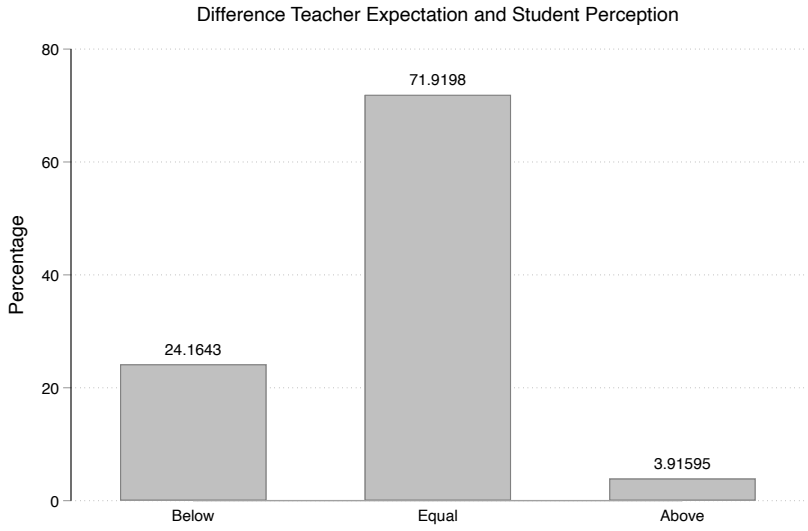

Figure C.2: Difference between Teacher Expectation and Student Perception of Teacher Expectation to finish Higher Education

Table C.6: Regression Output of Teacher, Student and Perception of Teacher by Student Residuals on Student characteristics

Dep. Var	**Teacher Residual**	**Student Residual**	**Student Perception Residual**	**Teacher and Student Prediction Difference**	**Student and Student Prediction Difference**
	(1)	(2)	(3)	(1) - (3)	(2) - (3)
Female	0.065***	0.120***	0.110***	-0.045**	0.010
	(0.010)	(0.011)	(0.016)	(0.019)	(0.017)
Age	-0.087***	-0.088***	-0.043***	-0.044**	-0.044***
	(0.007)	(0.012)	(0.015)	(0.017)	(0.016)
More than 25 books (0,1)	0.097***	0.072***	0.041***	0.056***	0.030*
	(0.009)	(0.011)	(0.016)	(0.019)	(0.017)
Born Abroad (0,1)	-0.055***	0.098***	0.089***	-0.144***	0.009
	(0.016)	(0.021)	(0.032)	(0.037)	(0.037)
Internal Locus of Control (0,1)	0.058***	0.014	0.012	0.046	0.002
	(0.015)	(0.021)	(0.031)	(0.038)	(0.035)
Engagement Level (0 - 1)	0.622***	0.841***	0.878***	-0.255***	-0.036
	(0.046)	(0.053)	(0.067)	(0.078)	(0.075)
Extra Math Question (0,1)	0.058***	0.056***	0.098***	-0.040	-0.042*
	(0.011)	(0.014)	(0.021)	(0.025)	(0.024)
Constant	0.709***	0.557***	-0.191	-	-
	(0.118)	(0.192)	(0.238)	(-)	(-)
Observations	6,273	5,689	2,182	2,182	2,182
R-squared	0.147	0.152	0.209	-	-
Teacher Characteristics Controls	✓	✓	✓	✓	✓
School FE	✓	✓	✓	✓	✓

Notes: The table presents OLS regressions for teachers', students' and perception of teacher by student residuals extracted from expectations regressions. The dependent variable in column 1 and 2 is the residual extracted from 1 and 2, respectively. The dependent variable in column 3 is the extracted residual from a specification with student prediction of teacher expectation. Results for the specification 3 and 4 are presented in column 1 and 2, respectively. The dependent variable in the column 4 represents the outcome of the difference between the coefficients in columns 1 and 3, calculated using a bootstrapping procedure with 1,000 replications. The dependent variable in the column 5 represents the outcome of the difference between the coefficients in columns 2 and 3, calculated using a bootstrapping procedure with 1,000 replications. The regressions presented include school fixed effects. Teacher controls include the following variables: age, gender, years of lecturing experience, years lecturing at the current school and lecturing to the current class. Standard errors are clustered at class-level and presented in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1