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The back of the coin in resilience: on the characteristics of advantaged low-achieving students

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Abstract

In the field of Economics of Education the "resilience" term is used to designate those students from low socio-economic backgrounds who can overcome their initial situation and obtain high academic results. However, the opposite kind of student profile has been a less explored field, i.e., high socio-economic status students who perform poorly and are thus denoted as advantaged low-achieving students. Because of that, the current study intends to disentangle the characteristics which influence the likelihood of high socio-economic students to become low-achievers. In order to do this, we use census and longitudinal education data and a rich set of variables from secondary education students in the most populated region of Spain (Andalusia). Our results show that students' use of time and self-confidence, together with parental engagement, when students were in primary education, are relevant variables in explaining the low achievement of advantaged students.

Keywords: advantaged low-achieving students; census data; longitudinal data; Andalusia.

JEL Codes: I20; I21; I28.

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1. Introduction

There is a wide body of evidence which indicates that the socio-economic status of the population influences many economic and social outcomes as e.g. well-being, income, education or health (Perrons & Plomien, 2010). Particularly, in the field of education, it was found that a higher socio-economic background has a positive and long lasting relationship with better academic performance and, hence, adult life and transition to the labour market (Hanushek, Kain, Markman, & Rivkin, 2003; Dolton & Marcenaro, 2005; Kutner, Greenberg, Jin, Boyle, Hsu, & Dunleavy, 2007; Hanushek & Woessmann, 2011; Ritchie & Bates, 2013; MEFP, 2018; among others). Due to this worldwide and highly relevant influence that socio-economic background has on students' academic performance, there is a widespread concern about resilience and social mobility. Following MEFP (2018), which analyses the main figures on resilience for the country under analysis in the current research, i.e. Spain, resilience and social mobility present low rates, to the extent that 55% of those children whose parents did not finish compulsory secondary education reached that same level of education in 2015 (compared to 37% in the OECD); on the other hand, for the same year, 24.4% of children whose parents did not finish compulsory secondary education reached third level studies, compared to 21% in the OECD.

The relevance of this resilience subject spreads further from Spain to almost all countries and has made many governments across the world to focus their attention on reducing inequalities (Duncan & Hoffman, 1981; Brune & Garrett, 2005), making a high economic effort on this objective (Mayer & Lopoo, 2008). This has also reached the policies proposed by many supranational organizations. For instance, the United States passed the Title I, part A in 1965, followed by the "No Child Left Behind Act" in 2001 and, in 2015, the "Every Student Succeeds Act". These programs were aimed at distributing public funding to schools and school districts with high rates of socio-economically disadvantaged students. The European Union also stablished a package of policy interventions in the "Horizon 2020" and in the Lisbon Agenda for the design of policies focused on increasing the rate of the population aged 30-34 with completed tertiary education from 31% to at least 40% in 2020. Other policy packages as the 2030 Agenda for Sustainable Development of the United Nations was intended at providing access to affordable and quality technical, vocational and tertiary education, including university, to all the population by 2030. The relevance of resilience has also been highlighted by authors such as Chandler (2014), who indicated that "resilience is now the top priority for the sustainable development and international development aid agenda" (p. 1) or by Bernard (2004) "the development of human resiliency is none other than the process of healthy human development" (p. 9). Because of these reasons, analysing the influence of socio-economic status on educational outcomes has become of special relevance in the education field.

Concretely, the profile of the "resilient student" has been defined in the literature as that student who, coming from a very low socio-economic status household, can overcome this situation and perform relatively better than the rest of students. To the extent that becoming a resilient student means fostering social mobility, the characteristics that define these students have become a topic of special interest. Basically, the literature has indicated that both **individual** and **school climate** factors (also called protective factors) may influence the likelihood of students to become resilient (Abelev, 2009). In this sense, authors as Borman and Overman (2004) analysed resilience in mathematics for United States students from 1st to 7th grade and highlighted that resilient students presented a great engagement in academic activities, an internal

locus of control, efficaciousness in mathematics, a more positive outlook towards school and higher self-esteem, also indicating that a supporting school community was essential. Other authors such as Agasisti and Longobardi (2014a; 2014b) analysed resilient students in 10th grade (using PISA 2009 data) and found that individual characteristics, together with school factors (i.e. extracurricular activities and school leadership) and school climate helped students from low socio-economic status to become resilient. Regarding to research works focused only on **individual** characteristics, Martin and Marsh (2006) analysed resilience for 5th and 6th grade students and found that confidence (self-efficacy), planning, control, low anxiety and commitment (i.e. persistence) were relevant factors, while Krovetz (2007) analysed the characteristics of resilient students and found that they present high levels of motivation and confidence. Cassidy (2015) also indicated that students' academic self-efficacy was also a relevant determinant of students' resilience.

Focusing on **school climate and environment**, Thomsen (2002) highlighted the relevance of mitigating risk factors in the school environment to foster students' resilience. These factors were explored by many authors as e.g. Finn and Rock (1997), who studied resilient students in the United States from 8th to 12th grade and found that school engagement was an important component for academic resilience. Other authors as Gordon (2001) found that an environment that supports students' social ability, students' self-social control and general extracurricular activities improved resilience. Morales (2010) indicated, for K-12 United States students, that personal relationships with academic mentors, a general broadening of horizons through exposure to various peoples and cultures and the facilitation of an increased sense of academic self-esteem would foster resilience. Similarly, Cordero, Pedraja, and Simancas (2015) analysed resilient students in Spain and found that teachers played a relevant part in helping these students to overcome the difficulties that they can be facing due to their lower socio-economic status compared to their peers.

As it can be appreciated, the defining characteristics of these resilient students have been, to some extent, delimited in the literature; nevertheless, to the best of our knowledge, there is an almost inexistent literature on the characteristics of students who are in the opposite side of the coin, i.e. students from a high socio-economic background who perform poorer compared to the rest of students, which are denoted in the literature as advantaged low-achieving students (Gordon, 2001; Cheung, 2017). The analysis of these students is as relevant as the analysis of resilient students, to the extent that they represent a different problem in the education system, as highlighted by authors such as Cheung (2017): "it is equally important to conduct research to find out why some adolescents from ESCS-advantaged families have not cherished the opportunities and potentials so as to attain high in academic studies. It may be that some of these youths for some reasons have slackened or even abandoned their studies despite opportunities and potentials bestowed upon them due to their advantaged home background" (p. 967). This, joined to the scarce literature on this issue, would motivate the analysis of advantaged low-achievers' profile in the present study.

Concretely, Cheung (2017) used PISA 2012 data for Shanghai, Singapore, Hong Kong, Taiwan and Korea, and defined the profile of these advantaged low-achievers in mathematics; they found that this profile may vary depending on the country: for Shangai, they found that students with lower familiarity with mathematical concepts and lower mathematics self-efficacy were more likely to be advantaged low-achievers; in Singapore, males, as well as students with fewer years of kindergarten education, were more likely to be advantaged low-achievers; in Hong Kong, students living in

single families were more likely to present this profile; for Korea, lower mathematical concepts, lower mathematics self-efficacy and lower mathematics self-concept defined this profile; for Taiwan, immigrant students were found to be more likely of being advantaged low-achievers. Therefore, to the extent that this profile may change depending on the country, the present research intends to delve into the characteristics that define this particular group of students for the case of Spain. However, due to the scarce amount of previous research works on this issue, there is not a comprehensive list of variables which may define these students, so we make use of certain characteristics that configure the profile of resilient students and check whether they are also applicable for advantaged low-achieving students or not (but, maybe, with an opposite influence). Then, our research question is:

What are the characteristics that define advantaged low-achieving students?

The analysis of this issue for Spain is relevant to the extent that, in spite of being ranked in the 22nd position in terms of average socio-economic status in PISA 2015, Spanish students were ranked in the 25th position in reading, 32nd position in mathematics and 30th position in science (OECD, 2016). Concretely, within Spain, the present study is focused on the Spanish region of Andalusia. This is the most populated region of Spain (8.4 million people in 2018), which also presents low results in international large-scale assessment tests. In this sense, in PISA 2015 (OECD, 2016) Andalusian students obtained 479 points in reading (compared to 496 for Spain and 487 for the OECD), 466 in mathematics (486 for Spain and 478 for the OECD) and 473 in science (493 for Spain and 488 for the OECD)[3]. This means that Andalusian students are around half a year of schooling behind the average Spanish student. In terms of grade retention, Andalusia also presents a high percentage of repeater students: in PISA 2015 Andalusia had a grade retention rate of 38%, while that for Spain was 31% and 13% for the OECD (OECD, 2016). Furthermore, within Spain, Andalusia was ranked as the penultimate Spanish region in terms of reading and mathematics academic performance and the last one in science academic performance in PISA 2015 (MECD, 2016). In addition, Andalusian dropout rates from compulsory education were 24.9% in 2015, compared to 20% in Spain (IECA, 2020). Thus, these figures of the Spanish education system and, specifically, of Andalusia, support the interest on analysing this issue for this region.

According to Cordero, Crespo-Cebada, Pedraja-Chaparro and Santin (2011), these differences in PISA scores between Andalusia and other Spanish regions might due to the fact that, since 1980, the education system in Spain followed a decentralisation process to the regional governments (a process started by 5 out of a total of 19 Spanish regions: Andalusia, Basque Country, Catalonia, Galicia and Navarre), until being totally decentralised in the late 1990s (Crespo-Cebada, Pedraja-Chaparro, & Santin, 2014); these regional governments are responsible for deciding, independently of the central government, the amount of resources devoted to education and the admission criteria for schools (Escardíbul & Villarroya, 2009). Cordero, Crespo-Cebada, Pedraja-Chaparro and Santin (2011) also indicated that Andalusia has one of the least efficient education systems within Spain, an inefficiency which seemed to mostly depend on student characteristics (Lara-Porras, Rueda-García, & Molina-Muñoz, 2019), as school quality seemed quite uniform in all Spanish regions. In fact, authors such as Ciccone and Garcia-Fontes (2009) indicated that this lower efficiency

[3] The differences in scores between Andalusia and Spain and also Andalusia and the OECD for reading, mathematics and science, are significant at 1%.

might be due to a higher proportion of parents with less than primary education level in Andalusia, compared to the other Spanish regions. Other authors such as Gil (2014) or Lopez, Garcia, and Exposito-Casas (2019) indicated that Andalusian schools seem to have an issue of low funding and low expense per student, which should be corrected by the central or regional governments.

Then, the present research work intends to contribute to this scarce literature by providing an insight into the characteristics which may define an advantaged low-achieving student for this Andalusian context. This study is novel in two ways: first, to the best of our knowledge, this is the first time that advantaged low-achievers' profile has been explored for Spain. Second, the use of census and longitudinal data, a rarity for Spain in terms of education data, together with a rich set of variables, let us get closer to a more precise profile for these students in secondary education.

The rest of this research work is structured as follows: first, we present the data and methodology employed. Then, the main results are described, finishing with their discussion and conclusions.

2. Data

Specifically, compulsory education in the Spanish education system is composed by ten grades (six grades of primary education and four grades of secondary education) and families can choose between public and semi-private schools for their children. Public schools are completely publicly funded, while semi-private schools are publicly funded in 70%. Semi-private schools should have a similar curriculum to that in public schools and, although teachers in semi-private schools are hired by the school (and not through public examinations, like in public schools), the government also controls the quality standards of these teachers. The private funding received by semi-private schools is usually devoted to pay teachers, to buy school supplies and textbooks, to pay the school canteen, to pay extra-curricular activities, etc. According to OECD (2012), these schools in Spain may present differences in the socio-economic status of their students and academic performance (which seems higher in both cases in semi-private schools). Regarding the Spanish region of Andalusia, around 77% of students attended public schools in 5th grade in the academic year 2008-09.

The data employed for the present research work are from a census and longitudinal education dataset from the Diagnostic Assessment (*Evaluación de Diagnóstico*, DA, from now on[4]) conducted by the *Agencia Andaluza de Evaluación Educativa* (AGAEVE). This DA was conducted in an annual basis on the whole Andalusian population of students in a specific academic year. The objective of this DA was to assess students' basic curricular competences through a cognitive test to later improve these students' competences and their learning in the Andalusian education system.

The DA data used for the present research study are those from the academic years 2008-09, 2011-12 and 2012-13 DA. We employ students enrolled in the 5th course of primary education (5th grade) in the academic year 2008-09 and follow them in the academic year 2011-12 when they were in the 2nd course of secondary education (8th grade). Furthermore, the data of 8th grade students in 2012-13 were employed to follow

[4] The regulation for these Diagnostic Assessments in Andalusia is described in the education law which was applicable in the courses under analysis (*Ley Orgánica 2/2006, de 3 de mayo, de Educación*, i.e., LOE; BOE, 2006; art. 21, regulating the conduction of these DA in primary education; art. 29, for secondary education and art. 144 regulates the competences that Administrations have in this DA).

those students who repeated only once between the academic years 2008-09 and 2011-12, meaning that these students would be enrolled in 8th grade by 2012-13[5]. This let us follow the same students from primary to secondary education; concretely, these are the unique DA academic years in which we can find the same students in two different moments of time, so they have been chosen for the present study. In addition, data for these academic years have been employed to the extent that students who were in 5th grade in the academic year 2008-09 belong to the latest cohort of DA data which can be followed; this is because 2012-13 was the last academic year in which DA was conducted. Departing from a total of 5th grade 60,745 students in 2008-09 we can follow 52,259 of them in 8th grade by 2011-12 or 2012-13, being these figures reduced when we include in our estimations variables with missing information[6].

In order to check for attrition, we present in Table A1 (Appendix) the descriptive statistics of the socio-economic characteristics of the Andalusian student population in 5th grade, the sample of students who can be followed in 8th grade and the sample of students who can be followed in 8th grade and is employed in the estimations (i.e. a reduction of the sample due to missing information in the dependent variable). As we can appreciate, there are no differences between the population and the samples with both reductions, so that our final sample may be representative of the whole student population.

We focus on the linguistic communication in Spanish language competence[7] ("reading", from now on) and the mathematics reasoning competence[8] ("mathematics", hereinafter). Students answered validated cognitive tests which consisted of 27 questions that measured their reading competence and 18 questions for their mathematics competence; these cognitive questions presented a similar format to those in the PISA test. The tests were externally marked by AGAEVE (i.e. students' teachers did not marked them, avoiding potential biases) and their scores were standardised to have mean 500 and standard deviation 100 (similarly to PISA). Besides from the cognitive assessment, this DA included contextual questionnaires for students, families and schools. Specifically, we defined the advantaged low-achieving student as that who is in the lowest quartile of scores and in the highest quartile of socio-economic status[9] in 8th grade; in particular, we used for the definition of advantaged low-achievers, alternatively, students' academic scores in reading or in mathematics, in order to check

[5] As a means of identifying those students who repeated we followed the applicable Spanish education law for the previous academic years to 2008-09, i.e., *Ley Orgánica 10/2002, de 23 de diciembre, de Calidad de la Educación* or LOCE (BOE, 2002), from 2002 to 2006. This law indicates that students can only repeat once in primary education (BOE, 2002, art. 17.3). The next education law (*Ley Orgánica 2/2006, de 3 de mayo, de Educación*, or LOE; BOE, 2006) also indicated this (BOE, 2006, art. 20.2) and it was applicable from 2006 to 2013.

[6] In order to avoid losing the missing observations of the independent variables we employed a missing flag procedure. However, this procedure cannot be applied with the missing information of the dependent variable (i.e. being an advantaged low-achieving student), so we cannot avoid missing this information.

[7] The reading competence is defined as "the use of language as an instrument of oral and written communication, of presentation, interpretation and comprehension of reality; to construct and communicate the knowledge, to organize and to auto-regulate thinking, emotions and behaviour" (AGAEVE, 2009, p. 7).

[8] The mathematics competence is defined as "the ability to use and relate numbers, their basic operations, symbols and expression forms and mathematic reasoning, to produce and interpret different types of information and to increase knowledge on quantitative and spatial aspects of reality and to solve problems related to daily life and to the labour world" (AGAEVE, 2009, p. 7).

[9] The socio-economic status variable is an index created by AGAEVE employing: the highest from the mother or father education; the highest from the mother or father occupation; the number of books at home and household possessions.

the robustness of our results[10]. We employed different subjects because the student may be classified as advantaged low-achieving student in one but not in the other. With regard to the total amount of advantaged low-achieving students who can be identified in our data, around 38% of them are advantaged low-achievers only in reading (i.e. they are in the highest quartile of socio-economic status and in the lowest quartile of reading achievement), 43% of them are advantaged low-achievers only in mathematics (i.e. they are in the highest quartile of socio-economic status and in the lowest quartile of mathematics achievement) and 19% of them are advantaged low-achievers in both subjects (i.e. they are in the highest quartile of socio-economic status and in both the lowest quartile of both reading and mathematics achievement); therefore, we analyse the case of both subjects to check our results. Particularly, the census data that we employ let us use quartiles (like Agasisti & Longobardi, 2014a, or Agasisti, Avvisati, Borgonovi, & Longobardi, 2018, for resilient students) instead of tertiles, making a more precise definition of advantaged low-achieving students and avoiding problems with the number of observations in each percentile as those found by Cordero, Pedraja, and Simancas (2015), who employed tertiles to define resilient students due to the use of PISA data.

With the aim of defining the profile of advantaged low-achieving students, we employed the variables gathered in the descriptive statistics in Table 1 from the student background questionnaire. As we can observe in these descriptive statistics, advantaged low-achieving students represent around 1% of the total students in 8th grade.

-Insert Table 1 here-

It can also be appreciated from Table 1 that there are some variables related to the student or school climate/environment that were relevant to define the profile of resilient students (as indicated in the literature), so we will use them in the present research to define the profile of advantaged low-achieving students. Particularly, these groups of variables are:

-Student general characteristics: sex of the student[11], grade retention, parental age, high socio-economic status quartile[12] and school funding.

-Students' use of time: time reading books, time doing homework, time watching TV (videos, DVD) and time playing video games or computer games.

-Parental engagement with students' academic practices: parents cheering to study, parents asking about homework, parents checking homework, parents asking about school day and parents helping with homework.

-Students' school perception and climate: the student likes going to school, wants to move to another school, the student indicates that classmates follow the rules and get on well, students' relationship with classmates and with teachers.

[10] The definition of resilient student is the opposite: a student who is in the highest quartile of scores (alternatively, in reading or mathematics) and in the lowest quartile of socio-economic status.

[11] This variable is derived from administrative records regarding the biological sex of the student, i.e. male or female.

[12] Authors such as Agasisti, Avvisati, Borgonovi, and Longobardi (2018) specified their resilience models using only the subsample of less affluent students. Nevertheless, instead of restricting our analysis to the most affluent students for our case (i.e. advantaged low-achievers), we believe that controlling by the high socio-economic status quartile might account for students' socio-economic characteristics and, at the same time, it would not reduce the sample size. Therefore, we have added this control to our estimations.

-Students' self-confidence: the student likes studying, thinks he/she can learn any exercise, the student learns easily and the student is sure about passing his/her exams.

Furthermore, as a prior statistical analysis, the mean standardised scores in reading, mathematics and socio-economic status index in 8th grade (the variables employed to identify advantaged low-achievers), conditioned on the covariates that define the profile of advantaged low-achievers, are presented in Table A2 (Appendix).

3. Methodology

A logit estimation model has been employed to obtain the profile of advantaged low-achieving students. This model has been used due to the characteristics that our dependent variables present; particularly, it is a binary variable which takes the value "1" when the student is advantaged low-achieving and "0" otherwise[13]. Basically, it is specified as follows:

$$log\left[\frac{P_{ijt}}{1-P_{ijt}}\right] = \alpha + \beta X_{ijt-3} + \gamma Z_{jt-3} + \varepsilon_{ijt-3} \quad (1)$$

where i is the student, j the school and t the grade ($t-3$ for students in 5th grade and t for students in 8th grade; students in 5th grade are followed in 8th grade); X_{ijt-3} are student characteristics in 5th grade; Z_{jt-3} are school characteristics in 5th grade; $P_{ijt} = P\left(A_{ijt} = 1 | X_{ijt-3}, Z_{jt-3}\right)$ (where A_{ijt} represents advantaged low-achieving student in 8th grade)[14]; ε_{ijt-3} is the idiosyncratic error term in 5th grade. Estimations have been clusterised at school level in 5th grade in order to correct standard errors for the homogeneity that students' characteristics may present within-school. The results of the estimation of these models are expressed in terms of odd ratios (Hailpern & Visintainer, 2003).

In addition to this main estimation, we have also checked our results by dividing the sample, alternatively, according to students' sex and school funding. The use of a dependent variable in 8th grade and explanatory variables in 5th grade intends to avoid potential endogeneity issues due to the correlation that explanatory variables in 8th grade may have with the low achievement of advantaged students in 8th grade (due to, e.g., simultaneous determination of both types of variables)[15]. Therefore, this model assumes that variables in 5th grade would be a good proxy of students' accumulated human capital until that moment, so that we analyse the influence of this human capital on becoming an advantaged low-achiever in 8th grade (as suggested by authors such as Koedel, Mihaly, & Rockoff, 2015). In addition, although we define some variables which may influence the likelihood of becoming an advantaged low-achieving student, we also highlight that these variables may not be the only ones which may influence this likelihood, so results are analysed as conditional associations and not as causal relationships and, thus, they should be interpreted with caution.

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[13] We use a logit model instead of a linear probability model (i.e. Ordinary Least Squares estimation with a binary dependent variable) due to the problems of heteroscedasticity and the prediction of negative probabilities that the latter model presents.

[14] This also applies for resilient students $P_{ijt} = P\left(R_{ij} = 1 | X_{ijt-3}, Z_{jt-3}\right)$ (where R_{ijt} represents resilient student).

[15] Furthermore, analysing the change of status of students between 5th and 8th grade (i.e. becoming an advantaged low-achieving student, stop being one or remaining the same) would mean using, for each grade, dependent and independent variables which are measured in the same moment of time (i.e. simultaneously); thus, this would be a correlational analysis which would omit many more relevant variables than those in the model employed in the present study and, therefore, might not contribute to the objective of our analysis.

4. Results

4.1. Main results

The main results of our estimations are presented in Table 2[16,17,18]. These estimations show the profile of the advantaged low-achievers in 8th grade conditioned on their characteristics in 5th grade. Regarding ***students' general characteristics***, we can appreciate that males seem to be approximately 1.8 times[19,20] more likely to be an advantaged low-achiever in 8th grade in reading than females, while there are not differences for mathematics. In the case of grade retention before or in 5th grade, it seems that repeaters are around 1.9 times more likely to be an advantaged low-achiever in 8th grade in reading and mathematics than those who did not repeat in this period of time. In the case of parental ages, their odd ratios are very close to 1, but slightly lower, so the likelihood of becoming an advantaged low-achiever in 8th grade is 2% lower for each additional year of parental age in 5th grade (although these coefficients are weakly significant). Regarding to the high socio-economic status quartile variable, we obtain that it seems to increase the likelihood of becoming an advantaged low-achieving student (which was as expected, as socio-economic status is part of the definition of the dependent variable). In addition, this variable may take the influence of the semi-private school variable, which seems logical, to the extent that it is correlated to socio-economic status.

-Insert Table 2 here-

In the case of ***students' use of time variables***, it seems that students not devoting time to reading books in 5th grade are around 1.26 times more likely to become an advantaged low-achiever in 8th grade than those devoting time to it while, for the time devoted to homework, students spending between 31 and 60 minutes are 1.9 times less likely to become an advantaged low-achieving student in 8th grade than those who did not devote time to it. For the time devoted to watch TV in 5th grade, those students who spent between 3 to 5 hours doing it are 1.3 times more likely to become an advantaged low-achieving student in reading in 8th grade than those who did not devote any time.

Regarding to ***parental engagement with students' academic practices***, it seems that those students who were not cheered by their parents in 5th grade are around 1.5 times more likely to become an advantaged low-achiever in 8th grade, compared to those who were cheered. Parental help with homework also presents relevant results: it seems that, when students were not helped by their parents in 5th grade, they are approximately up to 1.8 times more likely to become an advantaged low-achieving student in 8th grade, compared to those students who received help. This may be showing that, when students are beginning their education, they may need parental help.

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[16] Estimations have been performed using the information in 2011-12 of those students who failed 8th grade in 2011-12 and repeated that grade in 2012-13. These estimations have been replicated using the information for these students in 2012-13 (changing, then, our dependent variable) and results do not change. These estimations will be provided upon request to the authors.

[17] Estimations have been replicated including the different groups of variables using a stepwise procedure and results do not change. These estimations will be provided upon request to the authors.

[18] Estimations have been replicated using only non-repeater students and results do not change. These estimations are available upon request to the authors.

[19] In order to facilitate the interpretation of the odd ratios which are lower than one we invert them. An example for the 0.560 coefficient of the "female" variable for reading would be 1/0.560=1.786, which would be the coefficient for "male".

[20] In order to interpret our results as probabilities the following procedure can be applied: (odds ratio-1)*100. Then, for 1.8 times, it would mean that it is (1.8-1)*100=80% more likely.

In the view of the results for the variables related to ***students' school perception and climate***, it seems that none of the controls influence this likelihood of becoming an advantaged low-achiever student. Although it may seem that this null influence could be due to controlling for school funding or even due to clustering by school in our estimations, this has been checked (by not including any of them in the estimations) and we obtain similar results[21]; then, it may seem that students' school perception and climate does not influence the likelihood of becoming an advantaged low-achieving student. However, another likely explanation may be that students' socio-economic status and school funding actually gather this school climate variable (acting as a proxy), being the rest of variables not so precise in measuring it.

Finally, one variable related to ***students' self-confidence*** seems to influence the likelihood of becoming an advantaged low-achiever. In this sense, students who did not think that they could learn any exercise even when it is very difficult in 5th grade are around 1.4 times more likely to become an advantaged low-achieving student in 8th grade (compared to those students who agreed/totally agreed). Then, students' self-confidence seems to play a relevant role in becoming advantaged low-achiever in 8th grade, as found by authors such as Gordon (2001) or Cheung (2017).

In the following, we have employed some of the variables in the group of general characteristics to split the sample. First, we have divided it by sex in Table 3 to check whether males and females present different education production functions in terms of their likelihood of becoming an advantaged low-achieving student. Most of the results obtained for Table 2 are kept, so we can only appreciate slight differences between males and females.

-Insert Table 3 here-

Second, in Table 4 we have split the sample regarding to the funding of the school the student is attending to (public or semi-private). By doing this we avoid potential selection bias due to the particular socio-economic characteristics that students attending different kinds of school may present, as indicated in the Data section. Again, we find slight differences compared to Table 2. We only find differences between these types of schools in that those students who were not sure about passing their exams in public schools are 2.6 times more likely to become an advantaged low-achieving student in 8th grade in mathematics than those who were sure about it.

-Insert Table 4 here-

4.2. Robustness checks

In order to check the robustness of our results, in Table 5 we have replicated our main estimations from Table 2 but changing the definition of advantaged low-achieving students: in specification I, we defined them as those who are in the lowest quintile of scores in 8th grade and in the highest quintile of socio-economic status in 8th grade[22]; in specification II, they are defined as those who are in the lowest sextile of scores in 8th grade and in the highest sextile of socio-economic status in 8th grade; in specification

[21] These estimations will be provided upon request to the authors.

[22] The use of quintiles accounts for the existence of an "average category" in the middle of the socio-economic status index and reading and mathematics scores distributions. Although this "average category" has not been directly used in the current analysis, it indirectly allows delimiting the profile of those students who are advantaged low-achieving students, to the extent that we can narrow down who are these students by accounting for the existence of a "middle" group of students in the distribution of these variables.

III, advantaged low-achieving students are defined as those who are in the lowest quartile of the average score of reading and mathematics in 8th grade and in the highest quartile of socio-economic status in 8th grade. We can appreciate that the definition of this kind of student does not seem to influence our main results.

-Insert Table 5 here-

In the following robustness check we analyse whether the use of a multi-level model (being the first level students and the second one schools) instead of clustering by school may change our main results in Table 2. The motivation of this robustness check is that (a) although we clustered standard errors at school level, this assumes that clusters (i.e. schools) are independent among them, which may not be the case in our data (due to e.g. differences in pupils/teacher ratios, access to computers, GDP per capita, social background in the area, etc., which may be linked to territorial differences); (b) clustered standard errors at school level do adjust standard errors but may not adjust for possible confounding factors due to systematic differences among schools. The results for this multi-level model are presented in Table 6 and are fairly undistinguishable from those in Table 2 (clustered standard errors), i.e. it seems that interschool correlations are very close to zero.

-Insert Table 6 here-

Finally, in the next robustness check we have analysed whether or not including certain sets of potential endogenous variables may condition our results, to the extent that they may be correlated to students' socio-economic background (Sacker, Schoon, & Bartley, 2002; Veselska, Madarasova, Gajdosova, Orosova, van Dijk, & Reijneveld, 2009; Filippin & Paccagnella, 2012; Hemmerechts, Agirdag, & Kavadias, 2016). In order to do this, we estimated Table 7, in which we alternatively omitted from our main estimations in Table 2: (a) students' self-confidence variables (specification I); (b) parental engagement with students' academic practices variables (specification II). From the view of the results in Table 7, we can conclude that they slightly changed compared to Table 2 results; because of that, it seems that the inclusion of these potentially endogenous sets of variables does not seem to change the obtained advantaged low-achieving student profile.

-Insert Table 7 here-

Results for resilient students are presented in Table A3 (Appendix A) but only for readers' information, as they are not the focus of the present research work. In general terms, it seems that some of the variables under analysis on the likelihood of becoming an advantaged low-achiever are significant to explain resilience, but with an opposite influence; however, there are other variables which may influence this likelihood.

5. Discussion and conclusions

In this research work we intend to determine the characteristics that define the less explored profile of advantaged low-achieving students. In order to do this, we have employed census and longitudinal data and a rich set of variables from the most populated region of Spain: Andalusia. This study is novel as far as, to the best of our knowledge, this is the first time that this advantaged low-achiever profile has been explored for Spain. In addition, the use of census and longitudinal data, together with a rich set of variables, let us get closer to a more precise profile for these students. Our results show that males are more likely of becoming advantaged low-achievers than females for reading, but there are no differences in mathematics. This may be a

reflection of the existing gap in academic performance which has been traditionally found in the literature; particularly, this gap indicates that females outperform males in reading, while males' advantage in mathematics is not so clear and it is country-dependent (Brozo, Sulkunen, Shiel, Garbe, Pandian, & Valtin, 2014; OECD, 2015), which also extends to Andalusian students, as found in PISA 2015 results for this Spanish region (MECD, 2016). Other logical results are those related to grade retention, which show that repeater students are more likely to be advantaged low-achieving students, to the extent that these students are lower performers compared to non-repeaters (García-Pérez, Hidalgo-Hidalgo, & Robles-Zurita, 2014; Pedraja-Chaparro, Santín, & Simancas, 2015); this is particularly relevant for Andalusia, as the percentage of repeater students is higher than the Spanish average. In addition, reading books seems to reduce the likelihood of becoming an advantaged low-achieving student, so fostering habits among students by e.g. advertisement campaigns may be useful to reduce this issue (as found by authors such as Panozzo, 2002; Clark & Rumbold, 2006).

There are also interesting results related to parental support and help with homework: we found that parental help in 5th grade seems to be positive for students. This may be related to what was found in the literature, i.e. that, at earlier ages, students may be benefited from parental help but, when they reach a certain age, then they need autonomy to carry out their studies on their own (as found by authors as Patall, Cooper, & Robinson, 2008; Feng, Xie, Gong, Gao, & Cao, 2019). This is particularly relevant in Andalusia, where there is a higher proportion of parents with less than primary education level compared to the rest of the Spanish regions (Ciccone & Garcia-Fontes, 2009), so there may be a lower proportion of students who can have this support from their parents; therefore, these students may need another way of receiving this support as e.g. by after-school programs to support lessons (which were found as beneficial for students' academic outcomes by authors such as Cosden, Morrison, Albanese, & Macias, 2001; Kane, 2004; Zief, Lauver, & Maynard, 2006). Finally, students' self-confidence also seems to play a relevant role in avoiding becoming an advantaged low-achieving student. In this sense, students with higher self-confidence on their skills get further from becoming an advantaged low-achiever (this positive relationship was indicated by authors as Stankov, Lee, Luo, & Hogan, 2012, or Komarraju & Nadler, 2013). Then, this self-confidence should be fostered by parents, teachers and students themselves. The way of improving students' self-confidence goes further from the present research work, but it may be the focus of future research.

This research work presents some limitations, so that our results should be interpreted with caution. First, although we control by many student characteristics which may influence the likelihood of becoming an advantaged low-achieving student, there may be other omitted factors which may define this profile but are not available in our data (such as e.g. openness, multiculturality and extracurricular activities, which are likely to be asymmetrically distributed between public and semi-private schools). Second, the definition of this advantaged low-achieving student profile is limited to the explanatory variables that are available in our dataset which, in spite of their high amount, have not been found to be relevant in explaining this profile in most of the cases. Third, the variables in our models might change their influence on the profile of advantaged low-achievers between 5th and 8th grade (which is a transition period between childhood and adolescence). Fourth, this research work presents high internal validity for Andalusian students in secondary education, but a limited external validity which calls for further research in other countries. Nevertheless, Spain shares with many other Southern European countries similar structural features and ongoing issues related

to learning-outcomes and labor market outcomes of secondary and tertiary education systems (as indicated by authors such as Green & Henseke, 2017; Cattani & Pedrini, 2020), so this research provides empirical evidence which may help to understand this issue for Southern European countries. Due to all these reasons, we have interpreted our results as conditional associations and not as causal relationships.

With this research work we have provided a first approach to this advantaged low-achieving student profile for Spain; however, more work has to be done in this aspect, as the definition of this profile may be of – at least – similar relevance to that of resilient students, to the extent that it is a particular type of low-achieving student which may need a particular kind of help to improve.

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Appendix

-Insert Table A1 here-

-Insert Table A2 here-

-Insert Table A3 here-

Table 1. Descriptive statistics in 5th grade in the academic year 2008/09

Variable		Obs.	Mean	S.d.
Advantaged low-achieving/resilient student in 8th grade	Advantaged low-achieving student in reading	43,573	0.009	0.096
	Advantaged low-achieving student in mathematics	43,868	0.010	0.099
	Resilient student in reading	43,573	0.018	0.134
	Resilient student in mathematics	43,868	0.019	0.135
Sex of the student	Male	60,745	0.507	0.500
	Female	60,745	0.493	0.500
Grade Retention before or in 5th grade	Yes	60,745	0.089	0.285
	No	60,745	0.911	0.285
Parental age	Father age	47,315	65.692	5.650
	Mother age	50,771	68.185	5.221
School funding	Public	60,745	0.765	0.424
	Semiprivate	60,745	0.235	0.424
Time reading books (juvenile collections, about sport people, trips…)	Never or almost never	57,745	0.290	0.454
	Once or twice a month	57,745	0.189	0.392
	Once or twice a week	57,745	0.251	0.434
	Every or almost every day	57,745	0.270	0.444
Time devoted to homework each day	I do not have homework	58,485	0.012	0.110
	I never do homework	58,485	0.003	0.058
	15 minutes or less	58,485	0.086	0.280
	Between 16 and 30 minutes	58,485	0.227	0.419
	Between 31 and 60 minutes	58,485	0.296	0.457
	More than 60 minutes	58,485	0.376	0.484
Time devoted to watch TV (videos, DVD) each day	No time	58,142	0.073	0.261
	Until 1 hour	58,142	0.113	0.317
	1 to 3 hours	58,142	0.286	0.452
	3 to 5 hours	58,142	0.437	0.496
	5 hours or more	58,142	0.090	0.286
Time devoted to play video games or computer games each	No time	58,549	0.090	0.287
	Until 1 hour	58,549	0.087	0.282
	1 to 3 hours	58,549	0.188	0.390
	3 to 5 hours	58,549	0.455	0.498
	5 hours or more	58,549	0.179	0.384
Parents cheer to study	Never	59,354	0.098	0.297
	Some days	59,354	0.196	0.397
	Almost every day	59,354	0.170	0.375
	Every day	59,354	0.536	0.499
Parents ask about homework	Never	59,839	0.017	0.130
	Some days	59,839	0.046	0.210
	Almost every day	59,839	0.077	0.266
	Every day	59,839	0.860	0.347
Parents check homework	Never	59,427	0.084	0.278
	Some days	59,427	0.126	0.332
	Almost every day	59,427	0.161	0.368
	Every day	59,427	0.628	0.483
Parents ask about school day	Never	59,772	0.027	0.163
	Some days	59,772	0.094	0.292
	Almost every day	59,772	0.160	0.367
	Every day	59,772	0.718	0.450
The father, mother or any person helps with homework	No	59,708	0.130	0.336
	Sometimes	59,708	0.711	0.453
	Yes	59,708	0.159	0.366
The student likes going to school	Nothing	60,138	0.048	0.213
	Little	60,138	0.161	0.368
	Enough	60,138	0.361	0.480
	A lot	60,138	0.429	0.495
The student wants to move to another school	No	60,183	0.867	0.340
	He/She does not mind	60,183	0.026	0.160
	Yes	60,183	0.107	0.309
Classmates follow school rules	Never	58,705	0.036	0.187
	Sometimes	58,705	0.469	0.499
	Enough	58,705	0.305	0.460
	A lot	58,705	0.190	0.393
Classmates get on well	Never	58,771	0.018	0.133
	Sometimes	58,771	0.289	0.453
	Enough	58,771	0.311	0.463
	A lot	58,771	0.382	0.486
Relationship with classmates	Bad	59,468	0.013	0.113
	Not so good	59,468	0.079	0.270
	Good	59,468	0.278	0.448
	Very good	59,468	0.630	0.483
Relationship with teachers	Bad	59,905	0.006	0.080
	Not so good	59,905	0.045	0.208
	Good	59,905	0.285	0.452
	Very good	59,905	0.663	0.473
The student likes studying	Totally disagree	59,120	0.068	0.252
	Disagree	59,120	0.112	0.315
	Agree	59,120	0.516	0.500
	Totally agree	59,120	0.304	0.460
The student can learn any exercise, even when it is very difficult	Totally disagree	58,964	0.045	0.207
	Disagree	58,964	0.114	0.317
	Agree	58,964	0.414	0.493
	Totally agree	58,964	0.427	0.495
The student learns easily	Totally disagree	58,653	0.042	0.201
	Disagree	58,653	0.151	0.358

	Agree	58,653	0.461	0.498
	Totally agree	58,653	0.347	0.476
The student is sure about passing my exams	**Totally disagree**	59,096	0.035	0.184
	Disagree	59,096	0.079	0.270
	Agree	59,096	0.394	0.489
	Totally agree	59,096	0.492	0.500

Notes: “Obs.” stands for “Observations” and “S.d.” for “Standard Deviation”.
Source: Authors’ own calculations.

Table 2. Determinants of the likelihood of becoming an advantaged low-achieving student

	Advantaged low-achieving student in 8th grade	
Variables	Reading	Mathematics
Female (Ref.: Male)	0.560***	1.062
	(0.044)	(0.077)
Female. Missing flag	-	-
Repeater before or in 5th grade: Yes (Ref.: No)	1.903***	1.931***
	(0.255)	(0.252)
Grade retention. Missing flag		
Father age	0.981*	0.984
	(0.011)	(0.010)
Father age. Missing flag	0.336	0.449
	(0.243)	(0.304)
Mother age	0.979*	0.976**
	(0.011)	(0.011)
Mother age. Missing flag	0.304	0.299
	(0.240)	(0.234)
High Socio-economic status quartile (Ref.: Rest of quartiles)	6.571***	6.592***
	(0.629)	(0.590)
High Socio-economic status quartile. Missing flag	1.527	1.428
	(0.346)	(0.316)
Semi-private (Ref.: Public)	0.850	1.076
	(0.078)	(0.090)
Semi-private. Missing flag	-	-
Time reading books (juvenile collections, about sport people, trips…). (Ref.: Never or almost never)		
Once or twice a month	0.899	0.792**
	(0.101)	(0.086)
Once or twice a week	0.810**	0.768***
	(0.084)	(0.078)
Every or almost every day	0.809**	0.771***
	(0.084)	(0.074)
Time reading books. Missing flag	0.657**	0.851
	(0.136)	(0.143)
Time devoted to homework each day (Ref.: I do not have homework/I never do homework)		
15 minutes or less	0.953	0.963
	(0.280)	(0.264)
Between 16 and 30 minutes	0.787	0.785
	(0.217)	(0.208)
Between 31 and 60 minutes	0.651	0.535**
	(0.183)	(0.143)
More than 60 minutes	0.770	0.699
	(0.212)	(0.183)
Time devoted to homework. Missing flag	1.092	0.973
	(0.336)	(0.287)
Time devoted to watch TV (videos, DVD) each day (Ref.: No time)		
Until 1 hour	1.094	0.947
	(0.190)	(0.162)
1 to 3 hours	0.915	0.886
	(0.148)	(0.134)
3 to 5 hours	1.308*	1.215
	(0.205)	(0.184)
5 hours or more	1.068	1.318
	(0.214)	(0.232)
Time devoted to watch TV. Missing flag	1.456*	1.435*
	(0.318)	(0.286)
Time devoted to play video games or computer games each day (Ref.: No time)		
Until 1 hour	0.868	0.716**
	(0.144)	(0.115)
1 to 3 hours	0.803	0.551***
	(0.114)	(0.079)
3 to 5 hours	0.701***	0.627***
	(0.095)	(0.081)
5 hours or more	0.666**	0.630***
	(0.110)	(0.091)
Time devoted to play video games or computer games each day. Missing flag	0.816	0.714
	(0.186)	(0.147)
Parents cheer to study (Ref.: Never)		
Some days	0.692***	0.667***
	(0.094)	(0.085)
Almost every day	0.655***	0.613***
	(0.093)	(0.083)
Every day	0.684***	0.741***
	(0.082)	(0.081)
Parents cheer to study. Missing flag	0.878	0.844
	(0.217)	(0.206)
Parents ask about homework (Ref.: Never)		
Some days	1.637	0.546**
	(0.641)	(0.157)
Almost every day	1.660	0.746
	(0.605)	(0.198)

Every day	1.829*	0.737
	(0.636)	(0.179)
Parents ask about homework. Missing flag	1.720	0.945
	(0.811)	(0.355)
Parents check homework (Ref.: Never)		
Some days	1.096	1.149
	(0.189)	(0.191)
Almost every day	0.964	1.053
	(0.169)	(0.173)
Every day	1.174	1.221
	(0.180)	(0.178)
Parents check homework. Missing flag	1.054	1.114
	(0.348)	(0.366)
Parents ask about school day (Ref.: Never)		
Some days	1.130	1.415
	(0.351)	(0.408)
Almost every day	1.298	1.512
	(0.372)	(0.413)
Every day	1.511	1.707**
	(0.418)	(0.448)
Parents ask about school day. Missing flag	1.336	1.562
	(0.596)	(0.602)
The father, mother or any person helps with homework (Ref.: No)		
Yes	0.467***	0.472***
	(0.068)	(0.064)
Sometimes	0.644***	0.695***
	(0.062)	(0.065)
The father, mother or any person helps with homework. Missing flag	0.755	0.793
	(0.212)	(0.221)
The student likes going to school (Ref.: Nothing)		
Little	0.877	0.967
	(0.153)	(0.168)
Enough	0.787	0.755
	(0.138)	(0.136)
A lot	0.836	0.866
	(0.150)	(0.153)
The student likes going to school. Missing flag	1.570	1.374
	(0.524)	(0.445)
The student wants to move to another school (Ref.: No)		
Yes	1.298	1.205
	(0.146)	(0.131)
He/She does not mind	1.167	1.461
	(0.255)	(0.275)
The student wants to move to another school. Missing flag	1.178	1.001
	(0.403)	(0.352)
Classmates follow school rules (Ref.: Never)		
Sometimes	0.880	1.211
	(0.163)	(0.230)
Enough	0.774	1.002
	(0.154)	(0.203)
A lot	1.087	1.326
	(0.215)	(0.272)
Classmates follow school rules. Missing flag	0.598*	1.367
	(0.179)	(0.366)
Classmates get on well (Ref.: Never)		
Sometimes	0.689	0.734
	(0.182)	(0.186)
Enough	0.794	0.755
	(0.213)	(0.192)
A lot	1.068	0.829
	(0.288)	(0.214)
Classmates get on well. Missing flag	1.274	1.047
	(0.418)	(0.313)
Relationship with classmates (Ref.: Bad)		
Not so good	0.898	1.097
	(0.286)	(0.325)
Good	0.766	0.870
	(0.238)	(0.254)
Very good	0.679	0.919
	(0.211)	(0.266)
Relationship with classmates. Missing flag	0.740	0.445*
	(0.295)	(0.202)
Relationship with teachers (Ref.: Bad)		
Not so good	0.740	1.230
	(0.247)	(0.507)
Good	0.694	1.103
	(0.214)	(0.440)
Very good	0.623	1.101
	(0.193)	(0.437)
Relationship with teachers. Missing flag	0.629	1.343
	(0.280)	(0.707)
The student likes studying (Ref.: Totally disagree)		
Disagree	1.212	0.917
	(0.208)	(0.160)
Agree	1.019	1.083
	(0.168)	(0.178)

Totally agree	0.822	1.079
	(0.149)	(0.186)
The student likes studying. Missing flag	0.943	1.048
	(0.284)	(0.291)
The student can learn any exercise, even when it is very difficult (Ref.: Totally disagree)		
Disagree	0.710*	0.734*
	(0.136)	(0.132)
Agree	0.701**	0.686**
	(0.122)	(0.110)
Totally agree	0.754	0.723**
	(0.130)	(0.118)
The student can learn any exercise, even when it is very difficult. Missing flag	1.020	0.699
	(0.283)	(0.198)
The student learns easily (Ref.: Totally disagree)		
Disagree	1.094	1.003
	(0.221)	(0.189)
Agree	0.885	0.744
	(0.175)	(0.141)
Totally agree	0.837	0.579***
	(0.173)	(0.113)
The student learns easily. Missing flag	0.775	0.834
	(0.231)	(0.234)
The student is sure about passing my exams (Ref.: Totally disagree)		
Disagree	0.740	1.004
	(0.178)	(0.233)
Agree	0.870	1.223
	(0.179)	(0.252)
Totally agree	0.678*	1.037
	(0.141)	(0.217)
The student is sure about passing my exams. Missing flag	0.804	1.283
	(0.265)	(0.395)
Constant	1.190	0.715
	(1.045)	(0.632)
Observations	43,573	43,868

Notes: Standard errors in parenthesis are referred to odd-ratios and are robust. All covariates are measured in 5th grade.
Dependent variable: Advantaged low-achieving student ("1" if the student is in the lowest quartile of scores of the subject but in the highest quartile of socio-economic status; "0" otherwise) in 8th grade.
Coefficient: ***significant at 1%, ** significant at 5%, * significant at 10%.
Estimation method: Logit, odd ratios.
Source: Authors' own calculations.

Table 3. Determinants of the likelihood of becoming an advantaged low-achieving student by sex

	Advantaged low-achieving student in 8th grade			
	Reading		Mathematics	
Variables	Males	Females	Males	Females
Repeater before or in 5th grade: Yes (Ref.: No)	1.853***	1.983***	1.936***	1.855***
	(0.293)	(0.324)	(0.473)	(0.369)
Father age	0.973**	0.980	0.997	0.992
	(0.013)	(0.015)	(0.018)	(0.014)
Mother age	0.980	0.971*	0.978	0.979
	(0.014)	(0.015)	(0.018)	(0.015)
High Socio-economic status quartile (Ref.: Rest of quartiles)	6.990***	5.333***	6.121***	8.337***
	(0.856)	(0.669)	(0.957)	(1.045)
Semi-private (Ref.: Public)	0.860	1.286	0.825	0.904
	(0.093)	(0.146)	(0.126)	(0.105)
Time reading books (juvenile collections, about sport people, trips…). (Ref.: Never or almost never)				
Once or twice a month	1.047	0.885	0.703*	0.714**
	(0.152)	(0.140)	(0.128)	(0.105)
Once or twice a week	0.955	0.828	0.612***	0.718**
	(0.130)	(0.119)	(0.110)	(0.101)
Every or almost every day	0.947	0.924	0.629***	0.637***
	(0.125)	(0.130)	(0.108)	(0.084)
Time devoted to homework each day (Ref.: I do not have homework/I never do homework)				
15 minutes or less	0.650	0.695	4.732	2.977
	(0.210)	(0.215)	(5.054)	(2.271)
Between 16 and 30 minutes	0.624	0.594*	2.922	2.254
	(0.183)	(0.175)	(3.050)	(1.687)
Between 31 and 60 minutes	0.501**	0.378***	2.554	1.649
	(0.150)	(0.113)	(2.701)	(1.233)
More than 60 minutes	0.673	0.541**	2.433	1.978
	(0.196)	(0.156)	(2.581)	(1.482)
Time devoted to watch TV (videos, DVD) each day (Ref.: No time)				
Until 1 hour	0.982	0.931	1.286	0.972
	(0.210)	(0.214)	(0.413)	(0.269)
1 to 3 hours	0.982	0.907	0.758	0.846
	(0.195)	(0.184)	(0.222)	(0.211)
3 to 5 hours	1.498**	1.386*	0.987	1.050
	(0.276)	(0.271)	(0.290)	(0.259)
5 hours or more	1.236	1.363	0.749	1.242
	(0.302)	(0.314)	(0.269)	(0.340)
Time devoted to play video games or computer games each day (Ref.: No time)				
Until 1 hour	0.878	0.858	0.757	0.480**
	(0.164)	(0.163)	(0.306)	(0.144)
1 to 3 hours	0.780	0.548***	0.806	0.513***
	(0.128)	(0.094)	(0.275)	(0.132)
3 to 5 hours	0.692**	0.676**	0.713	0.536***
	(0.108)	(0.107)	(0.227)	(0.124)
5 hours or more	0.578**	0.581***	0.748	0.587**
	(0.125)	(0.121)	(0.250)	(0.142)
Parents cheer to study (Ref.: Never)				
Some days	0.704**	0.648**	0.647*	0.659**
	(0.118)	(0.114)	(0.145)	(0.121)
Almost every day	0.675**	0.634**	0.606**	0.553***
	(0.120)	(0.125)	(0.146)	(0.108)
Every day	0.729**	0.723**	0.601**	0.728*
	(0.111)	(0.114)	(0.123)	(0.118)
Parents ask about homework (Ref.: Never)				
Some days	1.802	0.721	1.503	0.424**
	(0.907)	(0.325)	(0.945)	(0.169)
Almost every day	1.711	1.075	1.614	0.541*
	(0.787)	(0.426)	(0.981)	(0.195)
Every day	1.982	0.995	1.642	0.576*
	(0.901)	(0.372)	(0.944)	(0.188)
Parents check homework (Ref.: Never)				
Some days	1.088	1.334	1.151	1.015
	(0.229)	(0.322)	(0.336)	(0.233)
Almost every day	0.977	1.198	0.964	0.971
	(0.204)	(0.284)	(0.285)	(0.219)
Every day	1.309	1.560**	0.965	0.997
	(0.243)	(0.331)	(0.256)	(0.200)
Parents ask about school day (Ref.: Never)				
Some days	1.411	1.266	0.725	1.732
	(0.562)	(0.480)	(0.363)	(0.785)
Almost every day	1.494	1.213	1.033	2.088*
	(0.560)	(0.437)	(0.460)	(0.903)
Every day	1.690	1.413	1.278	2.328**
	(0.615)	(0.494)	(0.547)	(0.970)
The father, mother or any person helps with homework (Ref.: No)				
Yes	0.449***	0.491***	0.525**	0.468***
	(0.081)	(0.090)	(0.132)	(0.092)
Sometimes	0.650***	0.686***	0.648***	0.712***
	(0.080)	(0.087)	(0.108)	(0.093)
The student likes going to school (Ref.: Nothing)				
Little	0.864	0.984	1.257	0.886

	(0.166)	(0.213)	(0.668)	(0.291)
Enough	0.741	0.753	1.311	0.731
	(0.145)	(0.174)	(0.712)	(0.247)
A lot	0.720	0.670*	1.605	1.018
	(0.153)	(0.153)	(0.865)	(0.339)
The student wants to move to another school (Ref.: No)				
Yes	1.251	0.988	1.465	1.512
	(0.168)	(0.152)	(0.284)	(0.225)
He/She does not mind	1.211	1.605*	0.977	1.093
	(0.310)	(0.389)	(0.474)	(0.364)
Classmates follow school rules (Ref.: Never)				
Sometimes	1.051	1.344	0.604	1.076
	(0.236)	(0.366)	(0.185)	(0.305)
Enough	0.854	1.098	0.602	0.887
	(0.203)	(0.312)	(0.198)	(0.272)
A lot	1.280	1.496	0.757	1.147
	(0.300)	(0.429)	(0.256)	(0.358)
Classmates get on well (Ref.: Never)				
Sometimes	0.597*	0.615	1.100	0.915
	(0.183)	(0.199)	(0.699)	(0.397)
Enough	0.693	0.671	1.275	0.922
	(0.222)	(0.220)	(0.819)	(0.401)
A lot	0.943	0.754	1.666	0.964
	(0.300)	(0.247)	(1.070)	(0.426)
Relationship with classmates (Ref.: Bad)				
Not so good	0.822	1.269	0.993	1.073
	(0.314)	(0.525)	(0.662)	(0.452)
Good	0.617	0.934	1.098	0.899
	(0.226)	(0.375)	(0.719)	(0.383)
Very good	0.580	1.093	0.867	0.851
	(0.214)	(0.443)	(0.567)	(0.363)
Relationship with teachers (Ref.: Bad for males/Not so god for females)				
Not so good	0.678	0.930	-	-
	(0.242)	(0.411)		
Good	0.632	0.838	0.929	0.888
	(0.209)	(0.360)	(0.375)	(0.247)
Very good	0.564*	0.880	0.824	0.835
	(0.188)	(0.380)	(0.329)	(0.228)
The student likes studying (Ref.: Totally disagree)				
Disagree	1.097	0.806	1.669	1.047
	(0.221)	(0.188)	(0.578)	(0.277)
Agree	0.938	1.134	1.266	1.007
	(0.182)	(0.241)	(0.428)	(0.252)
Totally agree	0.710	1.210	1.095	0.963
	(0.156)	(0.267)	(0.388)	(0.258)
The student can learn any exercise, even when it is very difficult (Ref.: Totally disagree)				
Disagree	0.897	0.858	0.460**	0.619*
	(0.215)	(0.217)	(0.154)	(0.159)
Agree	0.773	0.714	0.613*	0.653*
	(0.171)	(0.161)	(0.176)	(0.150)
Totally agree	0.781	0.768	0.738	0.684
	(0.168)	(0.173)	(0.217)	(0.163)
The student learns easily (Ref.: Totally disagree)				
Disagree	1.011	1.048	1.331	1.008
	(0.256)	(0.282)	(0.489)	(0.282)
Agree	0.824	0.839	1.041	0.680
	(0.202)	(0.216)	(0.392)	(0.192)
Totally agree	0.836	0.580**	0.856	0.589*
	(0.215)	(0.160)	(0.332)	(0.169)
The student is sure about passing my exams (Ref.: Totally disagree)				
Disagree	0.643	0.886	0.827	1.172
	(0.200)	(0.300)	(0.317)	(0.387)
Agree	1.048	1.079	0.585	1.444
	(0.277)	(0.329)	(0.201)	(0.434)
Totally agree	0.741	0.934	0.554*	1.213
	(0.198)	(0.288)	(0.196)	(0.369)
Constant	1.773	1.394	0.049	0.213
	(1.896)	(1.611)	(0.090)	(0.292)
Observations	21,322	21,522	22,251	22,346

Notes: Standard errors in parenthesis are referred to odd-ratios and are robust. All covariates are measured in 5th grade. Missing flag variables were used, but not included for reasons of space; complete estimations will be provided upon request to the authors.
Dependent variable: Advantaged low-achieving student ("1" if the student is in the lowest quartile of scores of the subject but in the highest quartile of socio-economic status; "0" otherwise) in 8th grade.
Coefficient: ***significant at 1%, ** significant at 5%, * significant at 10%.
Estimation method: Logit, odd ratios.
Source: Authors' own calculations.

Table 4. Determinants of the likelihood of becoming an advantaged low-achieving student by school funding

	Advantaged low-achieving student in 8th grade			
	Reading		Mathematics	
Variables	Public	Semi-private	Public	Semi-private
Female (Ref.: Male)	0.581***	1.206**	0.511***	0.835
	(0.055)	(0.107)	(0.075)	(0.106)
Repeater before or in 5th grade: Yes (Ref.: No)	1.762***	1.951***	2.472***	1.915**
	(0.286)	(0.300)	(0.592)	(0.496)
Father age	0.975**	0.981	0.999	0.991
	(0.013)	(0.013)	(0.021)	(0.017)
Mother age	0.983	0.985	0.962*	0.952***
	(0.013)	(0.013)	(0.022)	(0.017)
High Socio-economic status quartile (Ref.: Rest of quartiles)	7.365***	7.805***	5.210***	4.460***
	(0.796)	(0.827)	(0.991)	(0.671)
Time reading books (juvenile collections, about sport people, trips…). (Ref.: Never or almost never)				
Once or twice a month	0.990	0.862	0.704	0.673**
	(0.132)	(0.114)	(0.151)	(0.132)
Once or twice a week	0.861	0.801*	0.693*	0.717*
	(0.106)	(0.101)	(0.136)	(0.126)
Every or almost every day	0.805*	0.845	0.800	0.652***
	(0.103)	(0.101)	(0.150)	(0.103)
Time devoted to homework each day (Ref.: I do not have homework/I never do homework)				
15 minutes or less	0.905	0.708	0.896	2.550
	(0.298)	(0.217)	(0.611)	(1.859)
Between 16 and 30 minutes	0.795	0.667	0.596	1.548
	(0.243)	(0.191)	(0.399)	(1.150)
Between 31 and 60 minutes	0.603	0.454***	0.635	1.090
	(0.190)	(0.132)	(0.415)	(0.809)
More than 60 minutes	0.721	0.563**	0.738	1.582
	(0.221)	(0.160)	(0.480)	(1.166)
Time devoted to watch TV (videos, DVD) each day (Ref.: No time)				
Until 1 hour	1.024	0.832	1.354	1.194
	(0.213)	(0.174)	(0.441)	(0.362)
1 to 3 hours	0.948	0.779	0.883	1.105
	(0.182)	(0.144)	(0.278)	(0.293)
3 to 5 hours	1.288	1.110	1.434	1.441
	(0.241)	(0.204)	(0.424)	(0.387)
5 hours or more	1.159	1.244	0.942	1.507
	(0.279)	(0.275)	(0.341)	(0.439)
Time devoted to play video games or computer games each day (Ref.: No time)				
Until 1 hour	1.004	0.934	0.588	0.422***
	(0.195)	(0.187)	(0.197)	(0.119)
1 to 3 hours	0.816	0.736*	0.755	0.315***
	(0.136)	(0.126)	(0.213)	(0.082)
3 to 5 hours	0.705**	0.755*	0.678	0.437***
	(0.114)	(0.122)	(0.174)	(0.096)
5 hours or more	0.748	0.766	0.510**	0.446***
	(0.144)	(0.140)	(0.166)	(0.107)
Parents cheer to study (Ref.: Never)				
Some days	0.800	0.598***	0.489***	0.797
	(0.133)	(0.095)	(0.113)	(0.176)
Almost every day	0.724*	0.637***	0.517***	0.534**
	(0.129)	(0.104)	(0.115)	(0.135)
Every day	0.699**	0.687***	0.675*	0.832
	(0.103)	(0.090)	(0.136)	(0.166)
Parents ask about homework (Ref.: Never)				
Some days	2.279	0.594	0.976	0.471*
	(1.230)	(0.222)	(0.564)	(0.208)
Almost every day	1.915	0.805	1.335	0.629
	(0.966)	(0.265)	(0.703)	(0.274)
Every day	2.851**	0.783	0.867	0.639
	(1.367)	(0.236)	(0.435)	(0.255)
Parents check homework (Ref.: Never)				
Some days	0.960	1.192	1.608	1.115
	(0.194)	(0.252)	(0.542)	(0.308)
Almost every day	0.863	1.034	1.312	1.083
	(0.180)	(0.215)	(0.428)	(0.292)
Every day	1.055	1.307	1.612	1.109
	(0.188)	(0.237)	(0.479)	(0.278)
Parents ask about school day (Ref.: Never)				
Some days	1.129	1.283	0.941	1.524
	(0.409)	(0.432)	(0.601)	(0.891)
Almost every day	1.406	1.575	0.875	1.252
	(0.460)	(0.503)	(0.541)	(0.693)
Every day	1.518	1.765*	1.195	1.430
	(0.485)	(0.533)	(0.701)	(0.783)
The father, mother or any person helps with homework (Ref.: No)				
Yes	0.421***	0.444***	0.587*	0.540**
	(0.073)	(0.073)	(0.163)	(0.132)
Sometimes	0.603***	0.655***	0.727*	0.763
	(0.069)	(0.074)	(0.136)	(0.132)

The student likes going to school (Ref.: Nothing)				
Little	0.944	0.862	0.734	1.149
	(0.201)	(0.181)	(0.231)	(0.370)
Enough	0.857	0.654**	0.631	0.967
	(0.181)	(0.139)	(0.206)	(0.339)
A lot	0.906	0.703*	0.676	1.231
	(0.193)	(0.144)	(0.234)	(0.439)
The student wants to move to another school (Ref.: No)				
Yes	1.206	1.240	1.539	1.143
	(0.163)	(0.164)	(0.310)	(0.228)
He/She does not mind	1.249	1.241	0.993	2.116
	(0.321)	(0.290)	(0.449)	(0.711)
Classmates follow school rules (Ref.: Never)				
Sometimes	0.883	1.352	0.760	0.873
	(0.190)	(0.308)	(0.272)	(0.299)
Enough	0.747	1.139	0.746	0.702
	(0.173)	(0.278)	(0.284)	(0.256)
A lot	1.055	1.577*	1.054	0.849
	(0.242)	(0.390)	(0.403)	(0.314)
Classmates get on well (Ref.: Never)				
Sometimes	0.566*	0.578*	1.185	1.493
	(0.173)	(0.164)	(0.658)	(0.921)
Enough	0.658	0.595*	1.395	1.588
	(0.203)	(0.170)	(0.817)	(0.987)
A lot	1.001	0.600*	1.460	2.032
	(0.312)	(0.176)	(0.847)	(1.247)
Relationship with classmates (Ref.: Bad)				
Not so good	0.679	1.132	1.434	1.342
	(0.263)	(0.443)	(0.877)	(0.722)
Good	0.649	0.997	0.967	0.824
	(0.237)	(0.389)	(0.597)	(0.441)
Very good	0.663	1.056	0.621	0.872
	(0.242)	(0.411)	(0.386)	(0.447)
Relationship with teachers (Ref.: Bad)				
Not so good	0.854	1.274	0.493	1.011
	(0.356)	(0.651)	(0.291)	(0.740)
Good	0.703	1.003	0.713	1.253
	(0.277)	(0.488)	(0.351)	(0.923)
Very good	0.602	1.012	0.717	1.293
	(0.238)	(0.486)	(0.355)	(0.958)
The student likes studying (Ref.: Totally disagree)				
Disagree	1.373	1.005	1.050	0.882
	(0.296)	(0.216)	(0.305)	(0.268)
Agree	1.166	1.204	0.858	0.978
	(0.239)	(0.241)	(0.250)	(0.291)
Totally agree	0.874	1.163	0.819	1.022
	(0.193)	(0.246)	(0.271)	(0.318)
The student can learn any exercise, even when it is very difficult (Ref.: Totally disagree)				
Disagree	0.637**	0.682*	0.844	0.843
	(0.145)	(0.156)	(0.312)	(0.248)
Agree	0.581***	0.607**	0.945	0.857
	(0.121)	(0.123)	(0.295)	(0.233)
Totally agree	0.684*	0.702*	0.840	0.758
	(0.141)	(0.143)	(0.258)	(0.216)
The student learns easily (Ref.: Totally disagree)				
Disagree	1.028	0.922	1.430	1.279
	(0.253)	(0.214)	(0.541)	(0.429)
Agree	0.825	0.649*	1.200	1.049
	(0.200)	(0.149)	(0.441)	(0.372)
Totally agree	0.774	0.529***	1.133	0.735
	(0.196)	(0.126)	(0.430)	(0.261)
The student is sure about passing my exams (Ref.: Totally disagree)				
Disagree	0.942	1.129	0.337**	0.824
	(0.268)	(0.322)	(0.159)	(0.333)
Agree	0.962	1.445	0.632	0.855
	(0.240)	(0.367)	(0.225)	(0.312)
Totally agree	0.772	1.184	0.443**	0.743
	(0.197)	(0.305)	(0.159)	(0.277)
Constant	1.032	0.513	1.677	1.189
	(1.143)	(0.540)	(2.733)	(2.233)
Observations	32,535	32,727	11,038	10,961

Notes: Standard errors in parenthesis are referred to odd-ratios and are robust. All covariates are measured in 5th grade. Missing flag variables were used, but not included for reasons of space; complete estimations will be provided upon request to the authors.
Dependent variable: Advantaged low-achieving student ("1" if the student is in the lowest quartile of scores of the subject but in the highest quartile of socio-economic status; "0" otherwise) in 8th grade.
Coefficient: ***significant at 1%, ** significant at 5%, * significant at 10%.
Estimation method: Logit, odd ratios.
Source: Authors' own calculations.

Table 5. Determinants of the likelihood of becoming an advantaged low-achieving student, alternative definitions of advantaged low-achieving students

	Specification I. Advantaged low-achieving student in 8th grade (quintile)		Specification II. Advantaged low-achieving student in 8th grade (sextile)		Specification III. Advantaged low-achieving student in 8th grade (quartile)
Variables	Reading	Mathematics	Reading	Mathematics	Average reading and mathematics definition
Female (Ref.: Male)	0.378***	1.126	0.353***	1.155	0.696***
	(0.044)	(0.118)	(0.054)	(0.154)	(0.059)
Repeater before or in 5th grade: Yes (Ref.: No)	1.628**	2.401***	1.326	2.629***	2.202***
	(0.318)	(0.431)	(0.348)	(0.575)	(0.307)
Father age	0.970**	0.970**	0.966*	0.971*	0.980*
	(0.014)	(0.014)	(0.018)	(0.016)	(0.011)
Mother age	0.986	1.001	0.981	0.982	0.973**
	(0.016)	(0.016)	(0.020)	(0.019)	(0.011)
Semi-private (Ref.: Public)	0.963	1.103	0.978	1.064	0.850
	(0.121)	(0.138)	(0.149)	(0.165)	(0.078)
High Socio-economic status quartile (Ref.: Rest of quartiles)	7.821***	10.017***	7.797***	10.091***	6.208***
	(1.053)	(1.407)	(1.351)	(1.824)	(0.618)
Time reading books (juvenile collections, about sport people, trips…). (Ref.: Never or almost never)					
Once or twice a month	0.813	0.799	0.736	0.819	0.843
	(0.130)	(0.127)	(0.153)	(0.155)	(0.104)
Once or twice a week	0.813	0.801	0.789	0.680**	0.786**
	(0.118)	(0.118)	(0.142)	(0.125)	(0.089)
Every or almost every day	0.714**	0.734**	0.672**	0.599***	0.732***
	(0.103)	(0.100)	(0.125)	(0.103)	(0.082)
Time devoted to homework each day (Ref.: I do not have homework/I never do homework)					
15 minutes or less	0.608	0.847	0.560	1.139	1.392
	(0.211)	(0.293)	(0.251)	(0.564)	(0.462)
Between 16 and 30 minutes	0.457**	0.611	0.383**	0.757	0.926
	(0.147)	(0.200)	(0.163)	(0.363)	(0.295)
Between 31 and 60 minutes	0.414***	0.388***	0.472*	0.474	0.739
	(0.135)	(0.129)	(0.201)	(0.231)	(0.239)
More than 60 minutes	0.499**	0.528**	0.460*	0.694	0.840
	(0.160)	(0.169)	(0.194)	(0.332)	(0.268)
Time devoted to watch TV (videos, DVD) each day (Ref.: No time)					
Until 1 hour	1.371	0.748	0.992	0.710	0.753
	(0.373)	(0.187)	(0.314)	(0.227)	(0.144)
1 to 3 hours	1.139	0.760	0.722	0.769	0.779
	(0.292)	(0.169)	(0.211)	(0.208)	(0.130)
3 to 5 hours	1.777**	1.158	1.349	1.091	1.078
	(0.427)	(0.237)	(0.372)	(0.282)	(0.174)
5 hours or more	0.951	1.139	0.816	1.116	1.082
	(0.303)	(0.280)	(0.297)	(0.346)	(0.217)
Time devoted to play video games or computer games each day (Ref.: No time)					
Until 1 hour	0.867	0.667	1.384	0.763	0.902
	(0.202)	(0.169)	(0.406)	(0.231)	(0.169)
1 to 3 hours	0.691*	0.629**	0.898	0.649*	0.777
	(0.141)	(0.130)	(0.244)	(0.163)	(0.126)
3 to 5 hours	0.692*	0.599***	0.796	0.563**	0.672***
	(0.133)	(0.112)	(0.214)	(0.131)	(0.100)
5 hours or more	0.653*	0.711	0.840	0.815	0.739*
	(0.149)	(0.148)	(0.259)	(0.208)	(0.127)
Parents cheer to study (Ref.: Never)					
Some days	0.682**	0.604***	0.892	0.748	0.694**
	(0.130)	(0.118)	(0.227)	(0.180)	(0.102)
Almost every day	0.735	0.643**	0.836	0.685	0.684**
	(0.141)	(0.130)	(0.223)	(0.175)	(0.109)
Every day	0.674**	0.810	0.828	0.840	0.693***
	(0.113)	(0.136)	(0.194)	(0.181)	(0.088)
Parents ask about homework (Ref.: Never)					
Some days	1.761	0.556	2.178	0.916	0.970
	(0.861)	(0.243)	(1.381)	(0.495)	(0.356)
Almost every day	1.259	0.821	1.206	1.170	0.907
	(0.579)	(0.315)	(0.714)	(0.579)	(0.314)
Every day	1.559	0.913	1.574	0.916	1.143
	(0.678)	(0.316)	(0.919)	(0.428)	(0.366)
Parents check homework (Ref.: Never)					
Some days	1.444	1.025	1.202	0.858	1.027
	(0.345)	(0.232)	(0.375)	(0.247)	(0.197)
Almost every day	0.982	0.774	0.927	0.819	0.931
	(0.250)	(0.177)	(0.305)	(0.239)	(0.183)
Every day	1.257	0.954	1.158	1.003	1.229
	(0.281)	(0.185)	(0.331)	(0.240)	(0.211)
Parents ask about school day (Ref.: Never)					

Some days	1.012	1.289	0.950	2.338	1.261
	(0.401)	(0.481)	(0.462)	(1.443)	(0.437)
Almost every day	0.994	1.177	0.804	2.390	1.693
	(0.370)	(0.429)	(0.369)	(1.433)	(0.550)
Every day	1.244	1.429	1.030	2.839*	1.838*
	(0.435)	(0.483)	(0.439)	(1.627)	(0.572)
The father, mother or any person helps with homework (Ref.: No)					
Yes	0.523***	0.507***	0.503***	0.602**	0.394***
	(0.107)	(0.099)	(0.124)	(0.150)	(0.062)
Sometimes	0.710**	0.690***	0.615***	0.737*	0.589***
	(0.100)	(0.091)	(0.108)	(0.128)	(0.058)
The student likes going to school (Ref.: Nothing)					
Little	0.878	1.004	0.786	1.202	0.938
	(0.207)	(0.237)	(0.248)	(0.389)	(0.180)
Enough	0.771	0.703	0.815	0.868	0.791
	(0.182)	(0.176)	(0.254)	(0.295)	(0.155)
A lot	0.836	0.841	0.916	1.067	0.896
	(0.206)	(0.211)	(0.294)	(0.363)	(0.172)
The student wants to move to another school (Ref.: No)					
Yes	1.199	1.097	1.253	1.265	1.244
	(0.191)	(0.178)	(0.276)	(0.251)	(0.157)
He/She does not mind	0.926	1.466	1.224	1.693	1.405
	(0.297)	(0.373)	(0.459)	(0.545)	(0.312)
Classmates follow school rules (Ref.: Never)					
Sometimes	0.878	0.857	1.104	0.832	0.904
	(0.236)	(0.208)	(0.410)	(0.262)	(0.183)
Enough	0.855	0.670	1.166	0.704	0.726
	(0.248)	(0.176)	(0.472)	(0.238)	(0.157)
A lot	1.240	1.148	1.732	1.280	1.199
	(0.357)	(0.295)	(0.693)	(0.426)	(0.256)
Classmates get on well (Ref.: Never)					
Sometimes	0.563*	0.660	0.563	0.807	0.798
	(0.191)	(0.234)	(0.243)	(0.386)	(0.230)
Enough	0.554*	0.751	0.495	0.879	0.807
	(0.193)	(0.269)	(0.217)	(0.427)	(0.238)
A lot	0.805	0.909	0.861	0.983	1.123
	(0.279)	(0.322)	(0.377)	(0.472)	(0.327)
Relationship with classmates (Ref.: Bad)					
Not so good	1.134	1.023	1.233	1.474	0.697
	(0.485)	(0.395)	(0.707)	(0.847)	(0.200)
Good	0.789	0.830	0.876	1.027	0.527**
	(0.325)	(0.325)	(0.485)	(0.620)	(0.147)
Very good	0.767	0.748	0.754	1.052	0.514**
	(0.321)	(0.289)	(0.419)	(0.627)	(0.144)
Relationship with teachers (Ref.: Bad)					
Not so good	1.423	1.526	5.143	2.321	1.109
	(0.739)	(0.875)	(5.522)	(1.774)	(0.460)
Good	1.155	1.592	3.270	1.641	1.064
	(0.585)	(0.872)	(3.470)	(1.218)	(0.419)
Very good	1.018	1.226	3.772	1.390	0.991
	(0.517)	(0.675)	(3.942)	(1.038)	(0.384)
The student likes studying (Ref.: Totally disagree)					
Disagree	0.951	0.840	1.057	1.161	1.164
	(0.219)	(0.203)	(0.308)	(0.347)	(0.227)
Agree	0.782	0.978	0.710	0.987	1.143
	(0.177)	(0.221)	(0.204)	(0.286)	(0.209)
Totally agree	0.749	1.061	0.731	1.100	1.049
	(0.186)	(0.256)	(0.226)	(0.337)	(0.206)
The student can learn any exercise, even when it is very difficult (Ref.: Totally disagree)					
Disagree	0.612*	0.832	0.546*	0.757	0.671*
	(0.160)	(0.212)	(0.197)	(0.239)	(0.140)
Agree	0.557**	0.717	0.561*	0.578*	0.697*
	(0.135)	(0.173)	(0.183)	(0.176)	(0.129)
Totally agree	0.630*	0.673	0.652	0.534**	0.723*
	(0.153)	(0.167)	(0.207)	(0.163)	(0.134)
The student learns easily (Ref.: Totally disagree)					
Disagree	1.098	1.143	1.414	1.158	0.841
	(0.330)	(0.321)	(0.572)	(0.433)	(0.177)
Agree	1.049	0.772	1.108	0.914	0.696*
	(0.308)	(0.235)	(0.448)	(0.377)	(0.143)
Totally agree	0.858	0.785	1.011	0.938	0.598**
	(0.263)	(0.244)	(0.429)	(0.400)	(0.124)
The student is sure about passing my exams (Ref.: Totally disagree)					
Disagree	0.882	1.060	0.704	1.337	1.029
	(0.299)	(0.369)	(0.296)	(0.663)	(0.275)
Agree	0.943	1.178	0.780	1.486	1.157
	(0.287)	(0.395)	(0.301)	(0.733)	(0.274)

Totally agree	0.737	1.088	0.575	1.568	0.875
	(0.228)	(0.365)	(0.221)	(0.761)	(0.212)
Constant	0.923	0.204	0.319	0.047*	1.476
	(1.097)	(0.246)	(0.506)	(0.077)	(1.437)
Observations	43,573	43,868	43,573	43,868	42,343

Notes: Standard errors in parenthesis are referred to odd-ratios and are robust. All covariates are measured in 5th grade. Missing flag variables were used, but not included for reasons of space; complete estimations will be provided upon request to the authors.
Dependent variable: Specification I: Advantaged low-achieving student ("1" if the student is in the lowest quintile of scores of the subject in 8th grade but in the highest quintile of socio-economic status; "0" otherwise) in 8th grade. Specification II: Advantaged low-achieving student ("1" if the student is in the lowest sextile of scores of the subject in 8th grade but in the highest sextile of socio-economic status; "0" otherwise) in 8th grade. Specification III: Advantaged low-achieving student ("1" if the student is in the lowest quartile of scores of the average score between reading and mathematics in 8th grade but in the highest quartile of socio-economic status; "0" otherwise) in 8th grade.
Coefficient: ***significant at 1%, ** significant at 5%, * significant at 10%.
Estimation method: Logit, odd ratios.
Source: Authors' own calculations.

Table 6. Determinants of the likelihood of becoming an advantaged low-achieving student, multi-level estimation

	Advantaged low-achieving student in 8th grade	
Variables	Reading	Mathematics
Female (Ref.: Male)	0.558***	1.058
	(0.046)	(0.078)
Repeater before or in 5th grade: Yes (Ref.: No)	1.927***	1.944***
	(0.258)	(0.245)
Father age	0.980*	0.984
	(0.010)	(0.010)
Mother age	0.978*	0.976**
	(0.011)	(0.011)
High Socio-economic status quartile (Ref.: Rest of quartiles)	6.690***	6.642***
	(0.618)	(0.578)
Semi-private (Ref.: Public)	0.859	1.092
	(0.078)	(0.090)
Time reading books (juvenile collections, about sport people, trips…). (Ref.: Never or almost never)		
Once or twice a month	0.905	0.799**
	(0.100)	(0.085)
Once or twice a week	0.811**	0.769***
	(0.085)	(0.075)
Every or almost every day	0.806**	0.772***
	(0.082)	(0.072)
Time devoted to homework each day (Ref.: I do not have homework/I never do homework)		
15 minutes or less	0.959	0.973
	(0.297)	(0.286)
Between 16 and 30 minutes	0.791	0.785
	(0.236)	(0.223)
Between 31 and 60 minutes	0.658	0.533**
	(0.196)	(0.152)
More than 60 minutes	0.777	0.697
	(0.229)	(0.196)
Time devoted to watch TV (videos, DVD) each day (Ref.: No time)		
Until 1 hour	1.084	0.939
	(0.195)	(0.167)
1 to 3 hours	0.903	0.880
	(0.148)	(0.140)
3 to 5 hours	1.295	1.208
	(0.205)	(0.184)
5 hours or more	1.056	1.302
	(0.213)	(0.234)
Time devoted to play video games or computer games each day (Ref.: No time)		
Until 1 hour	0.871	0.718**
	(0.146)	(0.120)
1 to 3 hours	0.814	0.557***
	(0.119)	(0.081)
3 to 5 hours	0.705**	0.635***
	(0.098)	(0.084)
5 hours or more	0.669**	0.633***
	(0.109)	(0.094)
Parents cheer to study (Ref.: Never)		
Some days	0.684***	0.663***
	(0.093)	(0.086)
Almost every day	0.649***	0.609***
	(0.093)	(0.084)
Every day	0.679***	0.738***
	(0.084)	(0.085)
Parents ask about homework (Ref.: Never)		
Some days	1.643	0.548**
	(0.663)	(0.164)
Almost every day	1.684	0.747
	(0.658)	(0.203)
Every day	1.848*	0.739
	(0.684)	(0.182)
Parents check homework (Ref.: Never)		
Some days	1.105	1.159
	(0.191)	(0.190)
Almost every day	0.968	1.061
	(0.166)	(0.173)
Every day	1.184	1.234
	(0.179)	(0.177)
Parents ask about school day (Ref.: Never)		
Some days	1.097	1.416
	(0.332)	(0.423)
Almost every day	1.257	1.508
	(0.362)	(0.433)
Every day	1.465	1.709*
	(0.405)	(0.472)
The father, mother or any person helps with homework (Ref.: No)		
Yes	0.458***	0.469***
	(0.066)	(0.065)
Sometimes	0.634***	0.692***
	(0.063)	(0.065)
The student likes going to school (Ref.: Nothing)		

Little	0.870	0.955
	(0.148)	(0.166)
Enough	0.776	0.744*
	(0.134)	(0.131)
A lot	0.826	0.859
	(0.145)	(0.153)
The student wants to move to another school (Ref.: No)		
Yes	1.302	1.205
	(0.145)	(0.132)
He/She does not mind	1.184	1.476
	(0.257)	(0.292)
Classmates follow school rules (Ref.: Never)		
Sometimes	0.862	1.195
	(0.163)	(0.236)
Enough	0.760	0.976
	(0.151)	(0.201)
A lot	1.078	1.296
	(0.219)	(0.272)
Classmates get on well (Ref.: Never)		
Sometimes	0.708	0.731
	(0.188)	(0.186)
Enough	0.813	0.754
	(0.220)	(0.195)
A lot	1.107	0.823
	(0.298)	(0.212)
Relationship with classmates (Ref.: Bad)		
Not so good	0.889	1.073
	(0.277)	(0.328)
Good	0.752	0.852
	(0.226)	(0.252)
Very good	0.664	0.898
	(0.199)	(0.264)
Relationship with teachers (Ref.: Bad)		
Not so good	0.723	1.232
	(0.250)	(0.507)
Good	0.672	1.105
	(0.219)	(0.437)
Very good	0.605	1.099
	(0.198)	(0.435)
The student likes studying (Ref.: Totally disagree)		
Disagree	1.215	0.926
	(0.199)	(0.156)
Agree	1.021	1.088
	(0.159)	(0.166)
Totally agree	0.822	1.083
	(0.144)	(0.181)
The student can learn any exercise, even when it is very difficult (Ref.: Totally disagree)		
Disagree	0.705*	0.732*
	(0.135)	(0.134)
Agree	0.692**	0.685**
	(0.120)	(0.115)
Totally agree	0.749	0.727*
	(0.132)	(0.124)
The student learns easily (Ref.: Totally disagree)		
Disagree	1.097	1.011
	(0.221)	(0.190)
Agree	0.886	0.740
	(0.175)	(0.136)
Totally agree	0.837	0.576***
	(0.170)	(0.110)
The student is sure about passing my exams (Ref.: Totally disagree)		
Disagree	0.743	1.021
	(0.173)	(0.240)
Agree	0.871	1.246
	(0.177)	(0.259)
Totally agree	0.679*	1.047
	(0.140)	(0.220)
Constant	1.198	0.675
	(1.114)	(0.593)
Observations	43,573	43,868
Number of schools	2,030	2,031

Notes: Standard errors in parenthesis are referred to odd-ratios and are robust. All covariates are measured in 5th grade. Missing flag variables were used, but not included for reasons of space; complete estimations will be provided upon request to the authors.
Dependent variable: Advantaged low-achieving student ("1" if the student is in the lowest quartile of scores of the subject but in the highest quartile of socio-economic status; "0" otherwise) in 8th grade.
Coefficient: ***significant at 1%, ** significant at 5%, * significant at 10%.
Estimation method: Multi-level Logit, odd ratios. First level: student. Second level: school.
Source: Authors' own calculations.

Table 7. Determinants of the likelihood of becoming an advantaged low-achieving student, alternatively not including students' self-confidence variables or parental engagement with students' academic practices variables

	Specification I. Not including students' self-confidence variables		Specification II. Not including parental engagement with students' academic practices variables	
	Advantaged low-achieving student in 8th grade		Advantaged low-achieving student in 8th grade	
Variables	Reading	Mathematics	Reading	Mathematics
Female (Ref.: Male)	0.570***	1.087	0.564***	1.064
	(0.045)	(0.079)	(0.045)	(0.077)
Repeater before or in 5th grade: Yes (Ref.: No)	2.043***	2.083***	1.899***	1.934***
	(0.270)	(0.271)	(0.256)	(0.252)
Father age	0.979*	0.984	0.981*	0.984
	(0.011)	(0.010)	(0.011)	(0.010)
Mother age	0.979*	0.977**	0.978**	0.976**
	(0.011)	(0.011)	(0.011)	(0.011)
High Socio-economic status quartile (Ref.: Rest of quartiles)	6.455***	6.394***	6.572***	6.592***
	(0.611)	(0.567)	(0.628)	(0.590)
Semi-private (Ref.: Public)	0.853*	1.068	0.854	1.079
	(0.078)	(0.089)	(0.078)	(0.090)
Time reading books (juvenile collections, about sport people, trips…). (Ref.: Never or almost never)				
Once or twice a month	0.890	0.775**	0.877	0.774**
	(0.100)	(0.084)	(0.097)	(0.084)
Once or twice a week	0.794**	0.752***	0.791**	0.754***
	(0.082)	(0.076)	(0.082)	(0.076)
Every or almost every day	0.779**	0.745***	0.803**	0.772***
	(0.081)	(0.071)	(0.084)	(0.074)
Time devoted to homework each day (Ref.: I do not have homework/I never do homework)				
15 minutes or less	0.938	0.991	0.987	0.999
	(0.271)	(0.269)	(0.289)	(0.277)
Between 16 and 30 minutes	0.783	0.812	0.816	0.812
	(0.212)	(0.213)	(0.224)	(0.217)
Between 31 and 60 minutes	0.643	0.556**	0.686	0.564**
	(0.177)	(0.147)	(0.191)	(0.152)
More than 60 minutes	0.760	0.739	0.837	0.762
	(0.206)	(0.191)	(0.228)	(0.200)
Time devoted to watch TV (videos, DVD) each day (Ref.: No time)				
Until 1 hour	1.087	0.943	1.052	0.918
	(0.188)	(0.161)	(0.182)	(0.157)
1 to 3 hours	0.908	0.883	0.894	0.866
	(0.146)	(0.133)	(0.144)	(0.132)
3 to 5 hours	1.310*	1.237	1.293*	1.204
	(0.204)	(0.186)	(0.201)	(0.183)
5 hours or more	1.070	1.349*	1.049	1.302
	(0.213)	(0.236)	(0.208)	(0.229)
Time devoted to play video games or computer games each day (Ref.: No time)				
Until 1 hour	0.866	0.708**	0.823	0.679**
	(0.143)	(0.113)	(0.136)	(0.108)
1 to 3 hours	0.799	0.544***	0.764*	0.527***
	(0.113)	(0.078)	(0.107)	(0.074)
3 to 5 hours	0.698***	0.627***	0.672***	0.602***
	(0.093)	(0.080)	(0.090)	(0.076)
5 hours or more	0.663**	0.630***	0.640***	0.607***
	(0.109)	(0.090)	(0.104)	(0.087)
Parents cheer to study (Ref.: Never)				
Some days	0.705***	0.679***	-	-
	(0.095)	(0.086)		
Almost every day	0.668***	0.623***	-	-
	(0.095)	(0.085)		
Every day	0.684***	0.745***	-	-
	(0.082)	(0.081)		
Parents ask about homework (Ref.: Never)				
Some days	1.725	0.563**	-	-
	(0.671)	(0.161)		
Almost every day	1.746	0.762	-	-
	(0.634)	(0.202)		
Every day	1.901*	0.746	-	-
	(0.658)	(0.181)		
Parents check homework (Ref.: Never)				
Some days	1.115	1.181	-	-
	(0.193)	(0.196)		
Almost every day	0.993	1.098	-	-
	(0.174)	(0.180)		
Every day	1.175	1.246	-	-
	(0.181)	(0.183)		
Parents ask about school day (Ref.: Never)				

Some days	1.121	1.393	-	-
	(0.347)	(0.400)		
Almost every day	1.284	1.484	-	-
	(0.366)	(0.402)		
Every day	1.452	1.644*	-	-
	(0.400)	(0.429)		
The father, mother or any person helps with homework (Ref.: No)				
Yes	0.442***	0.440***	-	-
	(0.064)	(0.059)		
Sometimes	0.630***	0.678***	-	-
	(0.060)	(0.063)		
The student likes going to school (Ref.: Nothing)				
Little	0.893	0.972	0.867	0.955
	(0.149)	(0.156)	(0.150)	(0.165)
Enough	0.740*	0.758*	0.769	0.735*
	(0.120)	(0.122)	(0.132)	(0.132)
A lot	0.712**	0.831	0.838	0.863
	(0.118)	(0.131)	(0.149)	(0.152)
The student wants to move to another school (Ref.: No)				
Yes	1.303	1.201	1.292	1.200
	(0.145)	(0.130)	(0.145)	(0.131)
He/She does not mind	1.169	1.477	1.189	1.467
	(0.255)	(0.276)	(0.255)	(0.275)
Classmates follow school rules (Ref.: Never)				
Sometimes	0.882	1.222	0.875	1.197
	(0.162)	(0.231)	(0.160)	(0.224)
Enough	0.763	0.990	0.759	0.981
	(0.150)	(0.201)	(0.149)	(0.197)
A lot	1.079	1.323	1.090	1.324
	(0.211)	(0.270)	(0.213)	(0.268)
Classmates get on well (Ref.: Never)				
Sometimes	0.686	0.739	0.703	0.758
	(0.178)	(0.187)	(0.183)	(0.191)
Enough	0.782	0.751	0.799	0.770
	(0.206)	(0.190)	(0.212)	(0.194)
A lot	1.063	0.833	1.089	0.853
	(0.282)	(0.215)	(0.289)	(0.218)
Relationship with classmates (Ref.: Bad)				
Not so good	0.896	1.065	0.856	1.053
	(0.282)	(0.313)	(0.270)	(0.309)
Good	0.754	0.840	0.719	0.826
	(0.231)	(0.243)	(0.221)	(0.240)
Very good	0.650	0.862	0.647	0.886
	(0.199)	(0.247)	(0.200)	(0.255)
Relationship with teachers (Ref.: Bad)				
Not so good	0.738	1.207	0.749	1.274
	(0.247)	(0.495)	(0.250)	(0.518)
Good	0.680	1.076	0.696	1.118
	(0.210)	(0.427)	(0.215)	(0.441)
Very good	0.578*	1.024	0.639	1.141
	(0.179)	(0.405)	(0.198)	(0.448)
The student likes studying (Ref.: Totally disagree)				
Disagree	-	-	1.180	0.906
			(0.202)	(0.157)
Agree	-	-	1.009	1.093
			(0.164)	(0.178)
Totally agree	-	-	0.829	1.122
			(0.149)	(0.191)
The student can learn any exercise, even when it is very difficult (Ref.: Totally disagree)				
Disagree	-	-	0.704*	0.726*
			(0.136)	(0.131)
Agree	-	-	0.691**	0.677**
			(0.121)	(0.110)
Totally agree	-	-	0.745*	0.718**
			(0.129)	(0.118)
The student learns easily (Ref.: Totally disagree)				
Disagree	-	-	1.060	0.977
			(0.214)	(0.183)
Agree	-	-	0.841	0.711*
			(0.167)	(0.134)
Totally agree	-	-	0.788	0.547***
			(0.162)	(0.106)
The student is sure about passing my exams (Ref.: Totally disagree)				
Disagree	-	-	0.764	1.030
			(0.182)	(0.239)
Agree	-	-	0.885	1.236
			(0.179)	(0.254)
Totally agree	-	-	0.698*	1.062
			(0.144)	(0.222)
Constant	0.781	0.495	1.788	0.536
	(0.672)	(0.428)	(1.390)	(0.425)

Observations	43,573	43,868	43,573	43,868

Notes: Standard errors in parenthesis are referred to odd-ratios and are robust. All covariates are measured in 5th grade. Missing flag variables were used, but not included for reasons of space; complete estimations will be provided upon request to the authors.
Dependent variable: Advantaged low-achieving student ("1" if the student is in the lowest quartile of scores of the subject but in the highest quartile of socio-economic status; "0" otherwise) in 8th grade.
Coefficient: ***significant at 1%, ** significant at 5%, * significant at 10%.
Estimation method: Logit, odd ratios.
Source: Authors' own calculations.

Table A1. Descriptive statistics of the socio-economic characteristics of the Andalusian student population in 5th grade, the sample of students who can be followed in 8th grade and the sample of students who can be followed in 8th grade and is employed in the estimations

		Population in 5th grade			Sample followed in 8th grade			Sample followed in 8th grade and employed in the estimations		
		Obs.	Mean	S.d.	Obs.	Mean	S.d.	Obs.	Mean	S.d.
Sex of the student	**Male**	60,745	0.51	0.50	52,257	0.50	0.50	42,343	0.49	0.50
	Female	60,745	0.49	0.50	52,257	0.50	0.50	42,343	0.51	0.50
Grade retention	**Repeater**	60,745	0.09	0.28	52,257	0.07	0.25	42,343	0.05	0.23
	Non-repeater	60,745	0.91	0.28	52,257	0.93	0.25	42,343	0.95	0.23
Parental age	**Father**	47,315	65.69	5.65	41,349	65.59	5.49	33,866	65.53	5.37
	Mother	50,771	68.18	5.22	44,098	68.00	5.08	35,925	67.87	4.99
Socio-economic status index		50,448	0.03	0.99	43,864	0.09	0.97	35,789	0.14	0.96
Father education	**Incomplete primary education or did not attend school**	46,679	0.16	0.37	40,832	0.15	0.36	33,506	0.15	0.35
	EGB or Compulsory Secondary Education	46,679	0.37	0.48	40,832	0.36	0.48	33,506	0.36	0.48
	High school, First Grade Professional Formation, Elemental Arts School and Artistic Professions, BUP, COU, Official Language School or Medium Grade Professional Formation Cycle	46,679	0.31	0.46	40,832	0.32	0.47	33,506	0.32	0.47
	Second Grade Professional Formation, Arts Speciality and Artistic Professions or High Grade Professional Formation Cycle	46,679	0.00	0.00	40,832	0.00	0.00	33,506	0.00	0.00
	University degree, PhD	46,679	0.16	0.37	40,832	0.17	0.37	33,506	0.17	0.38
Mother education	**Incomplete primary education or did not attend school**	50,023	0.13	0.34	43,556	0.12	0.33	35,560	0.11	0.31
	EGB or Compulsory Secondary Education	50,023	0.40	0.49	43,556	0.40	0.49	35,560	0.40	0.49
	High school, First Grade Professional Formation, Elemental Arts School and Artistic Professions, BUP, COU, Official Language School or Medium Grade Professional Formation Cycle	50,023	0.30	0.46	43,556	0.30	0.46	35,560	0.30	0.46
	Second Grade Professional Formation, Arts Speciality and Artistic Professions or High Grade Professional Formation Cycle	50,023	0.00	0.00	43,556	0.00	0.00	35,560	0.00	0.00
	University degree, PhD	50,023	0.17	0.37	43,556	0.18	0.38	35,560	0.19	0.39
Father occupation	**Business managers or public administration**	46,401	0.06	0.23	40,653	0.06	0.23	33,390	0.06	0.23
	Technicians, professionals, scientists and intellectuals. Army (officials and high ranks)	46,401	0.13	0.33	40,653	0.13	0.34	33,390	0.13	0.35
	Technicians and support professionals. Administrative employees. Little business people	46,401	0.20	0.40	40,653	0.20	0.40	33,390	0.21	0.41
	Hotel workers, personnel, protection and sellers. Army (sub-officials and low ranks)	46,401	0.15	0.36	40,653	0.15	0.36	33,390	0.15	0.36
	Agriculture and fishing qualified workers. Artisans and qualified manufacturing, construction and mining workers	46,401	0.37	0.48	40,653	0.37	0.48	33,390	0.37	0.48
	Non-qualified workers	46,401	0.06	0.25	40,653	0.06	0.24	33,390	0.06	0.23
	Performing housework	46,401	0.01	0.08	40,653	0.01	0.07	33,390	0.00	0.07
	Inactive	46,401	0.02	0.14	40,653	0.02	0.14	33,390	0.02	0.13
Mother occupation	**Business managers or public administration**	49,200	0.02	0.14	42,924	0.02	0.14	35,102	0.02	0.14
	Technicians, professionals, scientists and intellectuals. Army (officials and high ranks)	49,200	0.11	0.31	42,924	0.11	0.32	35,102	0.12	0.33
	Technicians and support professionals. Administrative employees. Little business people	49,200	0.15	0.36	42,924	0.16	0.36	35,102	0.16	0.37
	Hotel workers, personnel, protection and sellers. Army (sub-officials and low ranks)	49,200	0.14	0.35	42,924	0.14	0.35	35,102	0.14	0.35
	Agriculture and fishing qualified workers. Artisans and qualified manufacturing,	49,200	0.07	0.25	42,924	0.07	0.25	35,102	0.06	0.24

	construction and mining workers									
	Non-qualified workers	49,200	0.12	0.33	42,924	0.12	0.32	35,102	0.12	0.31
	Performing housework	49,200	0.37	0.48	42,924	0.37	0.48	35,102	0.37	0.48
	Inactive	49,200	0.02	0.13	42,924	0.01	0.12	35,102	0.01	0.12
Number of books at home	**Between 0 to 10**	51,403	0.15	0.36	44,561	0.13	0.34	36,261	0.12	0.33
	Between 11 to 25	51,403	0.27	0.44	44,561	0.26	0.44	36,261	0.26	0.44
	Between 26 and 50	51,403	0.32	0.47	44,561	0.33	0.47	36,261	0.34	0.47
	Between 51 and 100	51,403	0.19	0.39	44,561	0.19	0.40	36,261	0.20	0.40
	More than 100	51,403	0.07	0.26	44,561	0.08	0.26	36,261	0.08	0.27
School funding	**Public**	60,745	0.77	0.42	52,257	0.75	0.43	42,343	0.75	0.44
	Semi-private	60,745	0.23	0.42	52,257	0.25	0.43	42,343	0.25	0.44

Notes: “Obs.” means “Observations” and “S.d.” stands for “standard deviation”.
Source: Authors’ own calculations.

Table A2. Mean standardised scores in reading, mathematics and socio-economic status index in 8th grade, conditioned on the covariates that define the profile of advantaged low-achieving students

		Standardised scores in reading in 8th grade			Standardised scores in mathematics in 8th grade			Socio-economic status index in 8th grade		
Variable		**Obs.**	**Mean**	**S.d.**	**Obs.**	**Mean**	**S.d.**	**Obs.**	**Mean**	**S.d.**
Sex of the student	**Male**	22,131	0.16	0.90	22,241	0.31	0.97	19,158	0.19	0.94
	Female	23,497	0.39	0.82	23,625	0.19	0.92	20,883	0.13	0.95
Grade Retention before or in 5th grade	**Yes**	1,867	-0.53	0.93	1,877	-0.53	0.85	1,519	-0.48	0.97
	No	43,761	0.31	0.85	43,989	0.28	0.93	38,522	0.19	0.94
Father age	**63 or less years**	11,641	0.35	0.86	11,704	0.32	0.95	10,294	0.33	0.99
	Between 64 and 68 years	15,179	0.34	0.85	15,235	0.32	0.94	13,474	0.26	0.91
	69 or more	9,788	0.16	0.87	9,825	0.13	0.93	8,505	-0.13	0.83
Mother age	**65 or less years**	12,258	0.37	0.85	12,330	0.33	0.94	10,886	0.39	0.98
	Between 66 and 70	16,006	0.31	0.85	16,075	0.31	0.94	14,162	0.23	0.91
	71 or more	10,503	0.12	0.87	10,522	0.08	0.92	9,018	-0.22	0.82
School funding	**Public**	33,916	0.20	0.88	34,056	0.15	0.93	29,503	0.00	0.92
	Semiprivate	11,712	0.51	0.79	11,810	0.53	0.93	10,538	0.61	0.88
Time reading books (juvenile collections, about sport people, trips…)	**Never or almost never**	11,703	0.12	0.88	11,764	0.07	0.92	10,172	-0.04	0.94
	Once or twice a month	8,517	0.29	0.86	8,580	0.28	0.93	7,467	0.13	0.92
	Once or twice a week	11,412	0.35	0.84	11,484	0.32	0.93	10,047	0.21	0.93
	Every or almost every day	12,006	0.37	0.86	12,056	0.35	0.95	10,680	0.34	0.95
Time devoted to homework each day	**I do not have homework**	460	0.15	0.96	455	0.20	0.98	386	0.14	0.97
	I never do homework	40	-0.66	0.98	38	-0.63	0.99	25	-0.53	1.05
	15 minutes or less	3,457	0.13	0.90	3,474	0.10	0.98	2,984	0.08	0.95
	Between 16 and 30 minutes	9,947	0.28	0.87	10,002	0.23	0.95	8,710	0.14	0.96
	Between 31 and 60 minutes	13,653	0.36	0.84	13,740	0.36	0.94	12,106	0.22	0.95
	More than 60 minutes	16,753	0.27	0.86	16,827	0.22	0.92	14,686	0.15	0.94
Time devoted to watch TV (videos, DVD) each day	**No time**	2,663	0.09	0.91	2,670	0.14	0.96	2,271	-0.02	0.93
	Until 1 hour	4,933	0.31	0.86	4,965	0.36	0.96	4,343	0.11	0.92
	1 to 3 hours	13,063	0.38	0.85	13,149	0.40	0.94	11,548	0.21	0.94
	3 to 5 hours	19,482	0.27	0.86	19,579	0.19	0.92	17,067	0.19	0.95
	5 hours or more	3,732	0.13	0.87	3,755	0.02	0.92	3,274	0.07	0.96
Time devoted to play video games or computer games each	**No time**	3,049	-0.09	0.92	3,064	-0.02	0.95	2,618	-0.03	0.92
	Until 1 hour	3,617	0.18	0.88	3,638	0.23	0.94	3,135	0.09	0.92
	1 to 3 hours	8,502	0.32	0.86	8,563	0.37	0.95	7,470	0.20	0.92
	3 to 5 hours	21,098	0.33	0.84	21,215	0.28	0.93	18,664	0.20	0.95
	5 hours or more	7,933	0.30	0.86	7,957	0.17	0.94	6,922	0.13	0.97
Parents cheer to study	**Never**	4,416	0.27	0.91	4,433	0.29	0.98	3,902	0.19	0.97
	Some days	8,943	0.31	0.86	8,975	0.33	0.95	7,908	0.23	0.96
	Almost every day	7,724	0.34	0.86	7,771	0.33	0.94	6,813	0.19	0.95
	Every day	23,691	0.26	0.86	23,826	0.19	0.93	20,674	0.12	0.93
Parents ask about homework	**Never**	769	0.39	0.88	779	0.41	1.01	678	0.30	1.00
	Some days	2,117	0.36	0.87	2,125	0.38	0.97	1,870	0.25	0.99
	Almost every day	3,467	0.35	0.87	3,481	0.37	0.97	3,026	0.23	0.98
	Every day	38,722	0.27	0.86	38,926	0.23	0.93	33,977	0.15	0.94
Parents check homework	**Never**	3,973	0.37	0.88	3,997	0.40	0.97	3,496	0.18	0.96
	Some days	5,693	0.33	0.85	5,733	0.35	0.95	5,015	0.17	0.96
	Almost every day	7,190	0.30	0.86	7,230	0.30	0.94	6,268	0.17	0.95
	Every day	27,950	0.26	0.87	28,078	0.20	0.93	24,567	0.16	0.94
Parents ask about school day	**Never**	966	-0.02	0.93	987	0.02	0.92	828	-0.23	0.97
	Some days	4,073	0.19	0.87	4,112	0.22	0.96	3,546	-0.04	0.95
	Almost every day	7,215	0.29	0.86	7,262	0.29	0.95	6,327	0.11	0.96

	Every day	32,804	0.30	0.86	32,926	0.25	0.94	28,862	0.21	0.94
The father, mother or any person helps with homework	**No**	5,142	0.08	0.90	5,143	-0.02	0.91	4,392	0.10	0.94
	Sometimes	32,587	0.30	0.85	32,793	0.25	0.92	28,781	0.17	0.94
	Yes	7,214	0.34	0.89	7,234	0.43	1.00	6,259	0.15	0.98
The student likes going to school	**Nothing**	1,791	-0.06	0.92	1,803	0.09	0.95	1,528	0.13	0.92
	Little	6,888	0.18	0.87	6,939	0.19	0.94	6,032	0.17	0.95
	Enough	16,870	0.33	0.85	16,966	0.32	0.94	14,842	0.23	0.94
	A lot	19,673	0.31	0.86	19,755	0.23	0.94	17,280	0.10	0.95
The student wants to move to another school	**No**	40,093	0.30	0.86	40,322	0.26	0.94	35,256	0.17	0.95
	He/She does not mind	885	-0.04	0.93	887	0.03	0.98	729	0.09	0.97
	Yes	4,285	0.13	0.89	4,296	0.16	0.94	3,741	0.11	0.94
Classmates follow school rules	**Never**	1,399	0.09	0.92	1,410	0.04	0.91	1,230	0.03	0.94
	Sometimes	20,416	0.22	0.87	20,504	0.17	0.92	17,821	0.06	0.94
	Enough	14,373	0.39	0.84	14,469	0.41	0.94	12,693	0.29	0.93
	A lot	8,132	0.27	0.88	8,173	0.24	0.96	7,170	0.23	0.96
Classmates get on well	**Never**	651	0.00	0.92	662	-0.04	0.92	550	-0.06	0.97
	Sometimes	12,465	0.22	0.87	12,469	0.15	0.93	10,835	0.05	0.93
	Enough	14,469	0.37	0.84	14,597	0.37	0.95	12,760	0.24	0.94
	A lot	16,781	0.27	0.87	16,875	0.24	0.94	14,806	0.19	0.95
Relationship with classmates	**Bad**	412	-0.13	0.97	419	-0.09	0.95	343	0.06	0.93
	Not so good	2,830	0.04	0.91	2,824	0.02	0.94	2,420	-0.02	0.95
	Good	12,293	0.24	0.88	12,361	0.24	0.95	10,764	0.11	0.95
	Very good	29,273	0.33	0.85	29,445	0.28	0.94	25,805	0.20	0.94
Relationship with teachers	**Bad**	214	-0.15	0.97	215	0.10	1.04	173	0.16	0.95
	Not so good	1,625	-0.05	0.92	1,628	0.07	0.95	1,346	0.07	0.97
	Good	12,648	0.26	0.86	12,751	0.29	0.94	11,070	0.21	0.95
	Very good	30,622	0.31	0.86	30,750	0.24	0.94	26,993	0.15	0.94
The student likes studying	**Totally disagree**	2,535	0.05	0.91	2,548	0.12	0.95	2,182	0.18	0.94
	Disagree	4,669	0.20	0.88	4,690	0.25	0.95	4,076	0.26	0.96
	Agree	23,337	0.30	0.85	23,436	0.28	0.93	20,478	0.19	0.94
	Totally agree	14,067	0.33	0.86	14,161	0.23	0.95	12,415	0.08	0.94
The student can learn any exercise, even when it is very difficult	**Totally disagree**	1,546	-0.03	0.92	1,543	-0.08	0.91	1,320	0.03	0.97
	Disagree	4,546	0.17	0.89	4,577	0.10	0.93	3,945	0.09	0.96
	Agree	18,838	0.30	0.86	18,908	0.26	0.93	16,510	0.17	0.94
	Totally agree	19,579	0.32	0.86	19,716	0.31	0.95	17,308	0.19	0.94
The student learns easily	**Totally disagree**	1,419	-0.12	0.93	1,423	-0.12	0.93	1,206	-0.02	0.93
	Disagree	5,614	0.03	0.86	5,626	-0.05	0.87	4,836	-0.01	0.95
	Agree	20,882	0.28	0.85	21,015	0.23	0.92	18,305	0.16	0.94
	Totally agree	16,380	0.41	0.85	16,473	0.43	0.96	14,551	0.24	0.94
The student is sure about passing my exams	**Totally disagree**	1,180	0.01	0.91	1,178	-0.04	0.90	1,019	0.09	0.94
	Disagree	2,619	-0.01	0.92	2,634	-0.08	0.90	2,247	-0.12	0.96
	Agree	17,242	0.23	0.87	17,351	0.19	0.92	15,134	0.12	0.95
	Totally agree	23,579	0.37	0.84	23,698	0.35	0.95	20,796	0.23	0.93

Notes: “Obs.” stands for “Observations” and “S.d.” for “Standard Deviation”.
Source: Authors’ own calculations.

Table A3. Determinants of the likelihood of becoming a resilient student

	Resilient student in 8th grade	
Variables	Reading	Mathematics
Female (Ref.: Male)	1.382***	0.866**
	(0.084)	(0.052)
Repeater before or in 5th grade: Yes (Ref.: No)	0.440***	0.638***
	(0.073)	(0.095)
Father age	0.983**	0.987
	(0.008)	(0.008)
Mother age	1.001	0.994
	(0.008)	(0.008)
High Socio-economic status quartile (Ref.: Rest of quartiles)	0.032***	0.036***
	(0.008)	(0.009)
Semi-private (Ref.: Public)	0.730	0.798
	(0.068)	(0.079)
Time reading books (juvenile collections, about sport people, trips…). (Ref.: Never or almost never)		
Once or twice a month	1.058	1.041
	(0.084)	(0.086)
Once or twice a week	0.933	1.024
	(0.072)	(0.080)
Every or almost every day	0.847**	0.831**
	(0.065)	(0.071)
Time devoted to homework each day (Ref.: I do not have homework/I never do homework)		
15 minutes or less	0.810	0.798
	(0.208)	(0.208)
Between 16 and 30 minutes	0.886	0.943
	(0.219)	(0.241)
Between 31 and 60 minutes	0.917	1.067
	(0.220)	(0.272)
More than 60 minutes	0.837	0.969
	(0.203)	(0.247)
Time devoted to watch TV (videos, DVD) each day (Ref.: No time)		
Until 1 hour	1.005	0.845
	(0.138)	(0.107)
1 to 3 hours	0.995	0.722***
	(0.123)	(0.081)
3 to 5 hours	0.838	0.553***
	(0.103)	(0.061)
5 hours or more	0.755*	0.512***
	(0.114)	(0.076)
Time devoted to play video games or computer games each day (Ref.: No time)		
Until 1 hour	1.259	1.285
	(0.191)	(0.197)
1 to 3 hours	1.354**	1.651***
	(0.186)	(0.218)
3 to 5 hours	1.460***	1.660***
	(0.188)	(0.210)
5 hours or more	1.488***	1.538***
	(0.211)	(0.222)
Parents cheer to study (Ref.: Never)		
Some days	0.888	1.031
	(0.090)	(0.109)
Almost every day	1.095	1.104
	(0.120)	(0.121)
Every day	0.951	1.043
	(0.090)	(0.099)
Parents ask about homework (Ref.: Never)		
Some days	0.740	1.103
	(0.169)	(0.263)
Almost every day	0.987	1.418
	(0.206)	(0.317)
Every day	0.759	1.216
	(0.148)	(0.259)
Parents check homework (Ref.: Never)		
Some days	0.855	1.011
	(0.101)	(0.113)
Almost every day	1.010	0.880
	(0.118)	(0.105)
Every day	0.977	0.828*
	(0.102)	(0.086)
Parents ask about school day (Ref.: Never)		
Some days	0.960	0.877
	(0.172)	(0.144)
Almost every day	0.957	0.735**
	(0.169)	(0.114)
Every day	0.813	0.647***
	(0.136)	(0.098)
The father, mother or any person helps with homework (Ref.: No)		
Yes	1.503***	2.149***
	(0.166)	(0.261)
Sometimes	1.228**	1.518***
	(0.116)	(0.162)
The student likes going to school (Ref.: Nothing)		
Little	1.771***	1.329
	(0.351)	(0.244)

Enough	1.481*	1.211
	(0.300)	(0.218)
A lot	1.511**	1.237
	(0.305)	(0.222)
The student wants to move to another school (Ref.: No)		
Yes	0.806	0.947
	(0.084)	(0.094)
He/She does not mind	0.950	1.151
	(0.196)	(0.223)
Classmates follow school rules (Ref.: Never)		
Sometimes	1.107	1.651**
	(0.183)	(0.326)
Enough	1.034	1.726***
	(0.179)	(0.348)
A lot	0.853	1.455*
	(0.154)	(0.310)
Classmates get on well (Ref.: Never)		
Sometimes	1.053	1.187
	(0.259)	(0.312)
Enough	1.000	1.148
	(0.248)	(0.309)
A lot	0.963	1.093
	(0.239)	(0.294)
Relationship with classmates (Ref.: Bad)		
Not so good	0.733	1.443
	(0.228)	(0.482)
Good	1.025	1.529
	(0.310)	(0.500)
Very good	0.992	1.371
	(0.298)	(0.449)
Relationship with teachers (Ref.: Bad)		
Not so good	1.270	0.723
	(0.661)	(0.293)
Good	1.019	0.583
	(0.511)	(0.228)
Very good	1.113	0.570
	(0.559)	(0.227)
The student likes studying (Ref.: Totally disagree)		
Disagree	0.769	1.008
	(0.124)	(0.174)
Agree	1.198	1.247
	(0.175)	(0.190)
Totally agree	1.330*	1.506***
	(0.205)	(0.238)
The student can learn any exercise, even when it is very difficult (Ref.: Totally disagree)		
Disagree	1.044	1.095
	(0.200)	(0.225)
Agree	0.906	1.085
	(0.162)	(0.208)
Totally agree	0.936	1.146
	(0.169)	(0.222)
The student learns easily (Ref.: Totally disagree)		
Disagree	0.979	0.959
	(0.196)	(0.214)
Agree	1.126	1.278
	(0.212)	(0.275)
Totally agree	1.200	1.402
	(0.229)	(0.301)
The student is sure about passing my exams (Ref.: Totally disagree)		
Disagree	0.942	1.051
	(0.215)	(0.289)
Agree	1.110	1.280
	(0.234)	(0.325)
Totally agree	1.107	1.400
	(0.233)	(0.356)
Constant	0.073***	0.036***
	(0.062)	(0.031)
Observations	43,573	43,868

Notes: Standard errors in parenthesis are referred to odd-ratios and are robust. All covariates are measured in 5th grade. Missing flag variables were used, but not included for reasons of space; complete estimations will be provided upon request to the authors.
Dependent variable: Resilient ("1" if the student is in the highest quartile of scores of the subject but in the lowest quartile of socio-economic status; "0" otherwise) in 8th grade.
Coefficient: ***significant at 1%, ** significant at 5%, * significant at 10%.
Estimation method: Logit, odd ratios.
Source: Authors' own calculations.