



FACULTAD DE CIENCIAS EMPRESARIALES Y ECONOMIA

**Serie de documentos de trabajo del Departamento de Economía /
Department of Economics Working Papers Series**

**Providing academic opportunities to vulnerable
adolescents: a randomized evaluation of privately
managed tuition-free middle schools in Uruguay**

Ana Balsa
Alejandro Cid
Ana Laura Zardo

The working papers of the Department of Economics, Universidad de Montevideo are circulated for discussion and comment purposes. They have not been peer reviewed nor been subject to the review by the University's staff. © 2019 by Ana Balsa Alejandro Cid and Ana Laura Zardo. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Providing academic opportunities to vulnerable adolescents: a randomized evaluation
of privately managed tuition-free middle schools in Uruguay

Ana Balsa
Alejandro Cid
Ana Laura Zardo

Universidad de Montevideo

April 26, 2019

Abstract

We conducted a randomized evaluation of three privately managed middle schools in Uruguay aimed at providing education opportunities to adolescents from low income socioeconomic status. At 3-year follow-up, treatment students fare better in terms of academic promotion and school retention. Students in treatment schools, present also better mental health, as represented by lower rates of internalizing behaviors and social problems than students in the control group. In addition to tutoring and other learning strategies reported in previous qualitative analyses of these schools, our findings suggest that a culture of high expectations, a caring and disciplined school climate, and parental involvement in the school could account for some of the observed differences in academic trajectories and mental health.

We acknowledge funding from the Inter-American Development Bank (IADB). All opinions are our own and do not represent those of the IADB or of Universidad de Montevideo. We are grateful to Joaquin Klot for research assistance and to Sandro Diez-Amigo for useful comments during the early stages of the project.

1. Introduction

Despite more than a decade of sustained growth in Latin America, most education systems in the region lag well behind what is needed to attain successful labor market outcomes and sustainable economic growth. The case of Uruguay is particularly interesting. It is one of the countries with the highest income per capita in Latin America, but 59% of the population between 21 and 22 years old do not finish secondary, and this percentage reaches 87% in quintile 1. Also, half of its 15-year-old students do not reach the minimum standards of skills in math and language, according to PISA results, and socioeconomic disparities in academic outcomes are the largest of all countries participating in the PISA study.

As a response, the civil society has launched several initiatives aimed at providing better education opportunities for adolescents from low-income households. These include a set of privately managed secondary schools that charge no tuition (or a very small one) to low income students and that are funded by individual or corporate donations, part of which are matched indirectly by the State through tax deductions. The schools' academic proposal is based on the personalized monitoring of students' progress and on a close involvement of the families in the student's education process. A flexible and decentralized management enables the schools to be close to students' needs and to adapt to local circumstances. The model aims at developing higher academic expectations and improved educational trajectories by tackling non-cognitive, in addition to cognitive, skills. These schools offer a full-day schedule (between 9 and 10 hours, compared to 5 hours in public middle schools) that includes extended academic time (relative to the public education model) and extra-curricular activities. They can selectively recruit and dismiss teachers, and can assign the teaching workload flexibly to teaching, coordination and training. They aim at empowering teachers and boosting their commitment to the institution.

The features of these schools, which are in stark contrast with the rigid and centralized public education system, provide a rich laboratory to explore the drivers of student achievement. Understanding these drivers is of high importance for the design of

comprehensive public policies directed to adolescents from low socioeconomic backgrounds. In this paper, we provide new evidence on the effectiveness of three of these schools on student academic and behavioral outcomes using a randomized design. Our analysis takes advantage of the fact that these schools select students by lottery when the number of applicants exceeds the number of available places.

Three years after attending these schools, treated students are substantially more likely to be at the expected grade for the age and are less likely to have dropped out of formal education. Furthermore, they present lower symptoms of internalizing behaviors and social problems. We also explore mechanisms behind the results. Inspired by the findings of Dobbie and Fryer (2013) and Fryer (2014) on best school practices, and by the systematic evidence about the key role of teacher attendance (Banerjee and Duflo, 2006), we collected information on parent outreach, school and class climate, disciplinary environment, students' educational aspirations, and teacher absenteeism. We find that treatment schools increase both students' and parent's expectations about academic completion. We also find that students in treated schools perceive a better school climate, as measured by more teacher attendance, a higher sense of school belonging, reports of more discipline and norm adherence, better organization of classes, and parental involvement with the schools.

2. Background and Significance

The three schools analyzed are formal institutions allowed to provide general secondary education by the National Public Education Administration (ANEP by its Spanish acronym). Two of them offer middle school education (only grades 7 to 9), while the third one offers both middle and high school education (grades 7 to 12). The average school cohort ranges between 60 and 100 students. The schools are privately managed, do not charge tuition, and operate in two of the poorest neighborhoods of Montevideo (Uruguay's capital city), with the objective of providing secondary schooling to low income students.

In terms of funding, between 47% and 95% of the treatment schools' income comes from corporate donations subject to tax deductions. For each dollar that a firm donates to these institutions, the government provides 0.8 cents in tax deductions. This implies that the government is, indirectly, an important contributor to the finances of these schools (in as much as there are firms willing to donate), accounting in one case for more than three quarters of the school's income (Aristimuño, Balsa and Lasida 2015).

One of the schools was founded in 2001, while the other two initiated their activities in 2013 and 2014, respectively. The three select students by lottery from an oversubscribed list of applicants, and require that applicants comply with certain pre-enrollment requisites, which include not exceeding the age for the grade by more than two years, living in the school's neighborhood, and coming from a low-income household. All three schools have a full-day operating schedule, although only one of them has mandatory academic activities until 6 pm. The other two teach the formal national curriculum in the mornings and offer support and extra-curricular activities in the afternoons. The staff in all three schools includes teachers, school administrators, coordinators, advisors, tutors, psychologists and social workers, as well as learning-support specialists (such as psycho-pedagogues or speech therapists).

Most comparison adolescents that were not selected in the lotteries ended up attending conventional public schools. These public schools are part of the country's highly centralized education system, are usually larger, do not offer (in general) extracurricular activities or extended instructional time, are less likely to offer differential learning or tutoring, and have lower parental involvement. Principals are unable to choose their staff, and have unstable teams due to a large rotation of teachers across schools.¹

Aristimuño, Balsa and Lasida (2015) provide a qualitative description of the organizational features of these three schools and analyze the array of student learning support strategies they use. The three treatment schools share several features that the

¹ In Uruguay, public school teachers can choose every year the number of hours and school(s) in which they will be teaching. Their order of choice is given by the teachers' degree, defined mostly by their tenure and experience.

literature has underscored as successful school strategies, and that go beyond standard inputs (such as class size, expenditure per student or the proportion of certified teachers). The three of them aim at developing positive school cultures, maximize learning time, and provide training opportunities for their staff (Purkey & Smith, 1983; Sammons, Hillman & Mortimore, 1995). They show an effort towards innovation and exploration of new pedagogical approaches, they involve families and community members in the education process, and place importance on the achievement of objectives and accountability (Preston et al, 2012; Bifulco & Ladd, 2006; Manno et al., 1998). Of the five effective school policies identified by Dobbie and Fryer (2011) based on forty years of qualitative research, the Uruguayan schools rely heavily on three of them: extended school time, a culture of high expectations, and personalized learning through tutoring.²

In the US, the literature on the effectiveness of privately managed schools financed by the government (“charter schools”) has been mixed. Some studies show no significant effects on students’ academic performance in the short run, but find long-term effects (Epple, Romano & Zimmer, 2015), while others show positive effects even in the short run (Hoxby & Rockoff, 2004; Angrist et al., 2010). A recent review suggests that the effects of charter schools compared to traditional public schools have improved over time (Epple, Romano & Zimmer, 2015). Moreover, when alternative short term behavioral indicators (such as school involvement and risky behaviors) and long term academic and economic indicators (such as school graduation rates, college attendance, tertiary education, and income) are analyzed, results favor charter schools, revealing differential and positive impacts in comparison to traditional schools (Epple, Romano & Zimmer, 2015).

Our paper is one of a few, together with Angrist et. al 2010, Balsa and Cid (2014, 2016) and Mailhos and Balsa (2017) to provide evidence on the impact of privately managed tuition-free schools on the academic trajectories and well-being of vulnerable students

² Although there are efforts aimed at extending the other two practices (providing teachers with feedback and using data to assess school practices), these efforts are not yet widespread across the three schools.

in Latin America. In addition to assessing quantitatively the schools' effectiveness on school retention, promotion, and behavioral outcomes, we complement the qualitative analysis in Aristimuño, Lasida and Balsa (2015) by exploring quantitatively some mediators, including academic expectations, organizational and pedagogic climate, and parental involvement. Our study also contributes to the literature by providing a cost-effectiveness analysis of the treatment. We are aware of few assessments of schools directed at disadvantaged adolescents in developing countries that include cost analysis. This should be a key ingredient of any analysis, as it provides comparability with other programs and helps judge whether the programs are replicable and feasible of being adapted to other settings.

3. Methodology

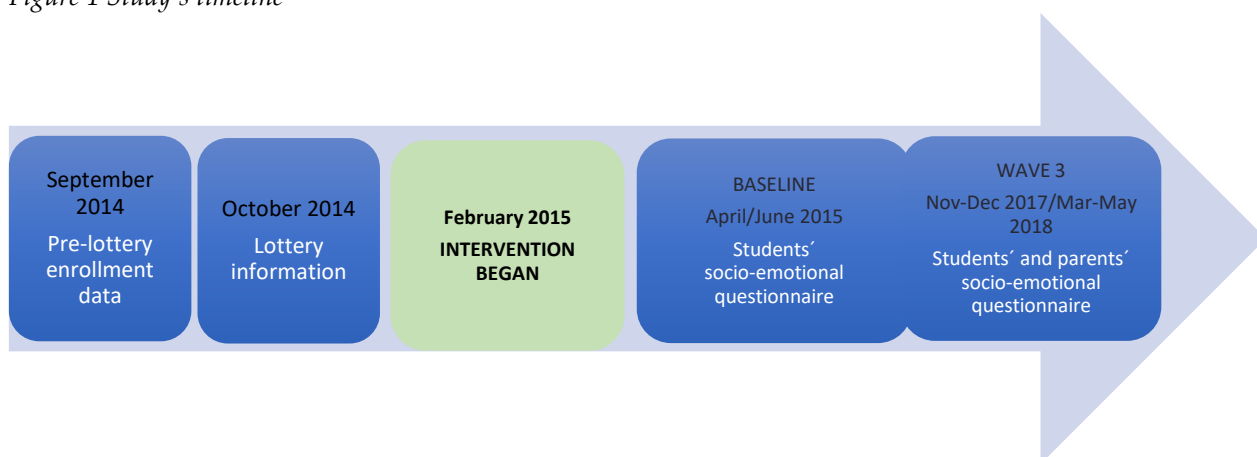
i) Study's timeline

Our study spans three years and a half. We collected baseline information about students before they entered middle school³ in September 2014.⁴ Each of the participating schools run a lottery in October 2014 and classes began in February 2015. All students were enrolled in the 1st year of secondary school (equivalent to 7th grade). In this paper we focus on the third year follow-up results, which were collected between November 2017 and May 2018. The timing of this assessment coincides with the end of the middle school and the end of the intervention for two of the three schools analyzed. These two schools offer only middle secondary education, while the other offers also high school education.

³ Secondary education in Uruguay includes middle school (years 7 to 9), and high school (years 10 to 12).

⁴ The school year in Uruguay runs from February/March to November/December.

Figure 1 Study's timeline



ii) The evaluation design

We use a randomized controlled design to evaluate the impact of the above-described schools, taking advantage of the fact that admissions for most students are defined by lottery when applications exceed the placements available.⁵ We work with a sample of adolescents aged 12 and 13 who applied for a placement in one of the three privately managed tuition-free schools for the 2015 academic year.

In two of the schools the lottery was conducted under the supervision of a public notary, while in the third one the lottery was run by a local university. In all three cases, randomization was stratified by gender. In one of the schools, the lottery was also stratified by feeding primary school of origin, so that selection was proportional to the number of applicants from each school. In another one, randomization was stratified by student's prior grade retention and mother's education (middle school completion). The aim of stratification was to balance pre-determined variables with high predictive power over educational trajectories.

Table 1 summarizes the sample of students at baseline. It includes all students that participated in the lotteries, including students admitted to one of the three schools (which we refer to as "Intention to Treat" or ITT=1) and those that were not selected by the lottery (our "Control group" or ITT=0). Nine hundred and fifteen (915) candidates

⁵ Siblings of current or former students are exempted from the lottery and given priority in the enrollment process. In one of the schools, children who attended an after-school program associated with the organization are also given priority.

applied for a placement at one of the three schools. Of these, 69 were accepted directly (prior to the lottery) and one of them opted out. Out of the 846 remaining applicants, 176 were selected by lottery (ITT=1). For cost reasons, we selected a random subsample of 235 control subjects from the original pool of 670 students that participated in the lottery but were not among the winners.⁶ Because most of the students in the control group ended up attending public schools⁷, the evaluation compares two types of education models with clearly differential strategies: tuition free private schools and traditional public schools.

Table 1 Number of applicants and Intention to Treat sample

Applicants satisfying admission criteria	915
Number of slots available	245
Students accepted prior to lottery	69
Lotteried pool	846
Lotteried slots (ITT=1)	176
Initial size of control group	670
Random sample of control subjects (ITT=0)	235

Source: School's Pre-Enrollment Records.

Appendix Table i shows the final number of students that ended up enrolling in each of the schools after the lottery. In two of the schools, only four of the students randomly selected to participate decided not to attend, while three out of those not selected to participate were finally treated. In the third school, however, only 60% of those with ITT=1 were finally treated (and 9% of those with ITT=0 ended up attending this treatment school). While this third school shows a much higher rate of non-compliance in comparison to the other two treatment schools, the rate is similar to that in other impact evaluations of charter schools (e.g., Dobbie and Fryer, 2011). Due to non-compliance, the group of those that were finally treated differs slightly from those initially selected to be treated (the Intention to Treat or ITT group). A simple Ordinary

⁶To minimize attrition in the control group at baseline, we defined a replacement for each of the students in the control group, in such a way that the observed characteristics of the replacement were similar to those of the original control. The fraction of original controls not found and replaced was 10%.

⁷ 79% of the students in the control group enroll in public schools (80% of them in general public schools and 20% in vocational schools), 17% attend private schools, and 4% drop-out from school.

Least Squares (OLS) regression using an indicator of participation in one of these schools as the explanatory variable of interest may introduce bias if selection into and out of the treatment group is non-random. For this reason, our core analysis uses the lottery assignment (Intention to Treat) as the main explanatory variable. In robustness checks, we use Instrumental Variables Analysis to explore the treatment effect on the treated, and we run OLS regressions dropping the observations of the school with the highest non-compliance rate.⁸

The standard model of program evaluation describes the observed outcome Y_i of participant $i \in I$ by:

$$Y_i = D_i Y_i(1) + (1 - D_i) Y_i(0)$$

Where $i = \{1 \dots N\}$ denotes the sample space, D_i denotes the treatment assignment for participant i ($D_i = 1$ (ITT = 1)) for the intention to-treat-sample, $1(\cdot)$ is an indicator function taking the value of 1 if ITT=1 and of 0 if ITT=0, and $(Y_i(0), Y_i(1))$ are potential outcomes for participant i . We test the null hypothesis of no treatment effect:

$$H_0: E[Y_i | D_i = 1] - E[Y_i | D_i = 0] = 0$$

We thus use the indicator of random selection into treatment (ITT) as the relevant explanatory variable, and refer by “treatment” those with ITT=1 and by “controls” those with ITT=0. We model the effect of the privately managed free-tuition schools as:

$$Y_i = a + bD_i + X'_i c + e_i \quad (1)$$

where Y_i is any of the outcomes of interest for the individual i , D_i is a dummy variable that takes the value one if the individual was randomly assigned to any of the treatment schools, X_i is a vector of socio-demographic and geographic controls including gender, mother’s education⁹, whether the family received cash transfers from the government, whether the student repeated a grade in primary school, and the schools’ lottery pool the student participated in. e_i is an error term that captures random variation in the

⁸ Results remain unchanged when we only take into consideration the schools with higher compliance. These results can be shown upon request.

⁹ For one observation, the education of another adult at home was imputed instead, since data about mother’s education was missing.

outcomes; a is the intercept (which in the absence of covariates captures the mean outcome of the control group); b is the parameter of interest and c is a vector of coefficients for the control variables. In some cases, we also add the outcome variable at baseline as another control. Equation (1) identifies the impact of being offered the chance to attend a treatment school.

Because two of the schools operate in the same neighborhood, some applicants were in the lottery pool of both schools. We duplicated observations for these subjects and assigned the original observations to one of the schools and the duplicates to the other.¹⁰ Since all our analyses control for school lottery pool, this approach allows us to maintain the random allocation at each school.

iii) Assessment instruments and field work

The instruments selected to assess students' socio-emotional competences were based on a literature review of non-cognitive factors that are arguably malleable and significant for the development of adolescents, as well as on the theoretical framework proposed by Farrington et al. (2012) in the "Becoming Effective Learners Survey Development Project". A summary of these instruments is presented below, and more detailed information is provided in Appendix 3.

- a. Academic effort and learning strategies.¹¹ This category included the following components: *study strategies, academic behavior, homework compliance, late arrivals,*

¹⁰ There were 6 students in the sample who were randomly selected into treatment at school B, and were also in the control group at school A. There were 8 individuals selected into treatment at school A, who were also in the control group at school B. 10 additional students were part of the control groups of schools A and B and 6 subjects were part of the treatment groups at schools A and B simultaneously. Overall, 30 observations of the sample shared treatment or control status between schools A and B. To solve this, we duplicated these observations so that each one was uniquely associated either to the treatment or the control group of a single institution.

¹¹ These questions seek to capture the processes and tactics employed by the students to improve learning. These tactics include both metacognition – knowledge and control of the cognitive process of learning and strategic regulation of such process (Flavell, 1979) - as well as the management of the time assigned to studying. Evidence reveals that better learning strategies favor higher academic achievement (Hattie et al., 1996; Haller et al., 1988; Higgins et al., 2005), particularly when such strategies are simultaneously developed with students' self-efficacy for the accomplishment of academic goals (Paris et al., 1983; Pintrich & De Groot, 1990; Pokay & Blumenfeld, 1990).

and absences. We measured study strategies and academic behavior by using an adaptation of several questions in Farrington et al (2012). The items measuring study strategies inquired about the students' capacity to organize their time and school materials in order to meet school deadlines. Other items captured whether the student completed homework always or most of the time in 2017, whether the student arrived late to school more than once a month in 2017, and whether he/she missed more than 10 classes in 2017.

- b. School climate. This category considered six components: *student's sense of belonging, discipline and norm adherence, school's approach towards parental involvement, class climate, and teacher absenteeism.* We adapted a set of questions in Farrington et al (2012) to capture the student's sense of belonging at school and in the class. We also measured whether students felt safe at school, whether they felt the school was like a family, whether they felt that students respected teachers and school personnel, whether they felt they could talk with teachers about personal problems, and whether they had more than two close friends at the school. Then, we created z-scores by subtracting the mean of the control group of each variable and dividing each one by the standard deviation of the control group. Next, we aggregated all z-scores to create an index of school sense of belonging. The school's disciplinary approach was assessed by asking students the extent to which they considered their school imposed too many limits and whether the school had clear norms that were respected by students and teachers. The school's approach towards parental involvement was captured by an indicator of whether parents were invited to school meetings at least 5 times in the year (as reported by the student). Class climate was assessed by asking students the frequency with which students did not pay attention in class, the class was noisy and messy, teachers had to wait for students to get quiet, and students could not work well. An average of these frequencies was used to build an index of class climate. We also constructed an index of pedagogic climate in the Math course, by averaging out a set of questions about the frequency with which the teacher explained the course purpose, reviewed prior classes, taught how to solve problems, explained mathematical concepts, cleared doubts,

provided practice exercises, summarized what was learned, and sent practice problem sets.

- c. Students' Academic Expectations. We constructed two dichotomous variables concerning expectations: one indicating if the student expected to complete secondary school and the other one indicating if the student expected to complete college.
- d. Academic trajectories. Since the questionnaires were administered some months after the end of the school year, we inquired about the student's final progress at school. We defined a dummy variable equal to one if the student reported attending school in 2018 at the age-appropriate grade, and another indicator of having repeated the previous grade. We also quantified whether the student attended any school during the year 2017, whether the student attended school intermittently between 2015 and 2017, and whether the student dropped-out definitely.
- e. Academic mindsets. "Academic mindsets" have to do with the psychosocial behaviors and attitudes of students towards their academic environment. The concept includes the following dimensions: *academic identity*, *growth mindset*, *self-efficacy*, *academic delay of gratification* and *relevance for the future*. Academic identity is the student's view of education as a factor that builds a personal identity. Growth mindset assesses the theory of intelligence that a student holds, and the student's perspective of his/her possibility to develop a capacity to learn. Self-efficacy has to do with the student's perception about the set of personal attributes to successfully achieve goals. Academic delay of gratification refers to students' capacity to postpone available opportunities to satisfy impulses in favor of pursuing academic rewards that are temporally remote but more valuable. Relevance for the future captures the student's sense of purpose of education as a means of achieving future personal and professional goals.¹² The

¹² The academic literature has found connections between each of these five academic mindsets and the academic performance of adolescents. For example, a greater sense of school belonging is associated with better student achievement (Goodenow, 1993; Battistich et al, 1995; Roeser et

measures of academic mindsets we use in this project are also an adaptation of the instruments used by Farrington et al (2012).

- f. Motivation has to do with student's attitude towards his/her goals. Motivation can satisfy desires of self-realization (intrinsic motivation) or be driven by external incentives (extrinsic motivation). This study uses the Motivated Strategies for Learning scale (Pintrich et al., 1990) to measure students' intrinsic and extrinsic motivation.¹³

- g. Perseverance includes the following dimensions: *self-control* (the ability to regulate one's impulses and desires), *delayed gratification* (feature of self-control related to the capacity to postpone current gratification in order to pursue less immediate goals) and *grit* (ability to sustain an effort in time and act in accordance with the objective that fuels this effort).¹⁴ We used a selection of items from the Brief Self-Control Scale (Tangney et al., 2004) to measure self-control and delayed gratification and used the Short Grit Scale (Duckworth & Quinn, 2009) to measure grit, which distinguishes two dimensions: perseverance of effort and consistency of interest.

- h. Social skills. In this study we consider the following dimensions of social skills:¹⁵
assertion (the ability to communicate ideas or solve problems diligently and

al., 1996; Osterman, 2000; Furrer & Skinner, 2003; Flook et al., 2005; Cohen & Garcia, 2008). Similarly, growth mindsets or positive theories of intelligence prompt better educational performance among young people (Dweck, 2006; Blackwell et al., 2007; Yeager & Dweck, 2012).

¹³ The distinction between these two dimensions of motivation is informative, as there is some evidence that when students identify intrinsically with academic goals (rather than extrinsically) they are more likely to commit to education and achieve better academic outcomes (Vansteenkiste et al., 2004; Vansteenkiste et al., 2005; Guthrie et al., 2006).

¹⁴ Self-control is a skill that enables conscious decision-making in the short run (Duckworth & Seligman, 2006). Grit, on the other hand, also requires an effort to achieve long-term objectives (Duckworth et al., 2007). Empirical evidence indicates that self-control is a very important skill for the educational progress of adolescents (Tangney et al., 2004; Duckworth & Seligman, 2005; Duckworth et al., 2010) and that this ability is often primarily developed during childhood (Gottfredson & Hirschi). Grit is also associated with better academic performance (Duckworth et al., 2007; Duckworth & Quinn, 2009; Eskreis-Winkler et al., 2014), although there is still inconclusive evidence regarding its malleability.

¹⁵There is some evidence linking social skills with better academic performance (Wentzel, 1991; Wentzel, 1993; Durlak et al., 2011).

appropriately), *empathy* (the ability to place oneself in the shoes of others), *engagement* (the ability to commit oneself to others and contribute to the development of shared objectives), and *interpersonal self-control* (the capacity to restrain one's impulses and desires when interacting with other people). An adaptation of the Social Skills Improvement System Self-Report Scale (Gresham & Elliott, 2008) was used to measure these skills.

- i. Health and life satisfaction. We used the Center for Epidemiological Studies Depression Scale of 12 items (Poulin, 2005) to measure depression symptoms. To measure life-satisfaction we used a satisfaction scale ranging from 1 to 10. We also inquired about students' perception of their health using a self-assessment 5-point scale ranging from Bad to Excellent.
- j. Risky behavior. We first asked students whether they had consumed any of the substances included in a list (alcohol, tobacco and illegal drugs) in the last twelve months. We then created an index of substance use predisposition as the sum of all responses weighted inversely by its prevalence in the sample. We similarly computed an index of non-normative or risky behavior, asking students how many times in the last twelve months they had engaged in any of the following behaviors: lying to their parents, stealing, participating in fights, driving a car without authorization, carrying weapons, destroying things intentionally, drug dealing, sexual harassment, and problems with the law. Response options were *Never, From one to two times, From three to four times, More than four times*. For each item we generated a dummy which took the value of one if the student responded that he/she had engaged in the activity at least once in the past twelve months. We then summed all items weighting each one inversely by the probability of occurrence of that behavior in the sample.

An additional questionnaire was administered to parents with the aim of collecting data about students' academic trajectories, parents' academic expectations about students' education, and students' mental health. We used the Child Behavioral Check List (Achenbach, 1978) to assess symptoms of mental health problems. This instrument allowed us to measure the number of symptoms of anxiety, withdrawal, somatic

complaints, rule-breaking and aggressive behavior as well as social, attention and thought problems.

The survey on academic expectations, behaviors, school climate and socio-emotional competences was administered to treatment and control subjects at home between March and May 2018. The parent questionnaire was also completed then.

iv) Attrition and Balance in Pre-Enrollment Sociodemographic Characteristics at Wave 3

Table 2 shows rates of attrition in Wave 3, which ranged between 15% and 25%. Our attrition is similar to previous work using lottery data from school interventions for poor children (e.g., Dobbie and Fryer, 2011).

Table 2 Attrition at Wave 3

	Questionnaire	
Baseline	ITT=0	235
	ITT=1	176
W3	ITT=0	194
	ITT=1	134
Attrition	ITT=0	17.4%
	ITT=1	23.9%

Table 3 compares students in the treatment and control group in terms of the response rate to the socio-emotional questionnaire. As shown in Column 1, students in the treatment group were more likely to complete the socio-emotional questionnaire.

Table 3 Response rate to socio-emotional questionnaire vs. ITT status

	Completed questionnaire
ITT	-0.116*** (0.0336)
Male	0.000949 (0.0321)
Mother finished middle school	0.0171 (0.0319)
Repeated a grade in primary school	0.0106 (0.0345)
Household recipient of any government transfer	0.0260 (0.0373)
Dummy for applicants for school A	0.0383 (0.0488)
Dummy for applicants for school C	0.110*** (0.0407)
Constant	0.857*** (0.0526)
N	360

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Despite the attrition and the difference in response rates between treatment and control subjects, there were no differences in pre-enrollment characteristics between the respondents to the Wave 3 applications at a significance level of 1% (see *Table 4*). This suggests that the panel continues to be balanced across Intention to Treat status.

Table 4 Balance in pre-enrollment characteristics for respondents in Wave 3

	ITT=0	ITT=1	p-value	N
Male	0.53	0.46	0.263	328
Lives with both biological parents	0.46	0.49	0.680	316
Number of household members	4.66	4.82	0.358	327
Household head works	0.93	0.97	0.139	324
Household head has a full time job	0.81	0.81	0.941	324
Household recipient of cash transfers	0.70	0.66	0.412	326
Household recipient of food card	0.26	0.27	0.932	325
Household recipient of other food benefits	0.02	0.03	0.362	322
Household recipient of any government transfer	0.72	0.68	0.384	327
Mother finished middle school	0.44	0.44	0.898	327
Mother's years of education	8.21	8.47	0.360	327
Repeated a grade in primary school	0.28	0.22	0.265	324

v) Compliance with randomization

Out of those that were randomly selected into treatment (ITT=1), 72% (N=127) attended one of the treatment schools during the three years analyzed (2015, 2016 and 2017) and 28% ended up not attending.¹⁶ Of those with ITT=0, only 3% ended up attending the treatment school.

Table 5. Compliance with randomization

	Attended treatment schools in years 2015-2017	Did not attend treatment schools at any time or attended only partially in 2015-2017	Full working sample	% attending treatment schools in 2015-2017	% not attending treatment schools at any time or for the full period 2015-2017
ITT=1	127	49	176	72%	28%
ITT=0	6	229	235	3%	97%

vi) External validity

Table 6 compares pre-enrollment characteristics (collected in 2015) for the average student in the three schools with those of adolescents aged 12 to 14 in the general population, as well as with adolescents the same age living in the schools' neighborhoods. The comparison samples are taken from the 2015 Uruguayan National Household Survey (Encuesta Continua de Hogares, INE).

When we compare students in the schools of reference with students in their same neighborhoods, we cannot reject they are equal in terms of repetition rates, gender, likelihood of living with both their biological parents, probability of being beneficiaries of cash transfers, and in the number of household members. We do find statistically significant differences, however, in students' mothers' education, which is 0.5 years higher for mothers of students in the schools of reference.

¹⁶ Non-compliance was particularly large in one of the three schools, where 45% of those with ITT=1 ended up not attending the school and 10% with ITT=0 ended up attending.

When we compare our study sample with a representative sample of students in the country, students in the studied schools are more likely to have repeated a grade during primary education, their mothers are less educated, their households are larger, and more likely to be beneficiaries of cash transfers.

In sum, the body of applicants is largely poor, although slightly better in terms of their mother's education than the average adolescent in their same neighborhoods.

Table 6 Sociodemographic characteristics of applicants to the three analyzed schools in 2015 and comparison with Uruguayan Household Survey 2015

	(1)	National Household Survey 2015 Adolescents 12-14			
		(2)	(3)	(1)-(2)	(1)-(3)
	Average Schools A, B, C	Same neighbor- hoods as schools'	Full Country		
Male	0.49	0.55	0.52	-0.06	-0.03
Repeated a grade	0.28	0.25	0.12	0.03	0.16***
Lives with both biological parents	0.49	0.46	0.52	0.03	-0.03
Mother's years of education	8.1	7.3	9.2	0.8***	-1.1***
Mother completed middle school	0.42	0.28	0.52	0.14**	-0.11***
Household is recipient of cash transfers	0.71	0.77	0.56	-0.06	0.15***
Number of household members	4.9	4.8	4.6	0.1	0.3***

vii) Outcomes and mechanisms

The outcomes we explore include academic trajectories, socio-emotional competences (academic mindsets, motivation, perseverance, and social skills), student well-being (health and life satisfaction, symptoms of depression, internalizing and externalizing behaviors) and risky behaviors.

We also assess several mechanisms that could mediate the treatment effects, including academic expectations, effort and study strategies, and school climate. A summary of all the outcomes and mechanisms considered in the analysis is included in *Appendix Table ii*.

viii) Estimation Approach

We run the analysis using ordinary least squares regressions of the outcomes on an indicator of intention to treat (ITT), and controls for gender (the stratification variable used in all schools), mother's education (used as an additional stratification variable in one of the schools), an indicator of grade retention in primary school, dummies indicating the school's application pool, and a dummy indicating whether the household receives cash transfers from public programs. Due to the large number of outcomes, we adjust the standard errors to account for family-wise errors using the Holm's Sequentially Rejective Bonferroni method. For robustness, we also run the same regressions adding controls for outcomes at baseline, and excluding all covariates, respectively. Finally, we estimate local average treatment effects running two-stages least squares regressions of each outcome on treatment school participation throughout the three years of middle school (2015, 2016 and 2017) using Intention to Treat as an instrumental variable.

3. Results

We display results in two parts. Table 7 shows the Intention to Treat effects on academic, socio-emotional, health-related, and behavioral outcomes. Table 8 shows Intention to Treat effects on mediating outcomes. Final and mediating outcomes are classified into family groups. The family category is shown on the left hand side of the table, besides each family of outcomes. Columns (1), (2), and (3) in each table show the mean for the control group, the estimated coefficients for ITT and the standard errors (adjusted for heteroscedasticity using the Huber-White formula), respectively. Column (4) depicts the classical p-value (p^i), while column (5) shows the adjusted p-values using Holm-Bonferroni adjustment (p^{ii}) within each outcome family. In column (6) we show the ex-ante statistical power (two-sided) for achieving a minimum effect size of 0.25 standard deviations when dealing with continuous variables, and of 30% of the mean proportion when the outcome is dichotomous. The one change relative to pre-study power analysis is that we correct the number of observations for real attrition, and specify the baseline mean and standard deviations as the real control group standard deviation. The object of the power calculations is to aid in the assessment of whether non-significant values

reflect real underlying parameters that are not different from 0, or if they are simply imprecise estimates due to low statistical power (a low probability of rejecting the null giving that it is false).

i) *Outcomes*

a. *Academic trajectories*

Results for academic trajectories are depicted at Table 7 a. Treatment students fare better than control subjects in terms of academic promotion. In effect, students assigned to the treatment group show a probability of attending the age-appropriate grade in 2018 (4th grade of secondary school, equivalent to 10th grade in the US) that is 20 percentage points higher than that of the control group. Only half of the students in the control group reach 4th grade of secondary school after 3 years in secondary school. Treatment increases this number to 70%. Regardless of the grade they are in 2017, treatment school students are 10 percentage points less likely to have *repeated the grade* by the end of the 2017 academic year. While one out of four students in the control group was not promoted to the next grade in the third-year follow-up, only 14% of students in the treatment group were retained. We observe no differences across treatment and control students in the fraction of subjects that dropped out definitely from school in the 2015-2017 period (around 3.5% of students). We do find, however, statistically significant differences in dropping out at some point but starting school again in the following year(s). Intermittent drop-outs represent a 16% of the control group, while they are 9% among the treated. Most students in the control group (97%) still report *attending school in 2017* (three years after middle school initiation), and so do treatment subjects.

Results remain unchanged after running regressions without controls (see Appendix Table iv), after controlling for the same results at baseline (Appendix Table v) and after running two-stage least squares analysis (Appendix Table vi).

b. *Socio-emotional outcomes*

The student's academic mindset is captured by a family of four outcomes: the student's sense of *relevance* [of academic skills] *for the future*, *growth mindset* (whether the student believes that effort improves intelligence), the student's sense of *self-efficacy* with academic tasks, the student's ability to delay gratification for academic purposes

(*academic delay of gratification*), and *academic identity* (the degree to which the student feels identified with academic objectives). Each outcome ranges from one to five. While the estimated coefficients vary in sign and magnitude, we fail to find statistically significant differences between treatment and control groups in each of the variables of this group.

A second family of socio-emotional outcomes includes extrinsic and intrinsic motivation. Both variables range from one to five, with lower scores depicting less motivation. Students in the treatment group present slightly better results in *intrinsic* and *extrinsic motivation* than students in the control group, but we cannot reject the hypothesis that they are equal. *Self-control* and *grit* are a third family of socio-emotional outcomes. The outcomes *delayed gratification* and *self-control* are related to the regulation of impulses and desires, whereas *consistency of interest* and *perseverance of effort* point to the ability to sustain an effort in time. The variables range from one to five. Again, we fail to find statistically significant differences between students in both comparison groups.

Finally, we assess a fourth set of socio-emotional outcomes, *social-skills*, which include *assertion*, *empathy*, *engagement* and *interpersonal self-control*. All of these variables range from 1 to 5. As shown in *Table 7 b.*, we do not find statistically significant differences between students in the treatment group and those in the control group.

In sum, we find no evidence of differences in any of the socio-emotional skills analyzed between treatment and control subjects. Note that the ex-ante statistical power of finding an effect of 0.25 standard deviations is between 50% and 60% for most of these outcomes, so the lack of statistical significance does not necessarily reflect that there is no effect.

c. Health and well-being

We classify health and well-being outcomes in several families, according to the source of the report and the nature of the outcomes. The first family covers outcomes reported by the student and includes *life satisfaction* (a scale that takes values from one to ten), *self-reported health* (a dummy equal to one if the student reported having an excellent or very good health), and an index of *depression* symptoms (which can take values between zero-no depression symptoms- and thirty-six). As shown in *Table 7 c.*, although students in the treatment group are more likely to have reported their health as excellent, present

higher ratings in the life satisfaction scale and show a lower number of symptoms of depression, we cannot reject the hypotheses that they are equal to those of control subjects.

The next three families assess student's mental health outcomes as reported by the student's parents (mother or father). We consider three groups of variables that account for different symptoms of mental health syndromes evaluated in the CBCL questionnaire: internalizing symptoms, externalizing symptoms, and symptoms of other syndromes. Internalizing symptoms include *anxiety, withdrawal* and *somatic complaints*. Externalizing symptoms include *rule-breaking behavior* and *aggressive behavior*. Symptoms of other syndromes include *social, attention, thought* and *other problems*.¹⁷ Outcomes were normalized to be mean zero and standard deviation equal to one for students in the control group. Results show that students in treatment schools have lower anxiety (-0.26 standard deviations) and less symptoms of withdrawal (-0.19 standard deviations) than students in the control group. The differences in anxiety remain statistically significant after using Bonferroni adjustments of p-values. Regarding externalizing behaviors, students in treatment schools appear to have lower symptoms of *rule-breaking* and *aggressive behaviors* than students in the control group, but the differences are not statistically significant. Finally, students in the treatment group present lower symptoms of social problems (-0.2 standard deviations) and lower symptoms of other problems (-0.17 standard deviations). While significant at 10% under conventional p-values, the differences lose significance after the Bonferroni-Holm adjustment. In general all coefficients have the expected sign: for outcomes that reflect wellbeing, the ITT coefficients are positive, and for outcomes that reflect mental health problems, the ITT coefficients are negative. The lack of significance in some of these outcomes could be explained by the low power of the instruments, which range around 60%.

Overall, results show that students in the schools of reference present lower symptoms of mental health syndromes than students in the control group.

¹⁷ Other problems include being cruel with animals, not eating well, biting nails, overeating, being overweight, showing off, sleeping more than other adolescents, talking too much, and wetting the bed.

Results are similar when we conduct the two-stage least squares analysis (see Appendix Table vi).

d. Risky behaviors

We consider two outcomes in this category: an index capturing *consumption of substances* and another one capturing *risky behaviors*. The former one can take any values from zero to five whereas the latter ranges from zero to ten. Both treatment and control groups present low averages, as depicted in *Table 7 d*. The consumption of substances index shows an average of 0.51 for students in the treatment group, and 0.39 for students in the control group. In the case of the risky behavior index, subjects in the treatment group present an average of 0.79 while the control group's average is 0.89. In neither case can we reject the hypothesis that the indexes are equal.

Table 7. Intention to Treat (ITT) effects on academic, socio-emotional, health-related and behavioral outcomes.

<i>Outcomes</i>							
Family group	Variable	Mean ITT=0	ITT Coeff	se	p(i)	p(ii)	Ex-ante Power#
		(1)	(2)	(3)	(4)	(5)	(6)
<i>Academic outcomes</i>							
<i>Academic Trajectories</i> (N=322)	Attending 4th grade in 2018	0.49	0.200***	0.051	0.000	0.001	0.742
	Repeated the grade in 2017	0.25	-0.097**	0.043	0.024	0.097	0.353
	Dropped out of school at some point but started again in following years (N=283)	0.16	-0.072**	0.034	0.035	0.106	0.208
	Attended school at least partially in 2017	0.97	0.026*	0.014	0.063		0.263
	Definite drop-out (N=283)	0.04	0.012	0.022	0.586		0.072
<i>Socio-emotional outcomes</i>							
<i>Academic Mindset</i> (N=322)	Relevance for the future	4.40	0.086	0.069	0.215	1.000	0.651
	Growth mindset	3.65	0.112	0.113	0.322		0.619
	Self-Efficacy	3.43	0.058	0.111	0.600		0.578
	Academic delay of gratification	3.32	-0.013	0.113	0.908		0.631
	Academic Identity	4.22	-0.009	0.092	0.923		0.621
<i>Motivation</i> (N=317)	Extrinsic motivation	3.73	0.030	0.100	0.762	1.000	0.632
	Intrinsic motivation	3.62	0.025	0.102	0.807		0.66
<i>Self-Control and Grit</i> (N=322)	Consistency of Interest	3.22	-0.134	0.108	0.216	0.866	0.624
	Delayed Gratification	3.49	-0.119	0.115	0.298		0.519
	Self-Control	3.36	-0.088	0.105	0.406		0.561
	Perseverance of Effort	4.08	-0.021	0.085	0.808		0.634
<i>Social Skills</i> (N=322)	Assertion	2.74	-0.089	0.070	0.207	0.829	0.584
	Empathy	3.23	-0.055	0.070	0.434		0.626
	Interpersonal Self-Control	2.81	0.045	0.078	0.566		0.615
	Engagement	3.10	0.039	0.070	0.583		0.649
<i>Health and well-being</i>							
<i>Health and life satisfaction</i> (N=322)	Health (self-report)	0.66	0.035	0.053	0.512	1.000	0.985
	Satisfaction with Life (scale 1-10)	7.50	0.142	0.263	0.590		0.567
	Depression (scale 0-36)	10.20	-0.050	0.786	0.949		0.504
<i>Internalizing Behavior</i> (N=323)	Anxious	0.00	-0.259**	0.108	0.017	0.050	0.646
	Withdrawn	0.00	-0.193*	0.110	0.08	0.160	0.626
	Somatic Complaints	0.00	-0.136	0.106	0.2		0.654
<i>Externalizing Behavior</i> (N=323)	Rule-Breaking Behavior	0.00	-0.124	0.099	0.209	0.418	0.660
	Aggressive Behavior	0.00	-0.123	0.110	0.265		0.600
<i>Other syndromes</i> (N=323)	Social Problems	0.00	-0.202*	0.105	0.056	0.225	0.661
	Other Problems	0.00	-0.174*	0.103	0.093		0.692
	Attention Problems	0.00	-0.150	0.101	0.137		0.671
	Thought Problems	0.00	-0.147	0.110	0.180		0.589

Behavioral outcomes

<i>Risky behavior</i> (N=322)	Consumption of substances (index)	0.39	0.118	0.084	0.161	0.321	0.497
	Non-normative behavior (index)	0.87	-0.095	0.136	0.484		0.677

Note: OLS regressions of academic, socioemotional, health-related, and behavioral outcomes on ITT, controlling for student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, and the school admission pool the student participated in. Only the coefficient on ITT is shown. Column (5) depicts the classical p-value (π), while column (6) shows the adjusted p-values using Holm-Bonferroni adjustment (π_{ii}) within each outcome family and column (7) show statistical power.

For dichotomous outcomes, we construct the power of achieving a change of 30% of the outcome (or the minimum change required to achieve a proportion of 100%), given the number of observations available in the treatment and control groups, and the mean value of the outcome for the control group as baseline. In the case of continuous variables, we compute the power of achieving a change of 0.25 standard deviations considering the final number of observations in treatment and control groups, the mean and standard deviation for the outcome in the control group, and the standard deviation of the outcome in the treatment group). Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

ii) *Mechanisms*

a. *Academic Expectations*

As discussed by Edmonds (1979, 1982), effective schools are successful at increasing academic expectations. We thus explore students' and parents' expectations about high school/college completion to explore this channel. Results are reported in Table 8 a.

Treated subjects are more likely, by 7.1 percentage points, to expect to complete high school (80% is the rate for control subjects). While the ITT coefficient on college expectations is positive, it is statistically non-significant. The treatment schools also impact positively parents' academic expectations about their children. While 75 percent of the parents of control group students expect their children to complete high school, the rate is 83 percent (8 percentage points higher) for parents of treatment students. Regarding college completion, half of the parents in the control group students expect their children to achieve a college degree, versus 60 percent of parents of the treatment school students. Both differences are statistically significant and remain so in the different specifications.

b. *Academic effort and study strategies*

We do not find statistically significant differences between treatment and control subjects in the percentage of students arriving late to class, in the percentage of students that were absent more than 10 times in the previous year, or in the percentage of students that report doing homework always or most of the times. Although the coefficients on

study strategies and academic behavior are positive, they are estimated imprecisely and we cannot reject the hypothesis of zero difference with the control group (see *Table 8 b*).

c. School climate

We consider six measures of school climate: *teacher absenteeism, sense of school belonging, adherence to school norms, pedagogic climate in Math class, attitudinal class climate and parental involvement*. All indicators but one - *pedagogic climate in Math class* - show statistically significant effects of the treatment schools. Teacher absenteeism was measured as the likelihood that a teacher was absent more than 4 times in 2017. Secondly, results regarding *school belonging, adherence to school norms, parental involvement, pedagogic climate in Math class and attitudinal class climate* were normalized to be mean zero and standard deviation one for students in the control group. According to the results presented in *Table 8c.*, students in the treatment schools report lower teacher absenteeism, appear to feel part of the school to a greater extent than students in the control group, report more discipline and norm adherence at school, and classes that are less noisy and messy than those of students in the control group. In addition, we consider the sum of 5 parent outreach variables which capture how often schools communicate with parents regarding academic performance, behavioral issues, or to simply provide feedback as an indicator of parental involvement. Results shows that parents of treated students are more likely to be involved in school activities and meetings.

Table 8. Intention to Treat (ITT) effects on academic expectations, academic effort and school climate. (Mechanisms)

<i>Mechanisms</i>							
Family group	Variable	Mean ITT=0 (1)	ITT Coeff (2)	se (3)	p(i) (4)	p(ii) (5)	Ex-ante Power (6)
<i>Students' Academic Expectations</i> (N=322)	Expects to complete high school	0.80	0.071**	0.036	0.047	0.094	1
	Expects to complete college	0.43	0.073	0.055	0.186	0.186	0.629
<i>Parents' Academic Expectations</i> (N=298)	Expects student to complete college	0.48	0.120**	0.055	0.031	0.062	0.706
	Expects student to complete high school	0.75	0.082*	0.042	0.054	0.054	1
<i>Academic effort and study strategies</i> (N=317)	Study strategies	3.51	0.160	0.108	0.139	0.696	0.653
	Academic behavior	3.46	0.109	0.081	0.178		0.693
	Complied with homework always or most of the times in 2017 (N=295)	0.62	0.054	0.056	0.337		0.941

	Student arrived late to school more than once a month in 2017	0.40	0.045	0.056	0.425		0.598
	Student missed more than 10 classes in 2017 (N=289)	0.24	0.009	0.049	0.851		0.311
<i>School climate</i> (N=317)	Teachers were absent more than 4 times in 2017	0.60	-0.399***	0.05	0.000	0.000	0.888
	School belonging	0.02	3.204***	0.658	0.000	0.000	0.656
	Discipline and norm adherence	0.00	0.911***	0.161	0.000	0.000	0.675
	Parents involved with the school	0.00	1.623***	0.264	0.000	0.000	0.591
	Classes noisy and messy	0.00	-0.276**	0.109	0.012	0.024	0.644
	Pedagogic climate in Math class	0.00	0.153	0.098	0.122	0.122	0.731

Note: OLS regressions of academic expectations, academic effort and school climate on ITT, controlling for student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, and the school admission pool the student participated in. Only the coefficient on ITT is shown. Column (5) depicts the classical p-value (π), while column (6) shows the adjusted p-values using Holm-Bonferroni adjustment (π_{ii}) within each outcome family and column (7) show statistical power. For dichotomous outcomes, we construct the power of achieving a change of 30% in the outcome (or the minimum change to reach a proportion of 100%), given the number of observations available in the treatment and control groups, and the mean value of the outcome for the control group as baseline. In the case of continuous variables, we compute the power of achieving a change of 0.25 standard deviations (considering the number of observations in treatment and control groups, the mean and standard deviation for the outcome in the control group, and the standard deviation in the treatment group). Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

iii) Heterogeneous effects

We explore heterogeneous effects by student gender, likelihood of having repeated a grade in primary school, cash transfers recipient status at baseline, and mother's education at baseline (dummy equal to 1 if the mother completed middle school). To run this analysis we add an interaction between the Intention to Treat indicator and dummies indicating each of the above features to the core regressions.

Results of the interaction coefficient are depicted in Appendix Tables vii-ix. Regarding gender, we do not find statistically significant differences in treatment effectiveness between male and female subjects for most of the outcomes analyzed. The only exceptions are found for definite school drop-out and internalizing and externalizing behaviors: treated boys are more likely to abandon school definitely than treated girls, and treatment is more likely to decrease symptoms of withdrawal and rule-breaking behavior for boys than for girls. In terms of the school mechanisms, the only difference

is found for the variable homework compliance: treatment is more likely to positively affect girls regarding compliance with homework.

Appendix Table viii presents the coefficients, standard errors and p-values of the interaction between ITT and an indicator for having repeated at least a grade in primary school. Treatment has a stronger positive effect on school attendance in 2017, and a stronger negative effect on intermittent school drop-out for students that previously repeated a grade. It also affects these students more positively in terms of self-reported health, mental health, and non-normative behaviors. Among students with a history of repetition, those in treatment schools are less likely to report depression symptoms and to behave disruptively than non-treated ones. We do not find statistically significant differences by repetition status in other outcomes or mechanisms.

In Appendix Table ix we explore heterogeneous effects according to cash transfers recipient status. Results are mixed. On the one hand, we find that treatment affected cash transfer beneficiaries more positively than other students in terms of increasing their school attendance in 2017 and lowering their consumption of substances. On the other hand, we find that treated students who were cash transfer recipients performed worse than other students in terms of grade promotion (while they were still less likely to repeat the grade than control subjects, the gap was smaller than for non-beneficiaries) and in terms of socioemotional skills (lower growth mindset, lower capacity to delay gratification in order to prioritize studies, and less motivation).

Also, we explore differential effects between treatment and control subjects according to mothers' education (whether mother finished middle school). Results are presented in Appendix Table x. We found no statistically significant differences in treatment effectiveness by maternal education, with the exception of thought problems, which are less prevalent in treated subjects with highly educated mothers.

Finally, in Appendix Table xi we explore heterogeneous effects according to the school admission pool the student participated in. To run this analysis we add interactions between the Intention to Treat indicator and dummies indicating if the student participated in the admission pool of School A or B (relative to school C). Column (1)

reflects the ITT effect for School C, while the sum of column (1) and columns (3) reflects the ITT effect for school A, and the sum of column (1) and (5) show the ITT effects for School B.

Results show that School C outperforms the other two schools in terms of student well-being and mental health, as well as motivation. Intention to treat effects are negative and statistically significant for this school when assessing depression, internalizing, externalizing, and risky behavior indicators, and ITT coefficients are both positive and statistically-significant when assessing intrinsic and extrinsic motivation. We do not find differential effects across schools in academic trajectories.

If we explore the mechanisms, we find that ITT effects on academic expectations, academic behaviors, school belonging, adherence to norms, parental involvement with the school, teachers' presentism, pedagogic and disciplinary climate in class are better for those who took part in School C's lottery.

iv) Cost Analysis and Cost Effectiveness

Table 9 shows treatment schools' average annualized operating cost per student in 2015, expressed in US dollars. We assessed these costs by administering an instrument to each of the analysis schools in a process that included several meetings with the schools' administrators and accountants. The instrument considers running costs registered in each school's books, as well as other opportunity costs, such as non-monetary donations and volunteer work. The per student cost displayed in Table 7 for the treatment schools is the average of each schools' cost weighted by the number of students in each school that were selected to attend the treatment school by lottery. We also compared the schools' total operating costs to information on public school's costs reported by CES (Counsel of Secondary Education), after a request by the research team in 2016. Treatment schools spent in 2015 an average of US\$ 3745 per student. Their running cost is 26% higher than that of a traditional public school (a single shift middle school) and 23% higher than that of an extended schedule public middle school. However, the cost is slightly lower than that of a full time public school, which is more similar to the treatment schools in terms of the school time offered. It is important to bear in mind,

though, that most public schools in Uruguay (and the majority of those attended by control subjects) are single-shift public schools. When opening the cost per student into different categories, we observe that treatment schools spend more in management and auxiliary human resources than public schools, but spend less in teaching resources. This can be explained by the vertical management used in the public education system, which leaves few administrative decisions to school managers.

If we were to choose a single outcome out of those evaluated in this paper to run a cost-effectiveness analysis, middle school completion at the appropriate age may be the preferred one, as it is highly associated with high school completion and initiation of tertiary education. The cost effectiveness of the program in terms of such outcome can be computed as:

$$CE = \frac{\Delta Cost}{\Delta Y} = \frac{US\$ 3745 - 2978}{70\% - 50\%} = \frac{767}{20\%} = 38.4$$

The above estimate suggests that increasing the probability of completing middle school at the age appropriate age by 10% would cost US\$ 384 per student per year. Note that there are other positive outcomes associated with this cost increase, including lower drop-out rates and improved mental health. While not negligible, this is not a prohibitive cost if the treatment were to be scaled up in poor neighborhoods. Perhaps the most worrisome hurdle of scalability is the labor supply of teaching talent available to schools in deeply disadvantaged neighborhoods. At the current salaries, it may be difficult to find a large number of individuals who possess the teaching skills, as well as the values and beliefs required by managers in the treatment schools to achieve successful outcomes. Scalability may require investment in training and higher wages.

Table 9 Annual per student cost in US dollars (2015)

	Treatment schools ¹	Public schools ²		
		Full time middle schools	Single shift middle school	Extended schedule middle school
Management and auxiliary human resources	1419	811	834	862
Teaching human resources	1583	2157	1936	1949

Volunteers	46	0	0	0
Services and material human resources	696	1168	208	228
Total cost per student	3745	4136	2978	3040

¹ Based on surveys administered by research team. Costs correspond to year 2015.

² Based on reports from Secondary School Council (CES, ANEP), after a request by the research team on October, 2016. Column 1 shows the average of each schools' cost weighted by the number of students in each school that were selected to attend the school by lottery. Columns 2 to 4 show 2016 average costs for all middle schools in the country in year, deflated by inflation in 2016 and expressed in 2015 US dollars to make it comparable with the treatment schools costs. These costs do not include the higher costs in security and food incurred by public schools in low SES areas nor extra costs that CES provides to individual schools on the basis of specific needs.

4. Conclusions

Privately managed tuition-free schools were created in Uruguay as an alternative for students with poor opportunities in public schools. In this paper we use a randomized design to evaluate the academic trajectories, and well-being of students attending three of these schools, 3 years after having initiated middle school. Consistent with their mission, these schools employ a wide variety of strategies to improve the academic trajectories and wellbeing of low socioeconomic status students, including a flexible and dynamic management, more instructional time, tutoring and personalized monitoring of each student, a close involvement of students' families in schools' processes, a nurturing and disciplined school climate, and a culture of high expectations (Aristimuño, Balsa and Lasida, 2015).

Results show that the schools improved the academic trajectories and mental health of the students. Students attending these schools are 40% percent more likely to attend the right grade for their age, they are less likely to have repeated a grade and have half the likelihood of having dropped out of school at some point during the three years of middle school. Furthermore, they show lower symptoms of anxiety and other mental health problems. We explored several mechanisms that could explain these differences. We do not observe any impact in student's effort (measured in terms of number of absences, late arrivals to school and compliance with homework) nor in study strategies (organization of time, school materials or study techniques). However, we find striking differences in academic expectations, in the sense of school belonging, in the normative environment, in teacher absenteeism, and in parental involvement with the school.

We do not find statistically significant evidence of changes in socio-emotional competences, neither for the average student nor for other categories of students defined by household poverty, education, or prior repetition. Our ex-ante computations of statistical power of socioemotional outcomes suggests that the likelihood of rejecting the null when the true effect is 0.25 standard deviations is around 60%. We are unable, thus, to affirm that these schools do not affect socio-emotional competences; we just have lower than ideal power in our data to assess this.

Several studies on school effectiveness (Dobbie and Fryer, 2015; Heckman and Kautz, 2013; Heckman, Stixrud and Urzua, 2006) show that high quality schools affect not only cognitive outcomes, but also other non-cognitive skills that are correlated with long-term life outcomes. Our results indicate that these schools help students remain in school and advance in the academic track. Mailhos and Balsa (2017) show that timely progression and retention in these schools is associated with a higher likelihood of high school completion and college enrollment. Outcomes such as high school completion, academic perseverance, and good mental health may be ultimately as important as test scores in terms of labor market and other lifelong outcomes (Rouse, 2007; Cutler and Lleras-Muney, 2013).

The findings reported in this paper, together with a qualitative description of the treatment schools in Aristimuño, Balsa and Lasida (2015) contribute to a growing body of evidence documenting school practices that are successful at increasing academic opportunities for disadvantaged populations. Many of these practices, such as tutoring, parental involvement, the forging of high academic expectations, and a caring and disciplined environment, are not exclusive of privately managed schools and could well be adapted to public institutions.

References

ANEP-MESyFOD (2000). *Primer Análisis de la Prueba Censal en Matemática*. Montevideo, Unidad de Reprodocumentación del Consejo Directivo Central de la Administración Nacional de Educación Pública.

Angrist, J. D., Dynarski, S. M., Kane, T. J., Pathak, P. A., & Walters, C. R. (2010). Inputs and impacts in charter schools: KIPP Lynn. *American Economic Review*, 100(2), 239-243.

Akyol, Ş. P., Krishna, K., & Wang, J. (2018). Taking PISA Seriously: How Accurate are Low Stakes Exams? (No. w24930). National Bureau of Economic Research.

Balsa, A., & Cid. A. (2016). A Randomized Impact Evaluation of a Tuition-Free Private School Targeting Low Income Students in Uruguay. *Journal of Applied Economics*, 19(1), 65-94

Balsa, A., & Cid. A. (2014). Advancing Academic Opportunities for Disadvantaged Youth: Third Year Impact Evaluation of a Privately-Managed School in a Poor Neighborhood in Montevideo. *Páginas de Educación, Revista de la Facultad de Ciencias Humanas (UCU, Uruguay)*, 7, 2014.

Banerjee, A., & Duflo, E. (2006). Addressing absence. *Journal of Economic perspectives*, 20(1), 117-132.

Bifulco, R., & Ladd, H. F. (2006). Institutional change and coproduction of public services: The effect of charter schools on parental involvement. *Journal of Public Administration Research and Theory*, 16(4), 553-576.

Charity, A. H., Scarborough, H. S. & Griffin, D.M. (2004). Familiarity with School English in African American Children and Its Relation to Early Reading Achievement. *Child Development*, 75, 1340–1356.

Cutler, D.M. & Lleras-Muney, A. (2013). *Education and Health: Evaluating Theories and Evidence*, Working Paper 12352 (Cambridge, Mass.: National Bureau of Economic Research, 2006).

Dobbie, W., & Fryer Jr, R. G. (2015). The medium-term impacts of high-achieving charter schools. *Journal of Political Economy*, 123(5), 985-1037.

Dobbie, W., & Fryer Jr, R. G. (2013). Getting beneath the veil of effective schools: Evidence from New York City. *American Economic Journal: Applied Economics*, 5(4), 28-60.

Dobbie, W., & Fryer Jr, R. G. (2011). Are high-quality schools enough to increase achievement among the poor? Evidence from the Harlem Children's Zone. *American Economic Journal: Applied Economics*, 158-187.

- Edmonds, Ronald. (1979). "Effective Schools for the Urban Poor." *Educational Leadership* 37(1): 15–24.
- Edmonds, Ronald R. (1982). "Programs of School Improvement: An Overview." *Educational Leadership* 40(3): 4–11.
- Embretson, S. E., & Reise, S. P. (2013). *Item response theory*. Psychology Press.
- Epple, D., Romano, R. E. & Zimmer, R. W. (2015). *Charter Schools: A Survey of Research on Their Characteristics and Effectiveness*. NBER Working Paper N.w21256.
- Eskreis-Winkler, L., Duckworth, A.L., Shulman, E., & Beal, S. (2014). The grit effect: Predicting retention in the military, the workplace, school and marriage. *Frontiers in Personality Science and Individual Differences*, 5(36), 1-12.
- Evans, G. W. & Rosenbaum, J. (2008). Self-regulation and the income-achievement gap. *Early Childhood Research Quarterly* 23(4), 504-514.
- Farkas, G. (2003). Cognitive skills and noncognitive traits and behaviors in stratification processes. *Annual Review of Sociology*, 29, 541-562.
- Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). *Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review*. Chicago: University of Chicago Consortium on Chicago School Research.
- Flavell, J. H. (1979). Metacognition and cognitive monitoring. *American Psychologist*, 34, 906–911.
- Flook, L., Repetti, R. L., & Ullman, J. B. (2005). Classroom social experiences as predictors of academic performance. *Developmental Psychology*, 41(2), 319-327.
- Fryer, R.G. Jr. (2014). Injecting Charter School Best Practices into Traditional Public Schools: Evidence from Field Experiments. *Quarterly Journal of Economics* 129 (3): 1355-1407.
- Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology*, 95, 148-162.
- Glewwe, P., & Muralidharan, K. (2016). Improving education outcomes in developing countries: Evidence, knowledge gaps, and policy implications. In *Handbook of the Economics of Education* (Vol. 5, pp. 653-743). Elsevier.
- Goodenow, C., & Grady, K.E. (1993). The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *Journal of Experimental Education*, 2(1), 60-71.

Gottfredson, M. R., & Hirschi, T. (1990). *A General Theory of Crime*. Stanford, CA: Stanford University Press.

Gresham, F. M. & Elliott, S. N. (2008). *Social Skills Improvement System Rating Scales*. Minneapolis, MN: NCS Pearson.

Heckman, J. J., Stixrud, J., & Urzua, S. (2006). The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. *Journal of Labor Economics*, 24(3), 411-482.

Heckman, J. J. & Kautz, T. (2013). Fostering and measuring skills: Interventions that improve character and cognition. En Heckman, J. J., Humphries, J. E. & Kautz, T.. *The myth of achievement tests: The GED and the role of character in American life* (p. 341-430). Chicago: University of Chicago Press.

Hopkins, K. D., & Bracht, G. H. (1975). Ten-Year Stability of Verbal and Nonverbal IQ Scores. *American Educational Research Journal*, 12, 469-477.

Hoxby, C. M. & Rockoff, J. E. (2004). *The impact of charter schools on student achievement*. Harvard University.

Hanushek, E.A., L. Woessmann (2011). The Economics of International Differences in Educational Achievement. In: E.A. Hanushek, S. Machin, L. Woessmann (eds.), *Handbook of the Economics of Education*, Vol. 3: 89-200. Amsterdam: North Holland.

Mailhos, M., Balsa, A. (2017). *Evaluación de impacto del Liceo Jubilar a 6 años del ingreso al liceo y 3 años después de haber egresado*. Manuscrito no publicado, Universidad de Montevideo.

Manno, B. V., Finn Jr, C. E., Bierlein, L. A., & Vanourek, G. (1998). How charter schools are different: Lessons and implications from a national study. *Phi Delta Kappan*, 79(7), 489-498.

Newport, E. L. (1990). Maturation Constraints on Language Learning. *Cognitive Science*, 14, 11-28.

OECD/PISA (2012). *PISA 2012 Results in Focus: What 15-year-olds know and what they can do with what they know: Key results from PISA 2012*.

Pinker, S. (1994). *The Language Instinct: How the Mind Creates Language* (New York: W. Morrow, 1994).

Preston, C., Goldring, E., Berends, M., & Cannata, M. (2012). School innovation in district context: Comparing traditional public schools and charter schools. *Economics of Education Review*, 31(2), 318-330.

Purkey, S. C., & Smith, M. S. (1983). Effective schools: A review. *The Elementary School Journal*, 427-452.

Rychen, D. S., & Salganik, L. H. (Eds.). (2003). *Key competencies for a successful life and well-functioning society*. Hogrefe Publishing.

Rouse, C.E. (2007). The Labor Market Consequences of an Inadequate Education, in *The Price We Pay: The Economic and Political Consequences of Inadequate Education*, edited by Clive Belfield and Henry M. Levin (Washington: Brookings Institution Press, 2007).

Sammons, P., Hillman, J., & Mortimore, P. (1995). *Key Characteristics of Effective Schools: A Review of School Effectiveness Research*. London: Institute of Education and Ofsted.

Appendix Table i Final enrollment at baseline according to the lottery and to direct acceptance

	(1)	(2)	(3)
	Enrolled=0	Enrolled=1	Total
School A			
ITT=0	366	2	368
ITT=1	3	75	78
Accepted directly	1	28	29
Full sample school A	370	105	475
School B			
ITT=0	121	15	136
ITT=1	25	35	60
Accepted directly	0	18	18
Full sample school B	146	68	214
School C			
ITT=0	165	1	166
ITT=1	1	37	38
Accepted directly	0	22	22
Full sample school C	166	60	226

Source: Schools' Pre-Enrollment Records.

Appendix Table ii - Descriptive statistics

Description	ITT=1 & ITT=0			N
	mean	min	max	
Attending 4th grade in 2018	0.57	0	1	328
Repeated the grade in 2017	0.20	0	1	323
Dropped out school but started again at following years	0.13	0	1	290
Attended to school at least one day in 2017	0.98	0	1	352
Abandoned school definitely	0.03	0	1	290
Relevance for the future	4.44	2	5	328
Growth mindset	3.70	1	5	328
Self-Efficacy	3.45	1	5	323
Academic delay of gratification	3.32	1	5	323
Academic Identity	4.22	1	5	328
Extrinsic motivation	3.74	1	5	323
Intrinsic motivation	3.63	1	5	323
Consistency of Interest	3.17	1	5	328
Delayed Gratification	3.45	1	5	328
Self-Control	3.32	1	5	328
Perseverance of Effort	4.07	2	5	328
Assertion	2.72	1	4	328
Empathy	3.22	1	4	328
Interpersonal Self-Control	2.84	1	4	328
Engagement	3.12	1	4	328
Health (self-report)	0.67	0	1	328
Satisfaction with Life (scale 1-10)	7.53	0	10	328
Depression (scale 0-36)	10.30	0	36	328
Anxious	-0.10	-2	3	329
Withdrawn	-0.07	-1	4	329
Somatic Complaints	-0.06	-1	4	329
Rule-Breaking Behavior	-0.05	-1	6	329
Aggressive Behavior	-0.04	-1	5	329
Social Problems	-0.07	-1	3	329
Other Problems	-0.07	-1	3	329
Attention Problems	-0.07	-1	3	329
Thought Problems	-0.03	-1	6	329
Consumption of substances (index)	0.44	0	5	328
Risky behavior (index)	0.84	0	10	328
Expects to complete high school	0.84	0	1	328
Expects to complete college	0.46	0	1	328
Expects student to complete college	0.54	0	1	303
Expects student to complete high school	0.79	0	1	303
Study strategies	3.58	1	5	323
Academic behavior	3.51	2	5	323
Complied with homework always or most of the times in 2017	0.65	0	1	299
Student arrived late to school more than once a month in 2017	0.41	0	1	323

Student missed more than 10 classes in 2017	0.23	0	1	294
Teachers were absent more than four times in 2017	0.43	0	1	323
School belonging	1.28	-15	10	323
Discipline and norm adherence	0.36	-2	2	323
Parents involved with the school	0.68	-2	8	323
Classes noisy and messy	-0.12	-2	2	323
Pedagogic climate in Math class	0.07	-3	1	323

Appendix Table iii - Summary table of variables for ITT=1 and ITT=0

Description	ITT=1				ITT=0			
	mean	min	max	count	mean	min	max	count
Attending 4th grade in 2018	0.70	0	1	134	0.49	0	1	194
Repeated the grade in 2017	0.14	0	1	133	0.25	0	1	190
Dropped out of school at some point but started again in following years	0.08	0	1	118	0.16	0	1	172
Attended school at least partially in 2017	0.99	0	1	159	0.97	0	1	193
Definite drop-out	0.03	0	1	118	0.04	0	1	172
Relevance for the future	4.51	3	5	134	4.40	2	5	194
Growth mindset	3.77	1	5	134	3.65	1	5	194
Self-Efficacy	3.49	1	5	133	3.43	1	5	190
Academic delay of gratification	3.33	1	5	133	3.32	1	5	190
Academic Identity	4.23	1	5	134	4.22	1	5	194
Extrinsic motivation	3.75	1	5	133	3.73	1	5	190
Intrinsic motivation	3.64	1	5	133	3.62	1	5	190
Consistency of Interest	3.10	1	5	134	3.22	1	5	194
Delayed Gratification	3.39	1	5	134	3.49	1	5	194
Self-Control	3.27	1	5	134	3.36	1	5	194
Perseverance of Effort	4.06	2	5	134	4.08	2	5	194
Assertion	2.69	1	4	134	2.74	1	4	194
Empathy	3.21	2	4	134	3.23	1	4	194
Interpersonal Self-Control	2.87	1	4	134	2.81	1	4	194
Engagement	3.14	1	4	134	3.10	1	4	194
Health (self-report)	0.69	0	1	134	0.66	0	1	194
Satisfaction with Life (scale 1-10)	7.58	0	10	134	7.50	0	10	194
Depression (scale 0-36)	10.45	0	36	134	10.20	0	31	194
Anxious	-0.24	-2	3	136	0.00	-2	3	193
Withdrawn	-0.17	-1	3	136	0.00	-1	4	193
Somatic Complaints	-0.14	-1	3	136	0.00	-1	4	193
Rule-Breaking Behavior	-0.13	-1	5	136	0.00	-1	6	193
Aggressive Behavior	-0.11	-1	4	136	0.00	-1	5	193
Social Problems	-0.16	-1	3	136	0.00	-1	3	193
Other Problems	-0.16	-1	2	136	0.00	-1	3	193
Attention Problems	-0.16	-1	2	136	0.00	-1	3	193
Thought Problems	-0.08	-1	6	136	0.00	-1	4	193
Consumption of substances (index)	0.51	0	5	134	0.39	0	5	194
Non-normative behavior (index)	0.79	0	9	134	0.87	0	10	194
Expects to complete high school	0.89	0	1	134	0.80	0	1	194
Expects to complete college	0.52	0	1	134	0.43	0	1	194
Expects student to complete college	0.62	0	1	125	0.48	0	1	178
Expects student to complete high school	0.85	0	1	125	0.75	0	1	178
Study strategies	3.69	1	5	133	3.51	1	5	190
Academic behavior	3.58	2	5	133	3.46	2	5	190
Complied with homework always or most of the times in 2017	0.70	0	1	116	0.62	0	1	183

Student arrived late to school more than once a month in 2017	0.43	0	1	133	0.40	0	1	190
Student missed more than 10 classes in 2017	0.22	0	1	124	0.24	0	1	170
Teachers were absent more than 4 times in 2017	0.19	0	1	133	0.60	0	1	190
School belonging	3.08	-14	10	133	0.02	-15	10	190
Discipline and norm adherence	0.87	-2	2	133	0.00	-2	2	190
Parents involved with the school	1.64	-2	8	133	0.00	-2	8	190
Classes noisy and messy	-0.29	-2	2	133	0.00	-2	2	190
Pedagogic climate in Math class	0.16	-2	1	133	0.00	-3	1	190

Appendix Table iv - OLS regressions of outcomes on ITT, excluding all covariates but the school admission pool

Family group	Variable	N	ITT Coeff	se	p ⁽ⁱ⁾	p ⁽ⁱⁱ⁾
		(1)	(2)	(3)	(3)	(4)
Outcomes						
Academic outcomes						
	Attending 4th grade in 2018	328	0.205***	-0.054	0.000	0.001
	Repeated the grade in 2017	323	-0.095**	-0.044	0.031	0.124
Academic Trajectories	Dropped out of school at some point but started again in following years	290	-0.078**	-0.037	0.038	
	Attended school at least partially in 2017	352	0.027*	-0.014	0.062	
	Definite drop-out	290	0.004	-0.022	0.860	
Socio-emotional outcomes						
	Relevance for the future	328	0.102	0.069	0.140	0.702
	Growth mindset	328	0.122	0.116	0.295	
Academic Mindset	Self-Efficacy	323	0.058	0.113	0.606	
	Academic Identity	328	-0.007	0.094	0.942	
	Academic delay of gratification	323	-0.000	0.112	0.997	
Motivation	Intrinsic motivation	323	0.025	0.099	0.797	1.000
	Extrinsic motivation	323	0.021	0.101	0.832	
Self-Control and Grit	Consistency of Interest	328	-0.118	0.106	0.264	1.000
	Delayed Gratification	328	-0.113	0.115	0.323	
	Self-Control	328	-0.091	0.105	0.384	
	Perseverance of Effort	328	-0.023	0.086	0.787	
Social Skills	Assertion	328	-0.064	0.069	0.353	1.000
	Empathy	328	0.038	0.070	0.586	
	Interpersonal Self-Control	328	-0.037	0.069	0.591	
	Engagement	328	0.041	0.079	0.600	
Health and well-being						
Health and life satisfaction	Health (self-report)	328	0.022	0.053	0.684	1.000
	Satisfaction with Life (scale 1-10)	328	0.099	0.261	0.704	
	Depression (scale 0-36)	328	0.185	0.829	0.824	
Internalizing Behavior	Anxious	329	-0.247**	0.108	0.023	0.069
	Withdrawn	329	-0.195*	0.109	0.074	0.149
	Somatic Complaints	329	-0.139	0.105	0.185	
Externalizing Behavior	Rule-Breaking Behavior	329	-0.124	0.103	0.229	0.458
	Aggressive Behavior	329	-0.107	0.113	0.344	
Other syndromes	Other Problems	329	-0.167	0.103	0.104	0.416
	Social Problems	329	-0.174	0.108	0.11	
	Attention Problems	329	-0.162	0.104	0.12	
	Thought Problems	329	-0.104	0.115	0.365	

Behavioral outcomes						
Risky behavior	Consumption of substances (index)	328	0.122	0.084	0.147	0.294
	Non-normative behavior (index)	328	-0.086	0.152	0.571	
<i>Mechanisms</i>						
Students' Academic Expectations	Expects to complete high school	328	0.075*	0.039	0.056	0.112
	Expects to complete college	328	0.084	0.057	0.141	
Parents' Academic Expectations	Expects student to complete college	303	0.114*	0.058	0.051	0.102
	Expects student to complete high school	303	0.088*	0.046	0.058	
Academic effort and study strategies	Study strategies	323	0.173	0.106	0.104	0.519
	Academic behavior	323	0.118	0.080	0.141	
	Complied with homework always or most of the times in 2017	299	0.076	0.057	0.181	
	Student arrived late to school more than once a month in 2017	323	0.051	0.056	0.365	
	Student missed more than 10 classes in 2017	294	0.009	0.049	0.855	
	Teachers were absent more than 4 times in 2017	323	-0.399***	0.05	0.000	0.000
School climate	School belonging	323	3.199***	0.639	0.000	0.000
	Discipline and norm adherence	323	0.860***	0.16	0.000	0.000
	Parents involved with the school	323	1.685***	0.262	0.000	0.000
	Classes noisy and messy	323	-0.285***	0.108	0.009	0.017
	Pedagogic climate in Math class	323	0.147	0.095	0.124	0.124

Note: OLS regressions of academic, socioemotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate on ITT, controlling for the school admission pool the student participated in. Only the coefficient on ITT is shown. Column (4) depicts the classical p-value (pi), while column (5) shows the adjusted p-values using Holm-Bonferroni adjustment (pii) within each outcome family Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Appendix Table v - OLS regressions controlling for outcomes at baseline, in addition to core set of covariates

Family group	Variable	N	ITT Coeff	se	p ⁽ⁱ⁾	p ⁽ⁱⁱ⁾
		(1)	(2)	(3)	(4)	(5)
Outcomes						
Academic outcomes						
Academic Trajectories	Attending 4th grade in 2018					
	Repeated the grade in 2017	304	-0.111**	0.043	0.010	0.020
	Dropped out school but started again at following years					
	Attended school at least partially in 2017	343	0.024*	0.014	0.079	0.079
	Definite drop-out					
Socio-emotional outcomes						
Academic Mindset	Growth mindset	288	0.133	0.111	0.233	1.000
	Self-Efficacy	297	0.092	0.115	0.426	
	Relevance for the future	301	0.053	0.073	0.471	
	Academic delay of gratification	297	-0.066	0.116	0.568	
	Academic Identity	306	-0.044	0.094	0.640	
Motivation	Motivación extrínseca	291	0.090	0.106	0.395	0.791
	Motivación intrínseca	292	0.063	0.102	0.540	
Self-Control and Grit	Consistency of Interest	287	-0.148	0.112	0.188	0.752
	Delayed Gratification	289	-0.111	0.118	0.349	
	Self-Control	284	-0.079	0.109	0.473	
	Perseverance of Effort	287	0.001	0.092	0.992	
Social Skills	Engagement	277	0.090	0.073	0.222	0.887
	Assertion	290	-0.040	0.076	0.604	
	Interpersonal Self-Control	287	0.040	0.083	0.628	
	Empathy	289	-0.029	0.070	0.683	
Health and well-being						
Health and life satisfaction	Satisfaction with Life (scale 1-10)					
	Health (self-report)					
	Depression (scale 0-36)	279	-1,327	0.909	0.146	0.146
Internalizing Behavior	Anxious					
	Withdrawn					
	Somatic Complaints					
Externalizing Behavior	Rule-Breaking Behavior					
	Aggressive Behavior					
Other syndromes	Social Problems					
	Other Problems					
	Attention Problems					
	Thought Problems					

Behavioral outcomes						
Risky behavior	Consumption of substances (index)					
	Non-normative behavior (index)					
<i>Mechanisms</i>						
Students' Academic Expectations	Expects to complete high school					
	Expects to complete college	306	0.055	0.057	0.339	0.339
Parents' Academic Expectations	Expects student to complete college					
	Expects student to complete high school					
Academic effort and study strategies	Study strategies	299	0.168	0.109	0.123	0.123
	Academic behavior					
	Complied with homework always or most of the times in 2017					
	Student arrived late to school more than once a month in 2017					
	Student missed more than 10 classes in 2017					
School climate	Teachers were absent more than 4 times in 2017					
	School belonging					
	Discipline and norm adherence					
	Parents involved with the school					
	Classes noisy and messy					
	Pedagogic climate in Math class					

Note: OLS regressions of academic, socioemotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate on ITT, controlling for baseline results in the same outcome, student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, and the school admission pool the student participated in. Only the coefficient on ITT is shown. Column (4) depicts the classical p-value (π), while column (5) shows the adjusted p-values using Holm-Bonferroni adjustment (π_{ii}) within each outcome family Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Appendix Table vi – Average treatment effects on the treated (Two-Stage Least Squares Regressions of 3-year Treatment Indicator on set of outcomes, controlling for core set of covariates and using ITT as instrument)

Family group	Variable	N	2nd. Stage Coeff	se	p ⁽ⁱ⁾
		(1)	(2)	(3)	(4)
Outcomes					
<i>Academic Trajectories</i>	Attending 4th grade in 2018	322	0.297***	0.071	0.000
	Repeated the grade in 2017	317	-0.143**	0.061	0.019
	Dropped out school but started again at following years	283	-0.101**	0.046	0.028
	Attended school at least partially in 2017	343	0.036*	0.019	0.059
	Definite drop-out	283	0.017	0.031	0.582
<i>Academic Mindset</i>	Relevance for the future	322	0.128	0.101	0.203
	Growth mindset	322	0.166	0.165	0.315
	Self-Efficacy	317	0.086	0.161	0.593
	Academic delay of gratification	317	-0.019	0.164	0.907
	Academic Identity	322	-0.013	0.134	0.922
<i>Motivation</i>	Extrinsic motivation	317	0.045	0.146	0.759
	Intrinsic motivation	317	0.037	0.148	0.804
<i>Self-Control and Grit</i>	Consistency of Interest	322	-0.199	0.159	0.208
	Delayed Gratification	322	-0.178	0.169	0.293
	Self-Control	322	-0.130	0.154	0.399
	Perseverance of Effort	322	-0.031	0.125	0.806
<i>Social Skills</i>	Assertion	322	-0.132	0.104	0.204
	Empathy	322	-0.082	0.103	0.429
	Interpersonal Self-Control	322	0.067	0.114	0.560
	Engagement	322	0.057	0.103	0.578
<i>Health and life satisfaction</i>	Health (self-report)	322	0.052	0.078	0.505
	Satisfaction with Life (scale 1-10)	322	0.211	0.385	0.584
	Depression (scale 0-36)	322	-0.075	1.154	0.948
<i>Internalizing Behavior</i>	Anxious	323	-0.386**	0.160	0.016
	Withdrawn	323	-0.202	0.156	0.194
	Somatic Complaints	323	-0.288*	0.163	0.076
<i>Externalizing Behavior</i>	Rule-Breaking Behavior	323	-0.185	0.145	0.203
	Aggressive Behavior	323	-0.184	0.162	0.258
<i>Other problems</i>	Social Problems	323	-0.300*	0.156	0.054
	Other Problems	323	-0.260*	0.153	0.089
	Attention Problems	323	-0.224	0.148	0.130
	Thought Problems	323	-0.219	0.163	0.177
<i>Risky behavior</i>	Consumption of substances (index)	322	0.175	0.124	0.157
	Non-normative behavior (index)	322	-0.141	0.199	0.477
Mechanisms					

<i>Students' Academic Expectations</i>	Expects to complete high school	322	0.106**	0.051	0.038
	Expects to complete college	322	0.108	0.079	0.170
<i>Parents' Academic Expectations</i>	Expects student to complete college	298	0.174**	0.077	0.024
	Expects student to complete high school	298	0.118**	0.059	0.044
<i>Academic effort and study strategies</i>	Study strategies	317	0.236	0.157	0.131
	Academic behavior	317	0.160	0.117	0.170
	Complied with homework always or most of the times in 2017	295	0.080	0.082	0.329
	Student arrived late to school more than once a month in 2017	317	0.066	0.082	0.420
	Student missed more than 10 classes in 2017	289	0.013	0.069	0.849
<i>School climate</i>	Teachers were absent more than 4 times in 2017	317	-0.589***	0.069	0.000
	School belonging	317	4.727***	0.941	0.000
	Discipline and norm adherence	317	1.345***	0.224	0.000
	Parents involved with the school	317	2.395***	0.384	0.000
	Classes noisy and messy	317	-0.407***	0.156	0.009
	Pedagogic climate in Math class	317	0.225	0.143	0.117

Note: Two-stages least squares regressions of academic, socioemotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate on school participation in Wave 3 using treatment assignment (ITT) as an instrumental variable, controlling for baseline results in the same outcome, student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, and the school admission pool the student participated in. Only the second-stage coefficient is shown. Column (4) depicts the classical p-value (π). *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Appendix Table vii - Heterogeneous effects: OLS regressions adding the interaction term ITT^*male

Family group	Variable	N (1)	ITT Coeff (2)	ITT SE (3)	ITT* male Coeff (4)	ITT* male SE (5)
Outcomes						
Academic outcomes						
Academic Trajectories	Attending 4th grade in 2018	322	0.216***	0.070	-0.033	0.100
	Repeated the grade in 2017	317	-0.134**	0.055	0.075	0.086
	Dropped out of school at some point but started again in following years	283	-0.082*	0.045	0.022	0.071
	Attended to school at least at least partially 2017	343	0.015	0.020	0.022	0.030
	Definite drop-out	283	-0.030	0.027	0.091*	0.049
Socio-emotional outcomes						
Academic Mindset	Relevance for the future	322	0.107	0.095	-0.042	0.142
	Growth mindset	322	0.223	0.161	-0.230	0.229
	Self-Efficacy	317	0.078	0.163	-0.041	0.223
	Academic delay of gratification	317	0.035	0.162	-0.098	0.224
	Academic Identity	322	-0.029	0.117	0.041	0.188
Motivation	Extrinsic motivation	317	-0.002	0.140	0.065	0.206
	Intrinsic motivation	317	0.054	0.145	-0.061	0.201
Self-Control and Grit	Consistency of Interest	322	-0.249*	0.149	0.238	0.216
	Delayed Gratification	322	-0.110	0.158	-0.021	0.227
	Self-Control	322	-0.144	0.152	0.116	0.213
	Perseverance of Effort	322	-0.074	0.115	0.110	0.172
Social Skills	Assertion	322	-0.156*	0.094	0.138	0.139
	Empathy	322	-0.041	0.088	-0.029	0.142
	Interpersonal Self-Control	322	-0.029	0.117	0.152	0.152
	Engagement	322	-0.010	0.106	0.100	0.143
Health and well-being						
Health and life satisfaction	Health (self-report)	322	-0.040	0.079	0.153	0.106
	Satisfaction with Life (scale 1-10)	322	0.318	0.427	-0.364	0.526
	Depression (scale 0-36)	322	1097	1312	-2,365	1.565
Internalizing Behavior	Anxious	323	-0.368**	0.151	0.225	0.216
	Withdrawn	323	0.008	0.153	-0.414*	0.224
	Somatic Complaints	323	-0.186	0.144	0.103	0.220
Externalizing Behavior	Rule-Breaking Behavior	323	0.119	0.143	-0.501**	0.194
	Aggressive Behavior	323	0.024	0.162	-0.304	0.226
Other syndromes	Social Problems	323	-0.272*	0.154	0.146	0.212
	Other Problems	323	-0.081	0.145	-0.193	0.208
	Attention Problems	323	-0.106	0.131	-0.091	0.210
	Thought Problems	323	-0.107	0.170	-0.082	0.221
Behavioral outcomes						

Risky behavior	Consumption of substances (index)	322	0.214*	0.113	-0.198	0.164
	Non-normative behavior (index)	322	0.051	0.131	-0.300	0.279
<i>Mechanisms</i>						
Students' Academic Expectations	Expects to complete high school	322	0.070	0.044	0.004	0.076
	Expects to complete college	322	0.094	0.075	-0.043	0.108
Parents' Academic Expectations	Expects student to complete college	298	0.135*	0.073	-0.031	0.111
	Expects student to complete high school	298	0.090	0.056	-0.017	0.086
Academic effort and study strategies	Study strategies	317	0.162	0.158	-0.003	0.215
	Academic behavior	317	0.134	0.114	-0.052	0.164
	Complied with homework always or most of the times in 2017	295	0.149**	0.073	-0.195*	0.111
	Student arrived late to school more than once a month in 2017	317	0.044	0.081	0.002	0.113
	Student missed more than 10 classes in 2017	289	0.023	0.069	-0.028	0.102
School climate	Teachers were absent more than 4 times in 2017	317	-0.433***	0.069	0.069	0.101
	School belonging	317	3.475***	0.986	-0.557	1.325
	Discipline and norm adherence	317	0.951***	0.232	-0.081	0.323
	Parents involved with the school	317	1.802***	0.376	-0.367	0.516
	Classes noisy and messy	317	-0.198	0.159	-0.16	0.218
	Pedagogic climate in Math class	317	0.271*	0.159	-0.243	0.198

Note: OLS regressions of academic, socio-emotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate on ITT, controlling for student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, the school admission pool the student participated in, and an interaction between the Intention to treat indicator and a dummy that takes one if the student is male. Columns (2) and (3) show ITT coefficients and standard errors. Columns (4) and (5) depict coefficients and standard errors on the interaction. Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Appendix Table viii – Heterogeneous effects: OLS regressions adding the interaction term ITT*repeated a grade in primary school

Family group	Variable	N (1)	ITT Coeff (2)	ITT SE (3)	ITT*repeated Coeff (3)	ITT*repeated SE (4)
Outcomes						
Academic outcomes						
Academic Trajectories	Attending 4th grade in 2018	322	0.176***	0.058	0.097	0.122
	Repeated the grade in 2017	317	-0.068	0.044	-0.12	0.118
	Dropped out of school at some point but started again in following years	283	-0.032	0.031	-0.191*	0.111
	Attended to school at least at least partially 2017	343	0.007	0.014	0.075*	0.042
	Definite drop-out	283	0.024	0.016	-0.057	0.085
Socio-emotional outcomes						
Academic Mindset	Relevance for the future	322	0.113	0.078	-0.111	0.168
	Growth mindset	322	0.113	0.127	-0.005	0.267
	Self-Efficacy	317	0.087	0.126	-0.119	0.268
	Academic delay of gratification	317	-0.049	0.124	0.152	0.279
	Academic Identity	322	0.027	0.098	-0.148	0.242
Motivation	Extrinsic motivation	317	0.065	0.113	-0.142	0.254
	Intrinsic motivation	317	-0.024	0.114	0.203	0.240
Self-Control and Grit	Consistency of Interest	322	-0.186	0.128	0.213	0.224
	Delayed Gratification	322	-0.125	0.132	0.023	0.260
	Self-Control	322	-0.074	0.117	-0.055	0.252
	Perseverance of Effort	322	0.014	0.099	-0.141	0.189
Social Skills	Assertion	322	-0.076	0.076	-0.053	0.178
	Empathy	322	-0.031	0.077	-0.097	0.171
	Interpersonal Self-Control	322	0.006	0.087	0.158	0.184
	Engagement	322	0.081	0.077	-0.176	0.180
Health and well-being						
Health and life satisfaction	Health (self-report)	322	-0.017	0.060	0.212*	0.123
	Satisfaction with Life (scale 1-10)	322	0.045	0.283	0.397	0.675
	Depression (scale 0-36)	322	0.895	0.918	-3.894**	1.780
Internalizing Behavior	Anxious	323	-0.276**	0.126	0.072	0.234
	Withdrawn	323	-0.142	0.129	-0.209	0.255
	Somatic Complaints	323	-0.094	0.126	-0.172	0.239
Externalizing Behavior	Rule-Breaking Behavior	323	0.032	0.097	-0.643**	0.291
	Aggressive Behavior	323	-0.018	0.126	-0.430*	0.260
Other syndromes	Social Problems	323	-0.169	0.120	-0.134	0.242
	Other Problems	323	-0.141	0.122	-0.138	0.231
	Attention Problems	323	-0.129	0.116	-0.088	0.242
	Thought Problems	323	-0.061	0.130	-0.353	0.256

Behavioral outcomes						
Risky behavior	Consumption of substances (index)	322	0.167*	0.097	-0.201	0.183
	Non-normative behavior (index)	322	0.065	0.128	-0.660	0.406
<i>Mechanisms</i>						
Students' Academic Expectations	Expects to complete high school	322	0.055	0.033	0.068	0.113
	Expects to complete college	322	0.077	0.064	-0.018	0.121
Parents' Academic Expectations	Expects student to complete college	298	0.123*	0.063	-0.012	0.132
	Expects student to complete high school	298	0.062	0.042	0.085	0.126
Academic effort and study strategies	Study strategies	317	0.132	0.124	0.117	0.256
	Academic behavior	317	0.068	0.091	0.169	0.195
	Complied with homework always or most of the times in 2017	295	0.030	0.063	0.105	0.134
	Student arrived late to school more than once a month in 2017	317	0.070	0.063	-0.106	0.134
	Student missed more than 10 classes in 2017	289	0.001	0.056	0.041	0.119
School climate	Teachers were absent more than 4 times in 2017	317	-0.408***	0.058	0.034	0.115
	School belonging	317	2.914***	0.743	1.205	1.541
	Discipline and norm adherence	317	0.917***	0.182	-0.024	0.391
	Parents involved with the school	317	1.541***	0.287	0.341	0.647
	Classes noisy and messy	317	-0.192	0.125	-0.347	0.257
	Pedagogic climate in Math class	317	0.178	0.115	-0.107	0.220

Note: OLS regressions of academic, socioemotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate on ITT, controlling for student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, the school admission pool the student participated in, and an interaction between the Intention to treat indicator and a dummy that takes one if the student repeated a grade in primary school. Columns (2) and (3) show ITT coefficients and standard errors. Columns (4) and (5) depict coefficients and standard errors on the interaction. Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Appendix Table ix – Heterogeneous effects: OLS regressions adding the interaction term ITT*household receives cash transfers from public programs

Family group	Variable	N	ITT Coeff	ITT SE	ITT*gov.	ITT*gov.
					transfers Coeff	transfers SE
		(1)	(2)	(3)	(4)	(3)
Outcomes						
Academic outcomes						
Academic Trajectories	Attending 4th grade in 2018	322	0.219**	0.089	-0.027	0.106
	Repeated the grade in 2017	317	-0.213***	0.069	0.169*	0.087
	Dropped out of school at some point but started again in following years	283	-0.029	0.057	-0.06	0.071
	Attended to school at least at least partially 2017	343	0.003	0.005	0.033*	0.020
	Definite drop-out	283	0.002	0.037	0.014	0.049
Socio-emotional outcomes						
Academic Mindset	Relevance for the future	322	0.072	0.114	0.021	0.142
	Growth mindset	322	0.394**	0.185	-0.410*	0.236
	Self-Efficacy	317	0.306	0.200	-0.362	0.242
	Academic delay of gratification	317	0.262	0.176	-0.401*	0.226
	Academic Identity	322	-0.179	0.150	0.246	0.186
Motivation	Extrinsic motivation	317	0.126	0.186	-0.140	0.222
	Intrinsic motivation	317	0.286	0.191	-0.380*	0.223
Self-Control and Grit	Consistency of Interest	322	-0.057	0.163	-0.112	0.212
	Delayed Gratification	322	-0.166	0.205	0.067	0.247
	Self-Control	322	-0.202	0.177	0.165	0.220
	Perseverance of Effort	322	-0.175	0.154	0.223	0.184
Social Skills	Assertion	322	0.061	0.112	-0.217	0.141
	Empathy	322	0.037	0.110	-0.134	0.140
	Interpersonal Self-Control	322	-0.022	0.137	0.097	0.163
	Engagement	322	0.131	0.113	-0.133	0.146
Health and well-being						
Health and life satisfaction	Health (self-report)	322	0.102	0.088	-0.098	0.110
	Satisfaction with Life (scale 1-10)	322	0.064	0.464	0.113	0.561
	Depression (scale 0-36)	322	0.134	1.490	-0.267	1.752
Internalizing Behavior	Anxious	323	-0.375**	0.181	0.168	0.222
	Withdrawn	323	-0.259	0.193	0.095	0.238
	Somatic Complaints	323	-0.233	0.207	0.141	0.243
Externalizing Behavior	Rule-Breaking Behavior	323	0.027	0.167	-0.220	0.208
	Aggressive Behavior	323	0.083	0.199	-0.300	0.241
Other syndromes	Social Problems	323	-0.371*	0.192	0.247	0.226
	Other Problems	323	-0.237	0.209	0.092	0.239
	Attention Problems	323	-0.064	0.170	-0.126	0.213
	Thought Problems	323	-0.206	0.197	0.085	0.235

Behavioral outcomes						
Risky behavior	Consumption of substances (index)	322	0.349**	0.169	-0.335*	0.188
	Non-normative behavior (index)	322	-0.159	0.266	0.093	0.322
<i>Mechanisms</i>						
Students' Academic Expectations	Expects to complete high school	322	0.007	0.058	0.094	0.074
	Expects to complete college	322	0.106	0.096	-0.049	0.116
Parents' Academic Expectations	Expects student to complete college	298	0.107	0.102	0.020	0.121
	Expects student to complete high school	298	0.064	0.066	0.026	0.085
Academic effort and study strategies	Study strategies	317	0.146	0.190	0.021	0.231
	Academic behavior	317	0.082	0.148	0.040	0.178
	Complied with homework always or most of the times in 2017	295	0.122	0.094	-0.101	0.117
	Student arrived late to school more than once a month in 2017	317	0.096	0.099	-0.074	0.120
	Student missed more than 10 classes in 2017	289	0.051	0.086	-0.061	0.105
School climate	Teachers were absent more than 4 times in 2017	317	-0.412***	0.091	0.018	0.109
	School belonging	317	3.988***	1.152	-1.144	1.386
	Discipline and norm adherence	317	0.791***	0.283	0.175	0.344
	Parents involved with the school	317	1.682***	0.415	-0.085	0.519
	Classes noisy and messy	317	-0.366*	0.191	0.131	0.232
	Pedagogic climate in Math class	317	0.042	0.181	0.161	0.217

Note: OLS regressions of academic, socioemotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate on ITT, controlling for student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, the school admission pool the student participated in, and an interaction between the Intention to treat indicator and a dummy that takes one if the student's home receives cash transfers from the government. Columns (2) and (3) show ITT coefficients and standard errors. Columns (4) and (5) depict coefficients and standard errors on the interaction. Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Appendix Table x – Heterogeneous effects: OLS regressions adding the interaction term $ITT * mother's$ education

Family group	Variable	N	ITT Coeff	ITT SE	ITT*mother education Coeff	ITT*mother education SE
		(1)	(2)	(3)	(4)	(5)
Outcomes						
Academic outcomes						
Academic Trajectories	Attending 4th grade in 2018	322	0.236***	0.071	-0.081	0.100
	Repeated the grade in 2017	317	-0.070	0.062	-0.06	0.084
	Dropped out of school at some point but started again in following years	283	-0.075	0.052	0.007	0.069
	Attended to school at least at least partially 2017	343	0.037	0.024	-0.027	0.028
	Definite drop-out	283	0.001	0.030	0.025	0.044
Socio-emotional outcomes						
Academic Mindset	Relevance for the future	322	0.095	0.084	-0.019	0.141
	Growth mindset	322	0.118	0.147	-0.013	0.227
	Self-Efficacy	317	-0.008	0.148	0.148	0.224
	Academic delay of gratification	317	-0.131	0.160	0.261	0.219
	Academic Identity	322	-0.023	0.122	0.033	0.182
Motivation	Extrinsic motivation	317	-0.023	0.134	0.118	0.202
	Intrinsic motivation	317	0.007	0.137	0.040	0.201
Self-Control and Grit	Consistency of Interest	322	-0.191	0.139	0.126	0.217
	Delayed Gratification	322	-0.044	0.150	-0.170	0.229
	Self-Control	322	-0.180	0.140	0.207	0.207
	Perseverance of Effort	322	-0.050	0.113	0.066	0.171
Social Skills	Assertion	322	-0.034	0.094	-0.122	0.134
	Empathy	322	-0.004	0.088	-0.114	0.139
	Interpersonal Self-Control	322	0.145	0.105	-0.226	0.151
	Engagement	322	0.001	0.099	0.083	0.143
Health and well-being						
Health and life satisfaction	Health (self-report)	322	0.050	0.073	-0.035	0.106
	Satisfaction with Life (scale 1-10)	322	0.065	0.355	0.173	0.524
	Depression (scale 0-36)	322	0.525	1.063	-1.291	1.592
Internalizing Behavior	Anxious	323	-0.272*	0.151	0.03	0.209
	Withdrawn	323	-0.058	0.150	-0.303	0.22
	Somatic Complaints	323	-0.076	0.133	-0.135	0.213
Externalizing Behavior	Rule-Breaking Behavior	323	-0.137	0.140	0.028	0.208
	Aggressive Behavior	323	-0.139	0.145	0.036	0.231
Other syndromes	Social Problems	323	-0.121	0.148	-0.18	0.201
	Other Problems	323	-0.125	0.138	-0.11	0.21
	Attention Problems	323	-0.131	0.136	-0.043	0.207

	Thought Problems	323	0.025	0.152	-0.387*	0.217
Behavioral outcomes						
Risky behavior	Consumption of substances (index)	322	0.215*	0.122	-0.217	0.167
	Non-normative behavior (index)	322	-0.007	0.209	-0.196	0.276
<i>Mechanisms</i>						
Students' Academic Expectations	Expects to complete high school	322	0.105**	0.051	-0.075	0.071
	Expects to complete college	322	0.089	0.074	-0.036	0.111
Parents' Academic Expectations	Expects student to complete college	298	0.164**	0.075	-0.097	0.112
	Expects student to complete high school	298	0.122**	0.060	-0.090	0.084
Academic effort and study strategies	Study strategies	317	0.044	0.140	0.256	0.216
	Academic behavior	317	0.072	0.107	0.080	0.164
	Complied with homework always or most of the times in 2017	295	0.027	0.076	0.059	0.111
	Student arrived late to school more than once a month in 2017	317	0.023	0.076	0.049	0.113
	Student missed more than 10 classes in 2017	289	0.043	0.065	-0.074	0.097
School climate	Teachers were absent more than 4 times in 2017	317	-0.366***	0.068	-0.074	0.099
	School belonging	317	3.026***	0.901	0.394	1.288
	Discipline and norm adherence	317	0.676***	0.223	0.522	0.32
	Parents involved with the school	317	1.689***	0.298	-0.146	0.531
	Classes noisy and messy	317	-0.381**	0.155	0.233	0.216
	Pedagogic climate in Math class	317	0.266*	0.139	-0.251	0.194

Note: OLS regressions of academic, socioemotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate on ITT, controlling for student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, the school admission pool the student participated in, and an interaction between the Intention to treat indicator and a dummy that takes one if the mother completed middle school. Columns (2) and (3) show ITT coefficients and standard errors. Columns (4) and (5) depict coefficients and standard errors on the interaction. Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Appendix table xi – Heterogeneous effects: OLS regressions adding the interaction terms ITT*School1
ITT*School3

Family group	Variable	ITT Coeff (1)	ITT se (2)	ITT* Sch1 Coeff (3)	ITT* Sch1 se (4)	ITT* Sch3 Coeff (5)	ITT* Sch3 se (6)
Outcomes							
Academic outcomes							
Academic Trajectories	Attending 4th grade in 2018	0.182	0.114	0.124	0.135	-0.149	0.141
	Repeated the grade in 2017	-0.071	0.101	-0.039	0.119	-0.025	0.118
	Dropped out of school at some point but started again in following years	-0.083	0.093	0.005	0.103	0.031	0.108
	Attended to school at least at least partially 2017	0.017	0.018	0.013	0.028	0.008	0.040
	Definite drop-out	0.011	0.067	0.022	0.073	-0.033	0.071
Socio-emotional outcomes							
Academic Mindset	Relevance for the future	0.046	0.155	0.101	0.185	-0.030	0.196
	Growth mindset	0.169	0.227	0.032	0.282	-0.255	0.299
	Self-Efficacy	0.251	0.253	-0.229	0.300	-0.283	0.318
	Academic delay of gratification	0.172	0.251	-0.188	0.298	-0.327	0.320
	Academic Identity	0.176	0.165	-0.275	0.221	-0.178	0.222
Motivation	Extrinsic motivation	0.334*	0.177	-0.288	0.236	-0.574**	0.249
	Intrinsic motivation	0.458**	0.186	-0.421*	0.239	-0.803***	0.255
Self-Control and Grit	Consistency of Interest	0.027	0.205	-0.274	0.262	-0.094	0.281
	Delayed Gratification	0.198	0.256	-0.376	0.305	-0.466	0.316
	Self-Control	0.108	0.218	-0.346	0.270	-0.094	0.282
	Perseverance of Effort	0.168	0.188	-0.246	0.228	-0.240	0.234
Social Skills	Assertion	0.017	0.141	-0.173	0.174	-0.073	0.187
	Empathy	0.092	0.153	-0.126	0.181	-0.296	0.198
	Interpersonal Self-Control	0.262	0.168	-0.351*	0.204	-0.158	0.214
	Engagement	0.175	0.134	-0.226	0.172	-0.092	0.185
Health and well-being							
Health and life satisfaction	Health (self-report)	0.131	0.120	-0.143	0.142	-0.091	0.153
	Satisfaction with Life (scale 1-10)	0.888*	0.493	-1.697***	0.637	0.286	0.658
	Depression (scale 0-36)	-3.352**	1.620	5.732***	2.000	1.750	2.128
Internalizing Behavior	Anxious	-0.576***	0.151	0.575***	0.217	0.132	0.269
	Withdrawn	-0.551***	0.171	0.544**	0.241	0.327	0.276
	Somatic Complaints	-0.264	0.213	-0.029	0.251	0.498	0.313
Externalizing Behavior	Rule-Breaking Behavior	-0.500***	0.183	0.562**	0.242	0.361	0.256
	Aggressive Behavior	-0.612***	0.199	0.746***	0.262	0.443	0.284
	Social Problems	-0.296	0.181	0.277	0.237	-0.140	0.281

Other syndromes	Other Problems	-0.278	0.189	0.186	0.242	0.047	0.284
	Attention Problems	-0.465***	0.177	0.321	0.237	0.556**	0.252
	Thought Problems	-0.384**	0.186	0.397	0.245	0.154	0.297
Behavioral outcomes							
Risky behavior	Consumption of substances (index)	-0.107	0.116	0.322*	0.192	0.235	0.164
	Non-normative behavior (index)	-0.591**	0.238	0.679**	0.311	0.572	0.378
Mechanisms							
Students' Academic Expectations	Expects to complete high school	0.159**	0.080	-0.040	0.096	-0.236**	0.099
	Expects to complete college	0.190*	0.111	-0.037	0.136	-0.346**	0.150
Parents' Academic Expectations	Expects student to complete college	0.158	0.124	0.101	0.147	-0.306*	0.156
	Expects student to complete high school	0.054	0.091	0.129	0.109	-0.127	0.116
Academic effort and study strategies	Study strategies	0.364	0.239	-0.142	0.285	-0.475	0.303
	Academic behavior	0.383**	0.175	-0.299	0.213	-0.450**	0.218
	Complied with homework always or most of the times in 2017	-0.019	0.115	0.076	0.141	0.125	0.152
	Student arrived late to school more than once a month in 2017	0.058	0.124	0.050	0.147	-0.133	0.161
	Student missed more than 10 classes in 2017	0.252*	0.129	-0.340**	0.143	-0.250	0.158
School climate	Teachers were absent more than 4 times in 2017	-0.489***	0.101	-0.031	0.120	0.372**	0.146
	School belonging	6.448***	1.178	-3.840**	1.529	-4.805***	1.664
	Discipline and norm adherence	1.510***	0.340	-0.901**	0.411	-0.550	0.452
	Parents involved with the school	2.759***	0.567	-1.320*	0.675	-1.726**	0.736
	Classes noisy and messy	-0.654***	0.215	0.353	0.261	0.726**	0.307
	Pedagogic climate in Math class	0.385*	0.210	-0.291	0.250	-0.315	0.274

Note: OLS regressions of academic, socio-emotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate on ITT, controlling for student's gender, an indicator of grade repetition in primary school, mother's education, an indicator for being a cash transfers recipient, the school admission pool the student participated in, and interactions between the Intention to treat indicator and dummies that take one if the student took part in the lottery of school A or 3, respectively. Columns (2) and (3) show ITT coefficients and standard errors. Columns (4), (5), (6) and (7) depict coefficients and standard errors on the interactions with schools 1 and 3. Full results are available upon request. *** Statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Appendix table xii - Mean difference for treatment and control groups adjusting the standard errors to account for family-wise errors

<i>Outcomes</i>								
Family group	Variable	N	Mean	ITT=1-ITT=0	p⁽ⁱ⁾	p⁽ⁱⁱ⁾	p⁽ⁱⁱⁱ⁾	p^(iv)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Academic outcomes</i>								
<i>Academic Trajectories</i>	Attending 4th grade in 2018	328	0.49	0.217	0.000	0.000	0.002	0.002
	Repeated the grade in 2017	323	0.25	0.105	0.020	0.075	0.081	0.102
	Dropped out of school at some point but started again in following years	290	0.16	0.087	0.021	0.061	0.064	0.107
	Attended to school at least at least partially 2017	352	0.97	0.025	0.091	0.173	0.183	0.457
	Definite drop-out	290	0.04	0.001	0.963	0.963	0.963	1.000
<i>Socio-emotional outcomes</i>								
<i>Academic Mindset</i>	Relevance for the future	328	4.40	0.112	0.098	0.358	0.490	0.490
	Growth mindset	328	3.65	0.119	0.296	0.718	1.000	1.000
	Self-Efficacy	323	3.43	0.062	0.569	0.907	1.000	1.000
	Academic delay of gratification	323	3.32	0.010	0.919	0.994	1.000	1.000
	Academic Identity	328	4.22	0.009	0.938	0.938	0.938	1.000
<i>Motivation</i>	Extrinsic motivation	323	3.73	0.019	0.849	0.849	0.849	1.000
	Intrinsic motivation	323	3.62	0.023	0.816	0.965	1.000	1.000
<i>Self-Control and Grit</i>	Consistency of Interest	328	3.22	0.116	0.272	0.685	1.000	1.000
	Delayed Gratification	328	3.49	0.104	0.361	0.723	1.000	1.000
	Self-Control	328	3.36	0.092	0.378	0.614	0.757	1.000
	Perseverance of Effort	328	4.08	0.011	0.888	0.888	0.888	1.000
<i>Social Skills</i>	Assertion	328	2.74	0.049	0.461	0.788	1.000	1.000
	Empathy	328	3.23	0.023	0.730	0.73	0.730	1.000
	Interpersonal Self-Control	328	2.81	0.057	0.447	0.859	1.000	1.000
	Engagement	328	3.10	0.039	0.570	0.798	1.000	1.000
<i>Health and well-being</i>								
<i>Health and life satisfaction</i>	Health (self-report)	328	0.66	0.032	0.546	0.884	1.000	1.000
	Satisfaction with Life (scale 1-10)	328	7.50	0.087	0.744	0.914	1.000	1.000
	Depression (scale 0-36)	328	10.20	0.247	0.756	0.756	0.756	1.000
<i>Internalizing Behavior</i>	Anxious	329	0.00	0.236	0.027	0.072	0.081	0.081
	Withdrawn	329	0.00	0.173	0.119	0.214	0.237	0.356
	Somatic Complaints	329	0.00	0.142	0.189	0.189	0.189	0.568
<i>Externalizing Behavior</i>	Rule-Breaking Behavior	329	0.00	0.129	0.224	0.348	0.449	0.449
	Aggressive Behavior	329	0.00	0.105	0.351	0.351	0.351	0.703
	Social Problems	329	0.00	0.162	0.126	0.211	0.251	0.503

<i>Other syndromes</i>	Other Problems	329	0.00	0.162	0.113	0.320	0.453	0.453
	Attention Problems	329	0.00	0.164	0.115	0.265	0.346	0.461
	Thought Problems	329	0.00	0.08	0.484	0.484	0.484	1.000
<i>Behavioral outcomes</i>								
<i>Risky behavior</i>	Consumption of substances (index)	328	0.39	0.127	0.151	0.274	0.301	0.301
	Non-normative behavior (index)	328	0.87	0.074	0.630	0.630	0.630	1.000
<i>Mechanisms</i>								
<i>Students' Academic Expectations</i>	Expects to complete high school	328	0.80	0.084	0.039	0.076	0.078	0.078
	Expects to complete college	328	0.43	0.087	0.116	0.116	0.116	0.233
<i>Parents' Academic Expectations</i>	Expects student to complete college	303	0.48	0.133	0.022	0.039	0.044	0.044
	Expects student to complete high school	303	0.75	0.101	0.031	0.031	0.031	0.062
<i>Academic effort and study strategies</i>	Study strategies	323	3.51	0.181	0.078	0.291	0.390	0.390
	Academic behavior	323	3.46	0.12	0.133	0.401	0.532	0.665
	Complied with homework always or most of the times in 2017	299	0.62	0.075	0.171	0.418	0.514	0.857
	Student arrived late to school more than once a month in 2017	323	0.40	0.034	0.543	0.778	1.000	1.000
	Student missed more than 10 classes in 2017	294	0.24	0.018	0.723	0.723	0.723	1.000
	Teachers were absent more than 4 times in 2017	323	0.60	0.407	0.000	0.000	0.001	0.002
<i>School climate</i>	School belonging	323	0.02	3.065	0.000	0.000	0.002	0.002
	Discipline and norm adherence	323	0.00	0.872	0.000	0.000	0.002	0.002
	Parents involved with the school	323	0.00	1.642	0.000	0.000	0.001	0.002
	Classes noisy and messy	323	0.00	0.291	0.005	0.010	0.011	0.032
	Pedagogic climate in Math class	323	0.00	0.158	0.105	0.105	0.105	0.632

Note: Means difference for academic, socio-emotional, health-related and behavioral outcomes, academic expectations, academic effort and school climate by ITT status. Column (1) shows the number of observations. Column (2) present means for the control group, while column (3) depict the difference in means between treatment and control groups. Column (4) shows classical p-values (π), and columns (5), (6) and (7) depict adjusted p-values accounting for three different family-wise error adjustment methods: List, Shaikh, Xu (π); Holm-Bonferroni (π_{iii}), and simple Bonferroni method (π_{iv}). Statistical significant results are in bold.