Randomized control trial impact evaluations examining the effects of an information campaign on child labor in Peru

FINAL

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This report describes in detail the final impact evaluation of the *"Closing the Child Labor and Forced Labor Evidence Gap: Impact Evaluations (Randomized control trial impact evaluations examining the effects of an information campaign on child labor in Peru)"* project. Innovations for Poverty Action conducted an independent evaluation in collaboration with the project team and the Ministry of Education and prepared the evaluation report according to the terms specified in its contract with the U.S. Department of Labor Bureau of International Labor Affairs. IPA would like to express sincere thanks to all the parties involved for their support and valuable contributions.

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List of Abbreviations and Acronyms

AHC	Arts and Humanities major
BUS:	Business major
CCT:	Conditional Cash Transfer
CHS:	Completed High School
COM:	Communications
DNI	National ID
ECE:	Evaluación Censal de Estudiantes
EDU:	Education major
ENAHO	National Household Survey (Encuesta Nacional de Hogares, in Spanish)
EW:	Expected Wages
HE:	Higher Education
HEA	Health major
ICLS:	International Conference of Labour Statisticians
IDT:	In-Depth Treatment
ILAB:	Bureau of International Affairs
ILO:	International Labour Organization
INEI:	National Institute of Statistics and Informatics (Instituto Nacional de Estadística e Informática, in Spanish)
IPA:	Innovations for Poverty Action
ITT:	Intent-to-Treat
LAW:	Law major
MAT:	Mathematics
MINEDU:	Ministry of Education
MR:	Ministerial Resolution
NHS:	No High school
OLS:	Ordinary Least Squares
PEC:	*Get on Track* (Ponte en Carrera, in Spanish)
PEN:	Peruvian Soles
PP:	Policy Pilot
PRONABEC:	National Program for Educational Scholarships and Loans (Programa Nacional de Becas y Crédito Educativo, in Spanish)
SAP:	Self-Administered Paper survey

SCI	Science major
SH:	Study Hours
SIAGIE:	Sistema de Informacion de Apoyo a la Gestion de la Institución Educativa
TEC:	Technical Career
THE:	Technical Higher Education
TOT:	Treatment-of-the-Treated
UNI:	University educated
USDOL	United States Department of Labor
WA:	With Adult
WH:	Work Hours

Executive summary

In January 2015, the United States Department of Labor (USDOL) Bureau of International Labor Affairs (ILAB) awarded a $ 977,690 grant to Innovations for Poverty Action (IPA) to implement the project "Closing the Child Labor and Forced Labor Evidence Gap: Impact Evaluations (Randomized control trial impact evaluations examining the effects of an information campaign on child labor in Peru)" over two years in partnership with the Ministry of Education. Three researchers led the impact evaluation: Christopher Neilson (Princeton University), Francisco Gallego (Universidad Catolica de Chile and J-PAL LAC Executive Director) and Oswaldo Molina (Universidad del Pacifico, Peru). In June 2016, IPA received an additional $120,000 in funding for a total of $1,097,690 and received a 6-month extension through February 2018 in July 2017.

The main objective of this project is to rigorously design and evaluate two interventions which aim to facilitate more comprehensive decision-making regarding education and time use decisions by providing schoolchildren and their households with information.

Children and parents often make ill-informed educational plans, resulting in both unrealized educational decisions and outcomes of which school dropout and child labor are symptoms. Based on such tendencies, we argue that demand-side problems like these can be tackled by interventions that provide information in a simple and persuasive manner, encouraging children and parents alike to re-assess their educational plans.

The first intervention is a Policy Pilot (PP)[1] which delivered persuasive and informational videos to schoolchildren to target false perceptions about the returns to education. The Policy Pilot was implemented in schools across 24 departments in urban areas, as well as in the rural areas of Cusco and Arequipa. The campaign featured a *telenovela*-style video series whose plot conveyed messages about the social value of education, real earnings information for different education levels and fields, and options for financing higher education.

The second intervention is a more intensive, tablet-based information treatment, built into an app-based survey which used infographics, interactive activities, and in-depth presentations to present information to students and parents. This app-based intervention allowed us to measure the direct and immediate effects of exposure to new information on students' and parents' educational plans and preferences. This in-depth intervention was delivered to both urban and rural areas as well.

We used a combination of administrative and survey data to measure changes in school-wide dropout rates; how likely students were to engage in child labor and hazardous child work; how much time students spent studying; how supportive students' parents were; what level of education students hoped to pursue, and in what field; and how students perceived and invested in their unique talents.

We found that students and parents underestimate the economic returns to all levels of education. However, receiving accurate information about educational returns through the treatment resulted in very short run updates to students' perceptions. Institutions of basic learning, then, appear to be ideally positioned to assess the effect that information about the returns to education can have on school dropout rates, the prevalence of child labor, work hours, and school effort outcomes. What is

[1] Throughout the document we refer to Policy Pilot, mass information and mass campaign interchangeably.

more, information about the returns to education does not only have short-run effects, but also long-run effects as evidenced by the data collected from the self-administered paper survey (SAP) and In-Depth Tablet (IDT[2]) Survey. Results are listed below[3]:

The treatment improves perceived returns to education: we show that parents and students alike have biased perceptions of the returns to education. This could be corrected through the delivery of accurate information. The app treatment effects increased both students' and parents' expected returns to all levels of education righ after information was delivered. Both students and parents expected lower salaries than the real salaries at baseline, and the app treatment narrowed the gap.

The urban Policy Pilot increased the perceived returns to finishing basic education by 8% relative to not finishing basic education. Similarly, the urban Policy Pilot increased perceived returns to technical education, relative to not finishing basic education, by 4%, and increased the returns to finishing university, relatively to not finishing basic education by 8%.

While expected wages to all higher levels of education increased in the urban sample, several heterogeneous treatment effects emerged. For example, within the IDT urban sample, parents appear to be slightly but significantly more optimistic about boys' earnings relative to girls'. On average, the difference of expected wages is 9% for non-secondary school-graduates, and about 5.6% for college graduates. When the treatment is delivered, parents' expectations of their child's future wages increase for both boys and girls right after information delivery. However, girls' parents expected wages only increase in the case of higher education and the increase is just 10% of the treatment effect on boys' parents.

The treatment increases perceived feasibility of pursuing higher education: the perceived feasibility of achieving higher education increases for both parents and students in urban areas right after the app information was delivered. Improvements in the perceived likelihood of finishing technical school with and without effort are 4.4 and 4.2 percentage points higher, respectively. Similarly, their perceived likelihood of finishing university with and without effort is 4.5 and 4.6 percentage points higher, respectively.

Girls and their parents' perceptions of the likelihood of completing higher education increase relatively more than those of boys and their parents. However, the opposite is true with regard to perceptions about the probability that children complete higher education with effort after the treatment relative to finishing high school without effort. The treatment appears to make boys and boys' parents more optimistic than girls and girls' parents by 4 and 2 percentage points, respectively. In the case of the rural Policy Pilot sample, the treatment does not have a significant effect on the overall sample of students. However, the treatment does increase the perceived likelihood of completing higher education by 4.6 percentage points for those in 6th grade in all the cases, as they are closer to finishing primary school.

Treated households change long-run educational plans: in addition to updating their beliefs about the long run educational plans, children and parents are 10% more likely to improve their educational plans right after receiving new information through the app in both urban and rural areas. This means

[2] IDT refers to either the treatment or the survey. IDT Survey is the instrument that incorporate an offline mobile data collection (SCTO) and an app that also collect data. The IDT - Treat is contained in the app and is only shown to the treated students/parents.
[3] Anything not mentioned here had no significant or robust effect. The reader should refer to the results section for more information.

that, as they correct their beliefs about the returns to higher education, students begin to consider finishing higher levels of education, and parents tend to be more willing to support their children in this pursuit.

The treatment reduces drop-out rates: we found that the 2015 implementation of the mass campaign reduced one-year dropout rates in urban areas. However, the reduction was only significant for 5th and 6th graders who experienced a 0.2 percentage point reduction. In effect, 5th and 6th grade student dropout rates fell by 15% and 5.6%, respectively. We attributed the small effect sizes to poor implementation in the 2015 rollout, and responded by taking steps to improve take-up the following year. The results of the improved implementation in 2016 were reflected in a much higher reduction in the two-year dropout rate. We found that the two-year dropout rate fell by about 1.8 percentage points for the urban sample, equivalent to a decrease in dropout rates of 18.8%. We find this result encouraging, as reducing drop-out rates may contribute keeping students out of the labor market, or at least reducing the hours students spend participating in it.

In rural areas, we find that the Policy Pilot significantly reduced the one-year drop out rate, and similar to urban areas, this effect was driven by boys. The pilot had even larger negative effects on two-year dropout rates across groups in rural areas, all of which were significant.

Students allocate more resources to human capital accumulation: in rural areas, the Policy Pilot reported a non-significant increase in voluntary study hours by all groups. However, there was a significant overall 2% increase in the proportion of boys who said they spent any time voluntarily studying for both Math and Communications. The effect on Math studies was driven by 5th graders and boys, and the effects on communication were driven by 6th graders. In the case of urban areas, surprisingly, boys reduced their voluntary study hours by 0.8 hours and third graders by 1.3 relative to the rest of students.

Treatment effects on the nationwide standardized test (*Evaluacion Censal de Estudiantes*, ECE): the Policy Pilot apparently had major effects on cognitive test scores measured by the national standardized test, the Student Census Evaluation ("Evaluación Censal de Estudiantes", or ECE, in Spanish), which is taken annually by students in 2nd and 8th grade. There was an increase in Math and Verbal scores of about 4% and 3% of a standard deviation, respectively.

These improvements were mainly driven by girls. Results suggest that the treatment not only increased average scores for both sexes – boys increased their Math scores by 3 points and girls increased their Math scores by 5 points – but also narrowed the cognitive sex gap in Math by about 35%.

Parents allocate more time to human capital accumulation: the Policy Pilot increased imposed study time by 1 hour in urban areas. The increase in imposed study time is mainly driven by boys, who were forced to study an additional 2 hours, 5th/6th graders, who studied an additional 4 hours, and secondary students who studied an additional 1 hour. In rural areas, there were no significant effects on imposed study hours. Additionally, there were no significant effects on parental time investment or parental monetary investment in rural or urban areas.

Treated households change short-run educational choices: with regard to short-run educational preferences, after the Policy Pilot, students in the urban sample increased their study hours for their preferred academic subjects by approximately 1.6 hours. This effect is greater for boys, who

increased the amount of time they spent studying for Math by 2 hours – 1 more hour than treated girls. Meanwhile, in the case of Verbal study time, boys increase their study hours by 3 hours, while girls decrease their Verbal study hours by 1 hour. Yet, urban students studied more for their preferred subjects on average, boy's voluntary study hours decreased by 0.8 hours. In rural areas, there were no significant effects on short-run educational preferences.

Additionally, in both urban and rural areas, parental involvement increased, but the effect was only significant for boys in rural areas and girls in urban areas. Specifically, girls and primary school students in urban areas were 2 percentage points less likely to believe that their parents would let them drop out. In rural areas, girls were less 1.4 percentage points less likely to believe that their parents would let them be absent, and boys were 2.6 percentage points less likely to believe that their parents would let them drop out.

Policy pilot information provision affects kids with different aptitudes for Math/Science and Language courses in different ways: for $5^{th}/6^{th}$ grade students in urban areas, the positive treatment effect on voluntary study hours is 0.34 hours larger for students who reported enjoying studying at baseline. Similarly, the effect on voluntary study hours for 5^{th} grade students in rural areas was 1 hour larger for those who reported enjoying studying at baseline.

By contrast, for secondary students in urban areas who enjoyed studying at baseline, the treatment effect is negative and significant. Additionally, the interaction of age and the treatment increased the negative effect of the treatment on voluntary work hours for $5^{th}/6^{th}$ graders in urban areas, while it decreased the negative treatment effect on voluntary work hours for secondary students. The interaction between age and treatment had no significant effects on voluntary work hours in rural areas.

Providing information is complimentary to cash transfers from Juntos: while child labor decreases for both Juntos recipients and non-Juntos recipients that receive the treatment, the effects are only significant for Juntos recipients. Being a member of a Juntos recipient household and receving the informational campaign reduces the probability of being involved in child labor. Moreover, the informational campaign is complementary to Juntos cash transfers with regard to students' work hours. Children in households that received the Juntos cash transfer reported working 2.5 fewer hours than the control. While children in non-Juntos households reported working fewer hours as well, the difference was smaller and non-significant.

Intervention reduces child labor: the Policy Pilot reduces the prevalence of child labor in urban areas for girls by 3 percentage points, from a total incidence of 20.5% (treatment effects reduced child labor by 15%). This occurs as a result of the reduction in the number of hours that children – mainly girls – spend on household chores.

This effect was not observed in rural areas. While the Policy Pilot reduces remunerated work in rural areas by approximately 2 hours – a reduction of about 11.2% – the intervention does not reduce the number of hours spent on household chores. The app intervention, however, had significant impact on the 6^{th} grade students; the campaign reduced the probability of being involved in child labor by 6.5 percentage points, i.e. a reduction of 7.3%. Child labor reduction for 6^{th} graders is mainly driven by the reduction of worst forms of child labor; the reduction is about 7.3 percentage points (i.e. a

reduction of 89% in incidence). A reduction in hazardous child labor is also shown but the effect is not significant. When accounting for heterogeneities there are not significant changes across sexes.

Background

High school dropout rates continue to be a significant problem in Peru, despite recent advances in the coverage and quality of the education system. At the national level, 12% of children leave school before age 13, and 17% do not finish secondary school. According to SIAGIE 2015, between the 2014 and 2015 school years, approximately 178,000 Peruvian students dropped out of school. With high dropout rates, comes an increased prevalence of child labor: figures from the Ministry of Labor show that 832,000 children aged 6-13 were working in Peru in 2011 (18% of this age group). Of these, 65.7% were in rural areas.

Many factors contribute to Peru's high dropout and child labor rates. On the demand side, some students and their families underestimate the value of education. Under the impression that education does not affect their future wellbeing, students drop out before finishing secondary school and begin to work in order to provide economic support for their families. Data from the Peru National Youth Survey (2011) shows that 70% of men and 51% of women who drop out of secondary school do so for work and/or economic reasons, contributing to the child labor problem. There are other factors on the supply side that contribute to the problem, such as access to and quality of education. In rural areas, for example, where there are few secondary schools, many students drop out after sixth grade, the last grade in primary school.

Evidence suggests that the provision of information may be an effective way to improve students' and families' education decisions, educating them on the value of staying in school rather than leaving to begin working (Jensen, 2010). These decisions include not only whether to continue studying or drop out, but also decisions about how much effort to put into schooling, which courses of study to pursue, and how to finance higher education (Hastings & Zimmerman, 2015; Dinkelman & Martínez, 2014).

In 2015, researchers, in partnership with the Ministry of Education (MINEDU) and with funding from the United States Department of Labor, used a randomized evaluation design to measure the effects of the two information campaigns on school drop-out, time-use, and child labor. Broadly, this methodology consists of randomly selecting students and their parents (in the intensive campaign) and schools (in the mass campaign) to receive the intervention. The intervention consists of information about the returns to education and opportunities for financing postsecondary education. The advantage of random allocation is that two groups that are identical, on average, are generated, and the only difference between the two groups is the fact that one group receives the campaign messaging while the other does not. In this way, we can attribute any differences that we observe between these two groups to the impact of the campaign. The interventions took place during the 2015 and 2016 school years with students in 5^{th} through 11^{th} grades in urban areas and 5^{th} and 6^{th} grades in rural areas.

The project, locally named "Choosing a Better Future" (Decidiendo para un Futuro Mejor, in Spanish), seeks to verify whether this mechanism—the provision of information—can affect Peruvian students' and parents' educational decisions, keeping children in school and out of the labor market. Additionally, the project attempts to ascertain whether the intervention can be implemented in

public schools at scale, under the leadership of the public or private institutions. With these objectives in mind, researchers worked with Innovations for Poverty Action (IPA) and the Ministry of Education to conduct a randomized evaluation in both urban and rural areas through which they studied the effects of providing information to students and parents.

Study Interventions

The study involved two different main interventions. The **first** is a Policy Pilot (PP), or mass intervention, which differs between urban and rural areas in terms of format, delivery, and implementation.

Urban

The large-scale Policy Pilot which delivered informational packages containing a cover letter, a motivation letter addressed to the principal of the school, a DVD with the four 15-minute-long videos, and an instruction manual. The DVD was delivered by MINEDU in 2015 and by IPA in 2016 to the same sample in the urban areas.

Schools that received the video were in charge of projecting it. Moreover, the instruction manual contained the projection protocol including a class discussion. The principal, or someone assigned by the principal, was responsible for the fulfillment of the protocol during the tutoring hours in four different sessions. In primary schools, the videos were projected for 5th and 6th graders, while in secondary schools, the videos were projected for 7th through 11th graders. The videos aim to provide the schoolchildren with information that is presumably otherwise difficult for them to access (see Annex S for screenshot of the episodes):

1) Returns to different levels of education,
2) Social benefits of higher education,
3) The availability of financial aid.
4) Returns to different majors in higher education.

The 2015 sample consisted of 2,611[4] local code (1,116 locals of primary schools, 308 locals of secondary schools and 1,187 local code that offer both primary and secondary schools) or 3,799 administrative unit code[5] (2,304 primary schools and 1,495 secondary schools) in 24 cities of the country that enrolled an approximate of 600,000 students. This sample included 1/3 of all secondary students and 1/4 of all primary students in urban public schools.

In 2015, the implementation of the PP information campaign taking place in urban areas had some difficulties (Table 1). Just 43% of the schools in the treatment group received the videos at all and only 75% of those that received the videos effectively projected and watched them. That means that only 33% of the treated schools received the treatment adequately. The low compliance was mainly due to performance issues of the MINEDU-hired survey firm in charge of delivering treatment videos.

[4] This number include treatment and control local codes. For randomization see the Diagram Flow in the Sample Selection's section.
[5] Schools sampling was defined by local code (or basic education institute), as opposed to their administrative unit code. So, for example, one local code can incorporate one or more administrative unite code (i.e. kindergarten and/or primary and/or secondary school). In the report, we will refer to schools to indicate local code. Otherwise, we will use the term administrative unit code.

Table 1: Policy Pilot 2015 Take-up distribution by department

Deparment	Total administrative unit code[6]	Received video	Projected video	Received video%	Projected video%
AMAZONAS	8	5	5	63%	63%
ANCASH	16	6	6	38%	38%
APURIMAC	19	12	7	63%	37%
AREQUIPA	192	101	78	53%	41%
AYACUCHO	41	19	18	46%	44%
CAJAMARCA	39	19	9	49%	23%
CUSCO	60	32	29	53%	48%
HUANCAVELICA	11	2	2	18%	18%
HUANUCO	29	18	18	62%	62%
ICA	57	29	22	51%	39%
JUNIN	53	27	21	51%	40%
LA LIBERTAD	125	52	35	42%	28%
LAMBAYEQUE	97	28	19	29%	20%
LIMA	919	359	275	39%	30%
LORETO	83	31	20	37%	24%
MADRE DE DIOS	13	2	2	15%	15%
MOQUEGUA	12	8	7	67%	58%
PASCO	20	15	9	75%	45%
PIURA	75	37	34	49%	45%
PUNO	23	11	8	48%	35%
SAN MARTIN	17	7	4	41%	24%
TACNA	52	32	22	62%	42%
TUMBES	20	5	1	25%	5%
UCAYALI	47	18	11	38%	23%
Total	2028[7]	875	662	43%	33%

Note: Projected video column considers schools that projected all the four videos in the school.

In response to these challenges, several measures were taken to increase the take-up in the 2016 implementation. The researchers proposed to re-deliver the videos to the same schools. It was an opportunity to correct the mistakes of 2015 and to learn how to correctly assess a mass intervention like the Policy Pilot by increasing the take up of the intervention to the intended level. To this end, the 2016 Policy Pilot implementation was altered:

[6] The use of administrative unit code in this case is preferred because, within a single local code, video could have been delivered in one administrative unit code but not in another even if they are within the same local.

[7] The difference between 2,032 and 2,028 are due to missing values (i.e. information that could not be collected using infrastructure survey).

- IPA hired a survey firm to deliver the information packages from July 7th through August 26th, 2016.
- As the survey firm was re-delivering the information packets, we had them also implement an infrastructure survey to collect contact information for the recipients of the materials within the school in order to track the implementation of the original 2015 urban delivery.
- IPA formed a call center that was staffed by four operators trained to track the large-scale urban Policy Pilot's implementation. Through this process, the Call Center did around 8,000 calls. It had access to an e-mail account that allowed operators to get in touch with schools through an official channel, and to re-send materials in cases where materials were damaged or lost.
- To incentivize proper projection of the videos, IPA Peru raffled two computers to the schools that completed the implementation and reported it by September 30th, 2016.

The results of these measures were favorable for the implementation – approximately 67% of the treated school sample took up the treatment correctly.

Results are shown in the following table.

Table 2: Policy Pilot 2016 Take-up distribution by department

Department	Total administrative unit code[8]	Received video	Projected video	Received video%	Projected video %
AMAZONAS	8	8	8	100%	100%
ANCASH	16	15	7	94%	44%
APURIMAC	19	19	10	100%	53%
AREQUIPA	192	186	132	97%	69%
AYACUCHO	41	41	24	100%	59%
CAJAMARCA	39	39	31	100%	79%
PASCO	20	20	17	100%	85%
LAMBAYEQUE	97	96	66	99%	68%
CUSCO	60	60	44	100%	73%
HUANCAVELICA	11	11	8	100%	73%
HUÁNUCO	29	29	19	100%	66%
ICA	57	56	44	98%	77%
JUNÍN	53	53	38	100%	72%
LA LIBERTAD	125	114	90	91%	72%
LIMA-CALLAO	922	889	585	96%	63%
LORETO	84	83	68	99%	81%
MADRE DE DIOS	13	13	10	100%	77%
MOQUEGUA	12	12	8	100%	67%
PIURA	75	75	57	100%	76%

[8] See Footnote 7.

PUNO	23	22	18	96%	78%
SAN MARTÍN	17	17	14	100%	82%
TACNA	52	49	22	94%	42%
TUMBES	20	20	11	100%	55%
UCAYALI	47	47	32	100%	68%
Total	2032	1974	1363	97%	67%

Note: Projected video column considers schools that projected all the four videos in the school.

Rural

In rural areas, because of limited infrastructure, videos were projected at the schools[9] during a single session by IPA staff with portable projectors. This more controlled implementation resulted in an almost 100% take-up and coverage. The content of the videos was adapted to highlands rural context and summarized in a single 30 minutes video. IPA staff was also responsible for conducting a class discussion with the support of the teacher. In the rural context, the implementation was a two-year process implemented in October and December of 2015 and 2016.

In turn, the second intervention, In-Depth Tablet Treatment (IDT - Treat), or App treatment, is a more systematic and intensive version of the Policy Pilot intervention, in terms of the quality of the implementation[10]. By using interactive tablets, we not only collected information on time use and school preferences, but also delivered an individualized, intensive treatment through a user-friendly and interactive tablet-based app using headphones to receive information (see Annex S for some screenshots of the app). This In-Depth Tablet Treatment (IDT) presents similar information to that presented in the PP videos shown in schools. The application first presents explanations of relevant statistical concepts, such as means, distribution, and probabilities, and then presents actual data using those concepts about various education-related topics. By explaining the relevant concepts, we were able to ask students and parents specific questions about the income distribution at different educational levels and majors, both before and after actual values are shown. IPA implemented this treatment twice: between October of 2015 and February of 2016, and again between October of 2016 and August of 2017.

The tablet app-based treatment encountered problems in 2015. The tablet software had a glitch which made it difficult to distinguish between the treatment and control students in urban areas. While we could be able to use surveyor reports as a proxy for treatment status, we chose to exclude all the observations in order to be conservative in the analysis of results. In the 2016 implementation, the glitch was corrected and treatment assignment went as planned.

In 2016, there were two updates to the materials. First, the treatment data on the returns of education used in both urban and rural areas were updated with 2015 ENAHO data.[11] Second, a short description of the Ministry of Education's new platform "Ponte en Carrera," or *Get on Track*, (PEC, hereinafter), was added to the treatments in urban areas. PEC sought to provide students and parents

[9] In rural area, local code and administrative unit code are the same because IPA only visited primary schools. For simplicity, we use school to refer to local code.

[10] This is especially true for urban sample since IPA had no control of the effective videos screening that was entirely in charge of the schools directors and teachers of the school.

[11] ENAHO (Encuesta Nacional de Hogares sobre Condiciones de Vida y Pobreza, in Spanish), or *The National Household Survey on Living and Poverty Conditions*, is an annual survey that covers household information, including education, income, and poverty status, among others.

with information about opportunities for higher education in Peru, government scholarships, and economic returns according to varying areas of study at universities and technical institutions. Although the PEC platform was officially launched in 2015, it was very basic and uninformative until early 2016. Because of improvements to the platform, as well as its increasing importance for the dissemination of information on higher education options, we were asked by MINEDU to include it in the project to some extent beginning in 2016.

Because only our urban samples contained students in secondary school, the target users for the PEC platform, PEC was only incorporated into the treatments in urban areas. In the case of the Policy Pilot, we embedded a short description of PEC's contents and structure into the informational videos. In the case of the IDT, we included the offline version of the PEC platform in the IDT app itself, giving students the opportunity to actively explore the tool and available information.

Target Population

The structure of basic education in Peru is divided into two stages: primary education, which is composed of 1st through 6th grade, and secondary education which is composed of 7th through 11th grades. In urban areas, the project assessed the eligibility of all students from 5th to 11th grade from both primary and secondary schools. By contrast, in rural areas the project was targeted to students from 5th and 6th grades because of logistical and budgetary constraints in reaching the most remote areas.

The selection of 5th to 11th grades in urban areas was justified by the fact that, on average, 12% of children in Peru drop out of school by the age of 13, and 17% do not complete secondary education. In rural areas, the figures are 30% and 38%, respectively. Thus, the transition from primary to secondary school in particular is a crucial juncture at which many children, mostly in rural areas, stop attending school full time and start working. Therefore, it is especially important to target 5th and 6th graders in rural areas with innovations that could alleviate dropout as a consequence of school transition. For this reason, we focused specifically on 5th and 6th graders in rural areas.

Measurement Instruments and questionnaire design

Measurement instruments

We evaluate the impacts of the project, "*Choosing a better Future*", using administrative data, self-administered surveys and in-depth surveys to better understand mechanisms behind this information campaign and its effects on students and parents' perceptions, beliefs, and actions.

The evaluation is complex due to the many arms of the intervention and the novel survey instruments designed to accurately measure changes in beliefs, preferences, time-use, child labor, and the overall information held by key decision-makers.

The main Policy Pilot evaluation focused on dropout rates given that they can be easily measured using administrative data[12] for the entire population of schools. We considered schools as the unit of observation to be sampled and the treatment and control groups span the entire population of

[12] Information system to support the management of educational institution (Sistema de Informacion de Apoyo a la Gestion de la Institución Educativa, SIAGIE).

eligible schools. The evaluation was thus being conducted with almost the entire population when considering dropout rates as the outcomes. The other main and secondary outcomes[13] could only be measured using surveys. This sample is much smaller due to financial constraints. Those outcomes were measured by using two main instruments:

Self-Administered Paper Survey (SAP-Survey). This was a short paper survey administered to students at school level. A large group of students were surveyed by the Ministry of Education in cooperation with IPA[14]. This short paper survey covered students in 5th and 6th grade in primary schools and all secondary schooling levels (7th to 11th grade) in urban areas, as well as 5th and 6th grade students in rural areas.

In Depth Tablet Survey (IDT-Survey). This is an electronic survey applied using a tablet and administered by a trained enumerator to both students and parents. Data was collected using: i) the Survey CTO platform, that collected detailed information on time-use, using a novel activity-based time-use survey programmed in SurveyCTO and also asked for the household decisions concerning investment in human capital across its members; ii) a more sophisticated and novel application that allowed a more interactive process to collect information in order to have a better elicit students' educational preferences and plans All students who participated in the IDT survey also participated in the SAP survey. A randomly selected subset of parents received the same survey delivered through a tablet app, also with the help of a trained enumerator.

Table 3: Summary of Instruments and Coverage (baseline and endline)[15]

	Self-Administered Paper Survey (SAP) Survey	In Depth Tablet Survey (IDT) Survey
Students	X	X
Parents		X

Questionnaire design

At the baseline, in 2015, the data collection was conducted through two instruments: (1) the Self-Administered Paper Survey (SAP) and (2) the In-Depth Tablet Survey. Both surveys collected information about household members' level of education, perceived returns to different levels of education, education preferences, child labor, and hazardous child labor. The worst forms of child labor questions were not included in the baseline and endline SAP survey. Given the sensitivity of

[13] An extensive review of the outcome variable can be found in the Outcome Variable's section.
[14] For more information about its implementation see Data Collection Activities' section.
[15] At baseline, we also collected teachers' and principal's information to characterize students' school environment. However, researchers decided to drop these surveys for the follow-up for two main reasons: 1) In urban areas MINEDU had considerably limited logistical, financial and time resources. We had to reconsider our sample at follow-up, prioritizing students while still maintain a sample that represented all grades and classes. Also, teachers were not affected by the treatment as the principal nominated one person to be responsible for showing the videos to all schools; 2) In rural areas the great dispersion (which almost doubled schools visits) led us to reconsider how to make more effective our field work: we thought the value of gaining more students observations outweighed the gain of having teachers and directors survey at follow-up. Teachers and principals did not receive any treatment so we were not able to observe any change in their behavior.

those questions we preferred to apply them only in the IDT survey as it was more personal and proctored by an enumerator. For the endline in 2016, the same two instruments used in 2015 were applied. The instruments used for the two waves did not differ substantially, however, we did make some changes:

- The hazardous child labor section was removed in the endline SAP survey in urban context. The request for the removal came from the Ministry of Education that was in charge of the SAP survey questionnaire. They were interested in reducing the overall duration of the survey and simplifying some questions they considered overly complicated. The hazardous child labor section included several yes/no indicators. During the baseline fieldwork, those questions proved to be long and difficult for children to answer, as the questions were 'wordy' and required the children to consider very specific settings. In fact, more than half of respondents did not answer, confirming the extent of the challenges with the questions.
- The SAP administered to students at the follow-up did not include demographic questions as we had already captured these themes in the baseline survey.
- We added questions for those students who had dropped out of school, as their perspectives were central to understanding the motivations for dropping out. Because the SAP is administered at school, students who had dropped out that were found at home were only interviewed using the IDT survey.

All SAP's had basic demographic information already pre-printed on the paper surveys, including the participant's names, school, grade, and national ID number (DNI), decreasing the chance of errors.

The IDT survey replicated part of the questions administered in the SAP survey for data consistencies. The IDT survey had two main components: SurveyCTO platform which included questions similar those in the SAP survey with the addition of worst forms of child labor questions and time use sections. Also, in the follow-up, 3 additional qualitative open-ended questions16 were added. The application design was developed by the researchers and IPA, and the programming was outsourced to a programmer. It contained questions to measure the direct and immediate effects of exposure to new information on students' and parents' educational plans and preferences, such as changes in perceptions about returns to education by level related to school preferences, plans and feasibility of accessing higher education, probability of completing different levels of education according to variation in effort, and others (see

[16] For more details see Qualitative Analysis Section.

Figure 17 in Annex S for screenshots of the app survey instrument).

Sample selection

Urban and rural sample selection 2015

This study used a randomized controlled trial (RCT) to establish a causal relationship between the treatments and changes in outcomes. The RCT included multiple treatment arms that differed by region and over time. In addition to describing the treatment arms in detail below, we reference two flow diagrams – one for urban areas and for rural areas – that summarize the study design with regard to treatment assignment, sample size, and instruments in 2015 and 2016 (Figure 1 and Figure 2). In this study there are three level of sampling and randomization: the broadest one is Policy Pilot sample, followed by the SAP sample and the IDT sample.

While the methodology to select IDT sample was the same between urban and rural area, sampling and randomization for the PP and urban SAP samples was carried out following a different approach than sampling for the Rural PP and SAP sample. Each approach is explained separately.

Urban sample

PP, Urban SAP and IDT samples

First, we identified the eligible schools[17] for PP treatment. The urban sample was selected from the group of schools who fulfilled two conditions: (1) primary and secondary schools in urban areas that were active in 2015 according to the official register and (2) schools in capitals of departments. Schools from the PP sample were distributed in 24 capitals in the 24 departments of Peru, and the treatment assignment was distributed to half of all the urban schools in Peru. 2,611 schools were randomly assigned to treatment (346,000 students within 1,393 schools) and control (322,000 students within 1,218 schools) groups, after being stratified by: department, city and type of institution (only primary school, only secondary school, or both primary and secondary school).

Successively, within the PP sample, IPA selected SAP sample with:

1. 600 schools in 5 major cities covered by the MINEDU across the country's three natural regions (coast, highlands, and lowland rainforest). The five cities are Lima (the capital, on the coast), Arequipa and Cusco (both in the highlands), and Iquitos and Pucallpa (both in the

[17] Schools are defined by their local code (schools or basic education institute), as opposed to their administrative unit code. So, for example, one local code can incorporate one or more administrative unite code (i.e. kindergarten and/or primary and/or secondary school).

rainforest). Moreover, the sample was selected using optimal allocation. These 600 schools were evenly divided among treatment and control groups in accordance with the original treatment status used for the Policy Pilot design.

2. 266 schools in Metropolitan Lima covered by IPA. The selection of this sample followed the same criteria of point 1.

Finally, from the Urban SAP sample of schools visited by IPA (266 schools), we randomly selected 3,334 students to receive a second treatment: the individualized infographics treatment. In the case of the IDT implementation, the randomization was done within the classroom in real time by the tablet with an algorithm that randomly selected treatment and control students present in the classroom. The same algorithm randomly assigned a subsample of 1,816 parents to either receive the intervention or be in a control group.

Rural sample

PP, Rural SAP and IDT samples

In the case of the rural sample, the schools were sampled from schools that met the following conditions: (1) schools in rural areas that were active in 2015 according to the official registry; (2) primary schools in the departments of Cuzco or Arequipa in order to have schools in both departments that benefited from the JUNTOS cash transfer program and in departments that did not (Cusco is targeted by JUNTOS while Arequipa is not); (3) schools in the highlands according to the INEI[18] standardized codes for districts (ubigeos in Spanish); (4) schools in districts where the percentage of households living in poverty is 30% or higher, according to the 2009 poverty map provided by the JUNTOS cash transfer program; (5) schools with 3 or more students in their 5th and 6th years of primary school; (5) we discarded schools above the 9th decile of altitude within their department among schools selected.

249 schools were randomly allocated to treatment (2,500 students within 125 schools) and control (2,500 students within 124 schools) groups for the Policy Pilot. Each of those schools and students in 5^{th} and 6^{th} grade received the SAP instrument.

Finally, from the rural SAP sample, we randomly selected 3,000 primary students to receive the individualized infographics treatment. As for the urban sample, the randomization for the IDT implementation was done within the classroom in real time by the tablet with an algorithm that randomly selected treatment and control students present in the classroom. The same algorithm randomly assigned a subsample of 993 parents to either receive the intervention or be in a control group.

Urban and rural sample selection 2016

Urban sample

In 2016 SAP survey, the original 2015 urban sample was reduced in order to obtain a random sample that was representative and affordable given MINEDU´s budget constraints to collect data. To this end, the coverage of primary and secondary schools in Metropolitan Lima, Cusco and Iquitos was maximized in the urban sample. A subset of evenly distributed treatment and control schools from

[18] National Institute of Statistics and Informatics (Instituto Nacional de Estadística e Informática, in Spanish).

the SAP 2015 were selected in accordance with the initial PP randomization, and balance checks was carried out for the same variables used in baseline sampling.

The result was a balanced[19] and representative sample composed of 37,070 students in 490 basic education schools distributed in Metropolitan Lima, Cusco and Iquitos.

As shown in the Figure 1, out of the 866 schools selected by the urban SAP 2015, 424 institutes were covered by SAP 2016, 219 control and 205 treatment (i.e. 17,226 control students and 16,010 treatment students). In the case of the IDT sample, researchers decided prioritizing combined treatment population (students and parents) for a total of 2,334 follow-up households and students. While 1,427 of them are households where parents got app-surveyed in 2015, 907 were not app-surveyed in 2015. The app-treatment was provided to those parents whose children received the app-treatment in 2015, regardless of the parents' treatment status in that year. Of the total 393 schools that were part of the 2015 SAP sample, 192 were control and 201 were Policy Pilot treatment so as to avoid inbalances regarding the massive intervention. The control and treatment groups had 1,220 and 982 students, respectively.

Additionally, during 2016 data collection, we visited 211 secondary schools accounting for 3,772 of the students for the SAP 2016 and 59 primary education schools accounting for 62 students. In the case of IDT 2016, additional 104 secondary education schools were visited accounting for 121 students, and 11 primary education schools accounting for 11 students both of the IDT 2015.

Rural sample

The sample to follow-up students in 2016 was defined using baseline data on students and parents surveyed in 2015. In 2015, only children in 5th and 6th where surveyed, which posed a challenge in terms of tracking all children transitioning from primary school (6th grade) to secondary school. In this context, we decided to follow those children to new schools if they had moved from their original schools in 2015. Moreover, given financial and timing constraints, we were unable to follow 100% of the sample surveyed in 2015. A way to approach this situation was to exclude all schools that did not have any children whose parents had done the 2015 In-Depth Tablet (IDT) Survey[20]. In this way, we expected that in every school visited in 2016, there was at least one parent who was surveyed in 2015 using the IDT instrument according to SIAGIE administrative data. Consequently, after sample constraints, we aimed to apply the SAP to 4,038 students and the IDT survey to 2,856 students from 434 basic education schools in Arequipa and Cuzco within the rural sample in 2016 as shown in the Figure 2.

Out of the 234 basic education schools that composed the 2015 sample, 115, with a total of 650 students, made up the control group and 119, with 710 students, made up the treatment group. Additionally, in 2016 we followed up 1,467 students in 182 new secondary education schools and 29 students in 18 primary education schools.

Given the large number of schools visited in 2015, we were able to obtain a high coverage of the SAP survey (80.7%) at baseline. We tracked SAP students who were in the 434 schools that were part of the target sample in 2016. This sampling strategy allowed us to cover nearly all of the parents surveyed in 2015 without compromising the number of IDT and SAP students.

[19] The table of balance checks are reported in the attached excels.

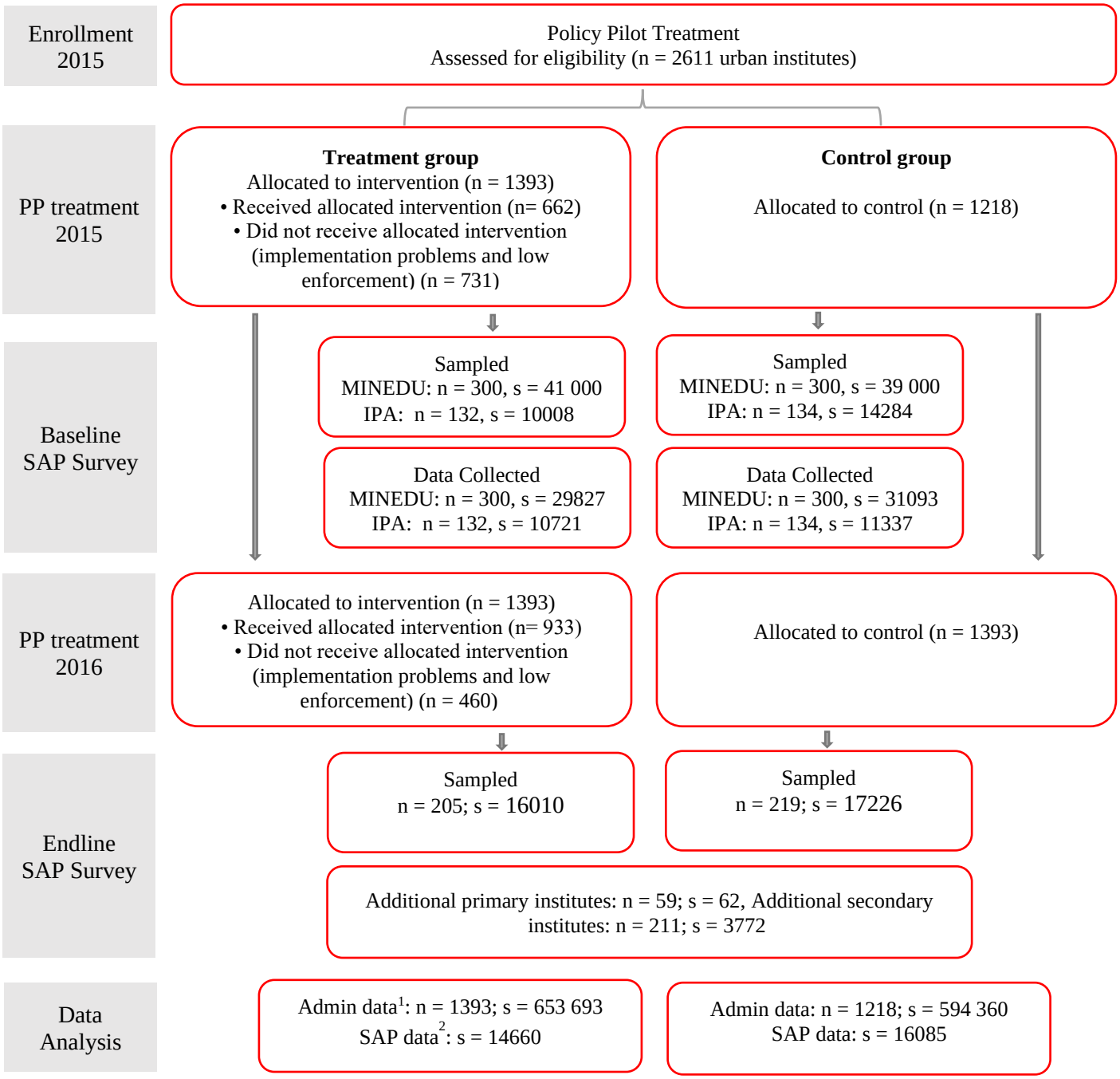
[20] As a result, out of the 248 schools visited last year, 234 were part of the actual sample, which is about 94% of schools visited in 2015.

In terms of geographic location, the endline sample was distributed as follows:

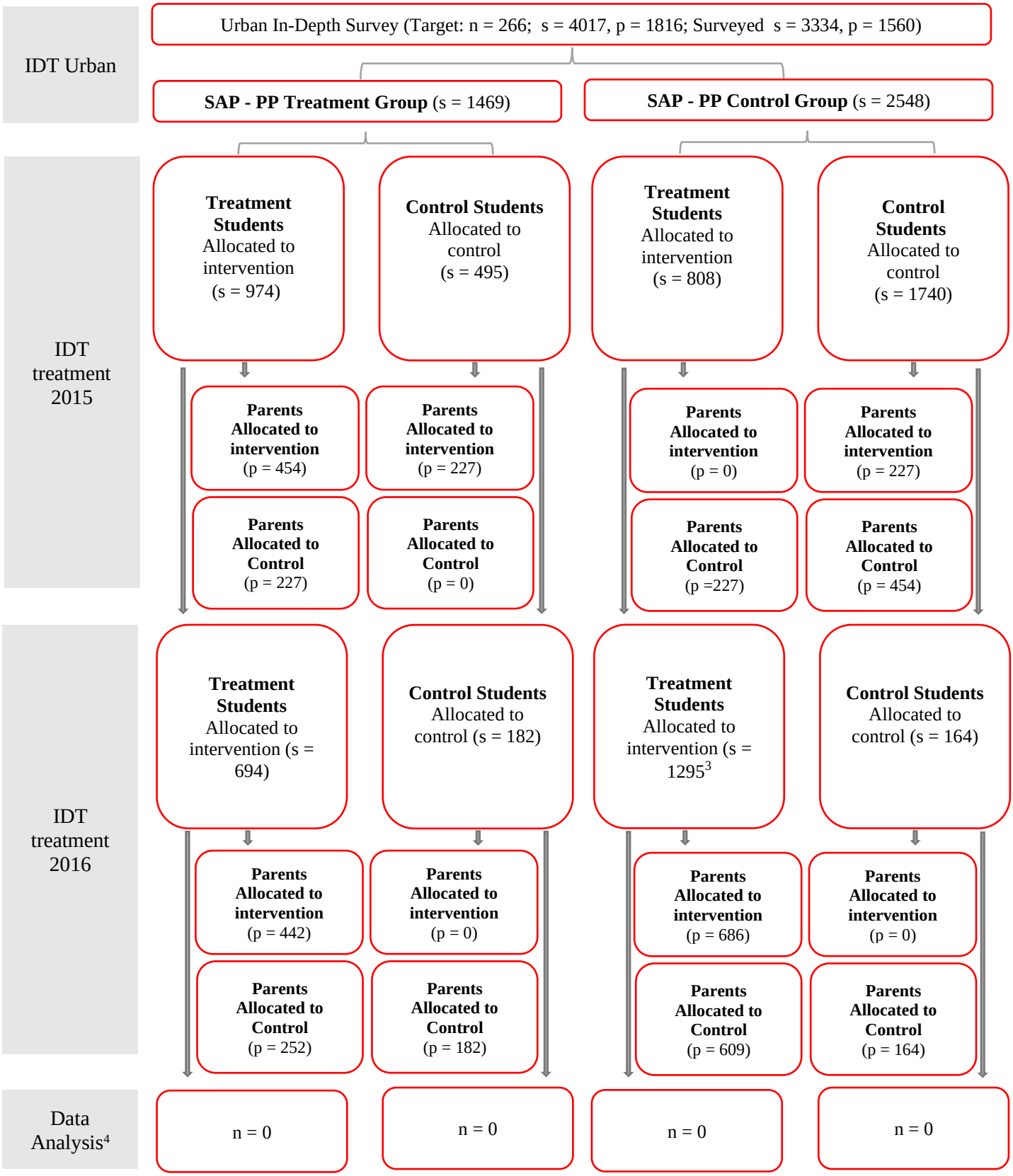
Table 4. Sample distribution in Cusco and Arequipa in 2016

	Only SAP students	IDT Students	IDT Parents
Arequipa	31	365	202
Cusco	1,151	2,491	968
Total	1,182	2,856	1,170

Figure 1: Diagram Flow Urban Sample[21]



[21] In this figure, 'n' is number of institutes, 's' is number of students and 'p' is number of parents.


IDT Urban
Urban In-Depth Survey (Target: n = 266; s = 4017, p = 1816; Surveyed s = 3334, p = 1560)
SAP - PP Treatment Group (s = 1469)
SAP - PP Control Group (s = 2548)
IDT treatment 2015
Treatment Students Allocated to intervention (s = 974)
Control Students Allocated to control (s = 495)
Treatment Students Allocated to intervention (s = 808)
Control Students Allocated to control (s = 1740)
Parents Allocated to intervention (p = 454)
Parents Allocated to intervention (p = 227)
Parents Allocated to intervention (p = 0)
Parents Allocated to intervention (p = 227)
Parents Allocated to Control (p = 227)
Parents Allocated to Control (p = 0)
Parents Allocated to Control (p =227)
Parents Allocated to Control (p = 454)
IDT treatment 2016
Treatment Students Allocated to intervention (s = 694)
Control Students Allocated to control (s = 182)
Treatment Students Allocated to intervention (s = 1295[3]
Control Students Allocated to control (s = 164)
Parents Allocated to intervention (p = 442)
Parents Allocated to intervention (p = 0)
Parents Allocated to intervention (p = 686)
Parents Allocated to intervention (p = 0)
Parents Allocated to Control (p = 252)
Parents Allocated to Control (p = 182)
Parents Allocated to Control (p = 609)
Parents Allocated to Control (p = 164)
Data Analysis[4]
n = 0
n = 0
n = 0
n = 0

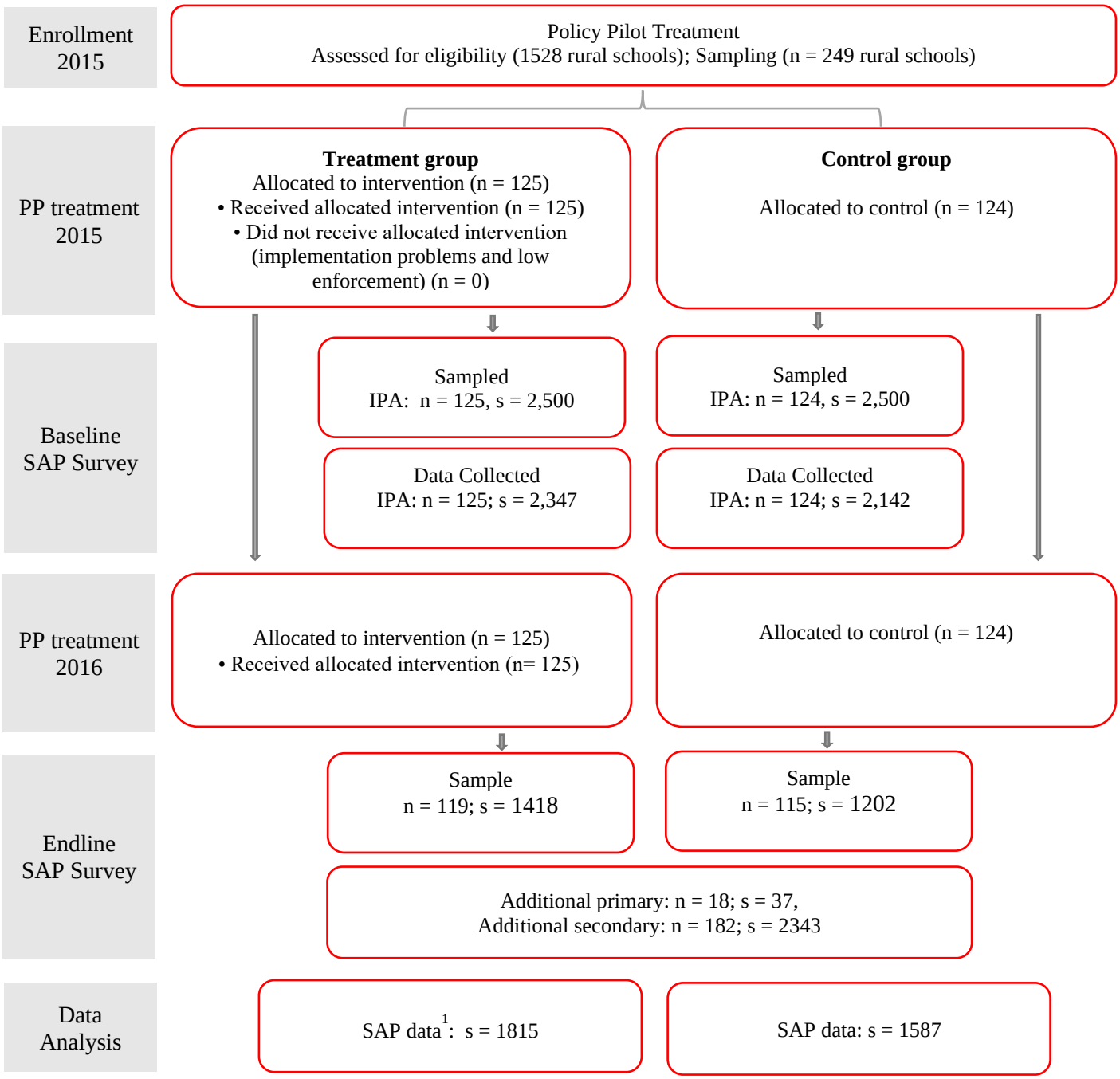
[1] In the case of dropout data, we decided to present pooled rather than cross-sectional regressions in this report because of registry problems present in 2015 that introduce contamination and imbalances in the dependent variable. We identified those registry errors when we found that students enrolled in 2015 dropped out of school in 2016 but then supposedly returned in to school in 2017 (but not in the grade we would have expected if that had actually dropped out the year before).

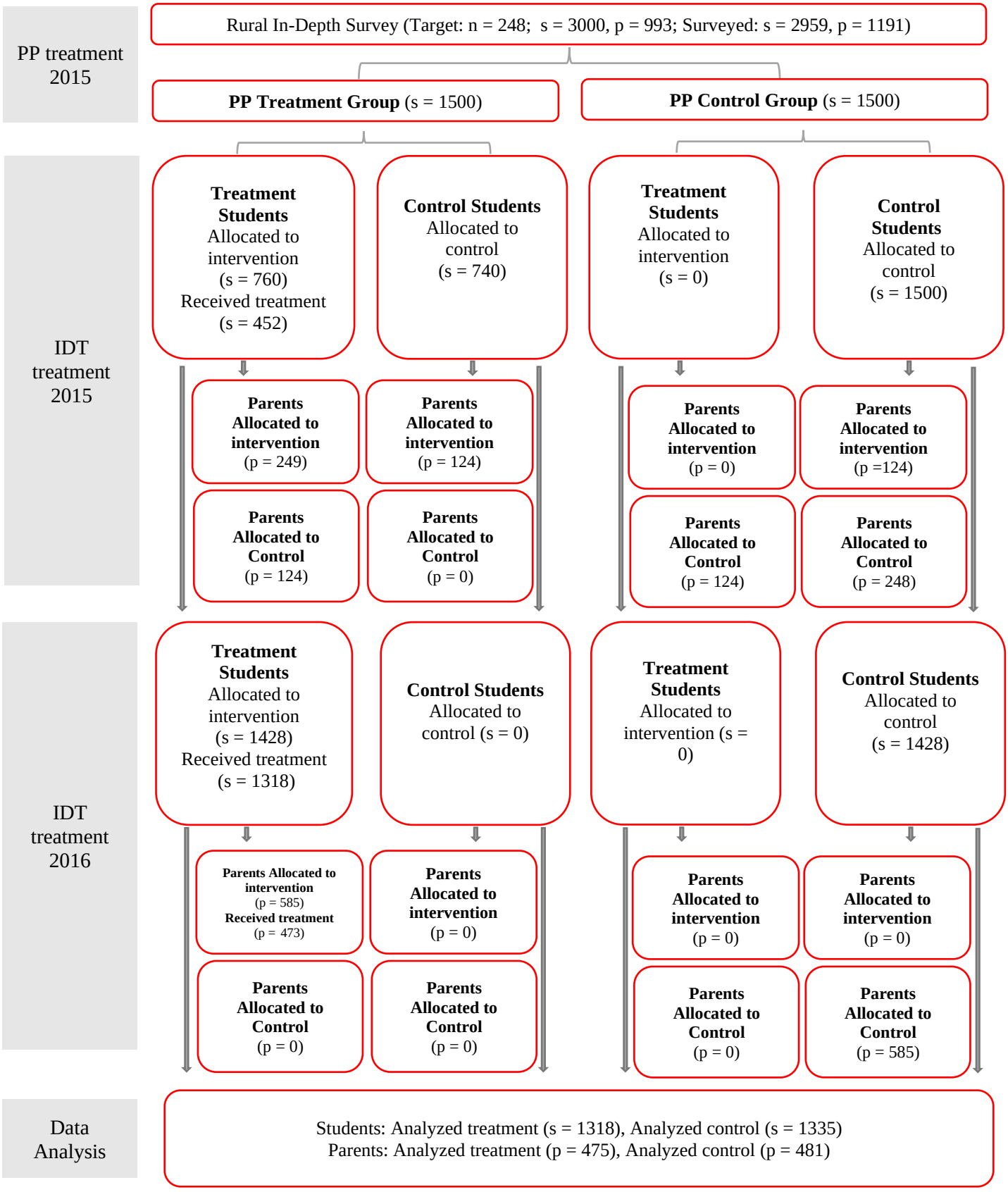
[2] The reasons why some observations were excluded from analysis were attrition and personal information's (ID) mismatch. There is no systematic bias among those missed observations.

[3] Part of the control group received the intervention in 2015 so we decided to include them in the treatment group in 2016. This issue was because of app's glitches in 2015.

[4] The tablet app-based treatment encountered problems in 2015. The tablet software had a glitch which made it difficult to distinguish between the treatment and control students in urban areas. While we could be able to use surveyor reports as a proxy for treatment status, we chose to exclude all the observations in order to be conservative in the analysis of results.

Figure 2: Diagram Flow Rural Sample




PP treatment 2015
Rural In-Depth Survey (Target: n = 248; s = 3000, p = 993; Surveyed: s = 2959, p = 1191)
PP Treatment Group (s = 1500)
PP Control Group (s = 1500)
IDT treatment 2015
Treatment Students Allocated to intervention (s = 760) Received treatment (s = 452)
Control Students Allocated to control (s = 740)
Treatment Students Allocated to intervention (s = 0)
Control Students Allocated to control (s = 1500)
Parents Allocated to intervention (p = 249)
Parents Allocated to intervention (p = 124)
Parents Allocated to intervention (p = 0)
Parents Allocated to intervention (p =124)
Parents Allocated to Control (p = 124)
Parents Allocated to Control (p = 0)
Parents Allocated to Control (p = 124)
Parents Allocated to Control (p = 248)
IDT treatment 2016
Treatment Students Allocated to intervention (s = 1428) Received treatment (s = 1318)
Control Students Allocated to control (s = 0)
Treatment Students Allocated to intervention (s = 0)
Control Students Allocated to control (s = 1428)
Parents Allocated to intervention (p = 585) Received treatment (p = 473)
Parents Allocated to intervention (p = 0)
Parents Allocated to intervention (p = 0)
Parents Allocated to intervention (p = 0)
Parents Allocated to Control (p = 0)
Parents Allocated to Control (p = 0)
Parents Allocated to Control (p = 0)
Parents Allocated to Control (p = 585)
Data Analysis
Students: Analyzed treatment (s = 1318), Analyzed control (s = 1335)
Parents: Analyzed treatment (p = 475), Analyzed control (p = 481)

[1] 636 observations were excluded from analysis because of attrition or ID mismatch. There is no systematic bias among those missed observations.

Data collection activities

The SAP and IDT survey in the baseline and follow-up:

Hiring process for surveyors

In both baseline and endline, urban and rural, the selection process for enumerators[22] was particularly rigorous given the complexity of the personalized instrument (IDT survey). The selection process began when we received their resumes, and followed by interviews for pre-selected candidates. The interview was intended to evaluate candidates' aptitude to working with children and parents and adapting to rural and area that are difficult to access. Successively, those who passed the first round of interviews took a basic cognitive exam and, for those being considered for rural areas, they also took a local language (i.e. Quechua) oral test. Candidates who received the highest scores in the interviews and tests were invited to take part in the enumerator training. At the end of the training, the enumerators took another test on the contents of the survey and the use of the tablet.

Training of surveyors

In both urban and rural areas, selected surveyors were part of a week-long training in which we covered, among other topics, the following:

- IRB and ethics of data collection: We discussed the importance of confidentiality, informed consent and voluntary participation. Surveyors were introduced to field scenarios that simulated difficulties that they might face in the field, followed by discussions on how to approach them.
- Survey revision: We reviewed the instruments in detail with surveyors, putting particular emphasis on difficult and sensitive questions such as the ones related to worst forms of child labor and the concepts contained in the SAP and IDT.
- Intervention: We explained to surveyors the importance of conducting the intervention according to the procedures and established protocols. This topic was particularly crucial as another multiple rounds of treatment implementation would take place. This required surveyors to be careful with regard to the order in which the instruments and intervention would be administered. As explained in the following section, to ensure compliance with procedures we had different monitoring and supervising levels.
- Importance of tracking hard-to-find respondents: Surveyors were introduced to strategies to track and locate respondents in a follow-up scenario. The status of incomplete surveys was registered in a visit form in which they explained the reason for the incomplete survey. In this way, we were also able to control for the proportion of incomplete surveys with respect to complete surveys by enumerator.

The structure of the training allowed for surveyors to practice protocols and the different survey modules. We also tested key parts of the training at the end of the day to understand and address the areas in which they had the most difficulty.

[22] We use the word surveyors and enumerators interchangeably

Field team structure

Our field team structure allowed us to supervise data collection at different levels. Unlike the rural environment, the urban context required several levels of monitoring as there were greater incentives to falsify data. Payment schemes were linked to productivity and there were no team leaders. Instead, monitoring was centralized through a field coordinator, call center, and back-checkers in the field. To deal with the increased risk of falsification, a monitoring system was proposed in which each of the members on the IPA team intervened in specific cases. The call center verified 100% of the surveys conducted by telephone, and all suspicious cases were verified in person.

In the case of the data collection in rural areas, the field structure was somewhat different and required more field-based logistical coordination to get the field team to the different locations. Each survey team had an experienced enumerator as a team leader. The team leader was in charge of coordinating the logistics within his or her group as well as reporting any incidents or difficulties in the field. There were also supervisors who were in charge of overseeing the day-to-day of data collection, and transporting surveyors on motorbikes to remote areas when necessary. Finally, the field manager also accompanied fieldworkers every day to provide support and supervise the teams' performance. We also conducted back checks in person on a portion of surveys (15%) to check the consistency of answers and verify that the survey was conducted according to established protocols.

For both urban and rural areas, other monitoring strategies included quality checks performed on a daily and weekly basis using incoming data uploaded by enumerators.

Consent form[23]

Students were not required to sign a consent form in the school since the head teachers authorized the visit and the application of the survey. Still, each child was given a consent form to provide their parents with the contact information for IPA and MINEDU personnel.

Each parent was asked to review and sign a consent form before the administration of the survey in which they authorized the use of the information as part of a research study. During the baseline, we used a paper consent forms, while we asked parents to sign electronically on the tablets during follow-up data collection. We gave the option of signing a paper consent form for those who felt uncomfortable signing the electronic one.

Baseline data collection

For the baseline in 2015, the data collection was conducted through two instruments: (1) the Self-Administered Paper Survey (SAP) and (2) the In-Depth Survey (Survey CTO + app).

SAP 2015

All SAP surveys were administered using an accompanying strategy in which enumerators went through key sections together with the students in addition to being available for questions throughout the survey. The SAP lasted, on average, 45 minutes and was administered in the classroom. Thanks to the use of the Ministry of Education's administrative data, all SAP surveys

[23] IPA relied on IRB Princeton University Institutional Review Board for Human Subjects, Office of Research Integrity and Assurance #7338 and on Universidad Catolica de Chile, #150615001.

contained a pre-loaded personal student information and and assigned ID. In particular cases we also surveyed students who happened to be in the classroom, but were not part of our study[24] using randomly generated unique identifiers that were not pre-loaded. This measure was taken because it was logistically difficult to separate selected students in a different environment to do the SAP survey (non follow-up students could feel excluded), and most of the time, teachers prefer that all of their students be interviewed. However, in cases where the students in the study made up only a small fraction of the class, we chose to implement the SAP in a different environment rather than the main classroom in order to avoid disturbing the rest of the students. Students that skipped school when an enumerator was visiting the school for data collection were dropped from the sample. The administration of the SAP was always done before the delivery of the IDT because the latter contained the intensive treatment in addition to the survey questions. Both MINEDU and IPA delivered the SAP survey. In urban areas, the surveys were then collected and taken to the MINEDU or IPA office each day. In rural areas, fieldworkers were in the field administering surveys for a week at a time. Thus, after the surveys were collected each day, they were stored in the locked van, and then transferred to the IPA office on a weekly basis.

Urban

MINEDU was in charge of administering the SAP survey to a subsample of the large-scale PP in urban areas: 600 schools in Metropolitan Lima, Cusco, Arequipa, Pucallpa and Iquitos. They hired a survey-firm in September of 2015 and completed data collection in the second week of December of 2015. Unfortunately, administrative procedures constricted the length of the SAP-Survey collected by the surveying firm to 20 minutes. The essential questions were preserved, but some less important questions had to be taken out in order to meet the time limits. Furthermore, the survey firm hired by Ministry of Education substantially delayed fieldwork and, due to issues in administrative procedures, it remains unclear whether they eventually completed all data collection activities. As a result, IPA planned to include the SAP survey as part of the field protocol for the sub-sample of 166 schools which were visited using the IDT survey, in addition to the additional 100 new schools in Metropolitan Lima. IPA SAP data collection was also completed in December 2015.

Rural

IPA took the lead with the SAP survey in part for logistical reasons, but also because MINEDU's budget was insufficient to administer the survey in remote areas. IPA covered 250 schools in Cusco and Arequipa. Field work started in October and was completed in December of 2015. Trained enumerators delivered the SAP survey to all 5th and 6th grade classrooms before the delivery of the IDT.

In rural areas, the delivery of the paper survey went through various phases. Though we conducted piloting before the administration of the survey, rural children had problems understanding and answering a number of questions on it. As a result, the principal investigators and IPA decided to implement a second version of the paper survey that was easier to comprehend.

Table 5: Baseline 2015 SAP rate of coverage

[24] It means that these observations were not included into the results analysis.

	Total	Target	% Coverage
Urban SAP students (IPA)	22 058	24,292	91%
Urban SAP schools	266	266	100%
Rural SAP students	4489	5000	90%
Rural SAP schools	249	249	100%

IDT 2015

There were no significant differences between urban and rural applications of the IDT survey. The IDT survey was exclusively applied by IPA staff to both students and parents. In the urban context, access to schools was coordinated with MINEDU so to ensure that the IDT was delivered after the SAP survey. This is because we did not want to generate bias in the baseline SAP survey. In the rural sample, by contrast, IPA controlled for the order of the application of the SAP and IDT. Also in this case IDT survey was delivered after SAP survey.

A sub-sample of parents was surveyed at home, generally after the students' survey in the afternoon and during the weekend. Fieldwork for survey collection took place from late October, of 2015 to February of 2016 in urban areas, and from October to December of 2015 in rural areas.

Baseline Coverage

Coverage for our SAP survey was relatively high in both urban and rural areas. Similarly, coverage of the urban and rural IDT surveys was high for both students' and parents' surveys. Table 6 and Table 7 presents a summary of the number of surveys collected by IPA-conducted fieldwork and the coverage rate as defined using administrative data or preliminary goals set during the Evaluation Design.

Table 6: Baseline 2015 urban IDT rate of coverage

	Total	Target	% Coverage
Schools	262	266	98%
Parent	1560	1816	86%
Student	3334	4017	83%

Table 7: Baseline 2015 rural IDT rate of coverage

	Total	Target	% Coverage
Schools	248	249	100%
Parent	1191	993	120%[25]
Student	2959	3000	99%

Limitations in the baseline

We faced were the following implementation problems:

- We delayed the beginning of the urban fieldwork for at least two weeks due to pressure from MINEDU's officials to change the urban version of the app. This was not the case for the rural areas, for which the relevant correspondent at MINEDU gave very timely permission.
- The app faced several problems in the urban and rural sample but was much more severe in urban sample: because of a glitch in the app's software it was difficult to distinguish between students in the treatment and control groups.
- A portion of schools was hard to access because of poor communication between regional/local authorities and MINEDU. Although enumerators presented MINEDU-signed letters to schools in advance, some of them were reluctant to cooperate on the grounds that they had not been authorized to do so by local education officials.
- During late 2015, Peru's Ministry of Education issued a warning that a strong El Niño event might compromise students' safety and welfare, and urged regional and local authorities to conclude the school year on the last day of November – as many as fifteen days early for some schools. Although in practice most schools did not follow this recommendation, the warning forced us to increase our pace in order to cover all schools in our sample. This was especially difficult due to our late start.
- In the urban sample, students in their last year of secondary school were very hard to reach as they participated in prom-related activities, which limited their presence at school and reduced the willingness of teachers to cooperate with the study. This problem was reinforced by our late start, and was present across schools and the socioeconomic spectrum.

Follow up data collection

The 2016 follow-up data collection was conducted through the two instruments used in 2015: (1) the Self-Administered Paper Survey (SAP) and (2) the In-Depth Survey (Survey CTO + app). The instruments used for the two waves did not differ substantially. Moreover, we added questions for those students who had dropped out of school. Because the SAP is administered at school, children that had dropped out that were found at home were only interviewed using the IDT survey. Enumerators were trained with two specific protocols to locate and communicate effectively with those students: (1) they visited students' former schools and (2) they visited their homes.

[25] Given the difficulties to reach parents in rural areas (i.e. long distance and lack of transport routes), whenever possible, we decided to survey selected subsample of parents and their replacement (i.e. another IDT kid's parent from the same classroom).

SAP 2016

Urban

MINEDU was unable to hire a survey firm and follow up with the same student sample as that of the baseline. Because of limited financial resources, they decided to directly hire staff and only survey secondary schools during November and December of 2016 in Metropolitan Lima, Cusco and Arequipa. For primary school, MINEDU was only able to coordinate survey administration in Metropolitan Lima using the pedagogical support staff in the Local Education Management Units (Unidades de Gestión Educativa Local (UGEL) in Spanish). Each pedagogical support staff member was assigned a unique set of schools based on their specific UGEL.

For this round of surveys, IPA could not support MINEDU efforts to collect SAP survey due to budgetary constraints.

In the case of secondary schools, surveys were collected by MINEDU staff and taken to the MINEDU office at the end of each week. In the case of primary schools, the surveys were delivered to the MINEDU office after each staff member had administered and collected the surveys for their assigned schools.

Follow-up data entry for paper surveys was carried out by a local survey and data-processing firm. Because of financial constraints, MINEDU could only pay for 15% of the sample. The principal investigators and IPA found additional external funding to digitize the remaining 85%. Double-digitization of the urban students' paper surveys was completed on September 30th of 2017.

Rural

The timeline for the endline was structured based on the idea that we would have six survey teams and three supervisors in the field. We planned to complete the field work in eight weeks, but ended up needing an additional nine weeks. Holidays as well as conflicts with a Ministry of Education Survey – a survey in which all Peruvian schools participate – caused us to fall behind schedule. The endline was conducted between November and December of 2016.

Field work for the follow-up sample was more challenging because we had to track students to both primary and secondary schools. Students who attended the fifth grade were now in the sixth grade (at the same school). However, students who were in sixth grade in 2015 were most likely attending secondary school the following year[26]. For the most part, we delivered the SAP survey to the entire class. In cases where the students in the study represented only a small portion of the whole class, we took the relevant students in to a different classroom to take the SAP.

[26] For more details about the follow-up sampling, see "Sample Selection" section.

Table 8: End-line 2016 SAP rate of coverage

	Total	Target	% Coverage
Urban SAP students	32,048	37,070	86%
Urban SAP schools	631	694	91%
Rural SAP students	4,038	5,000	81%
Rural SAP schools	358	434	82%

IDT 2016

Like with the baseline, the IDT survey was applied to both students and parents for a sub-sample of the students who received the SAP. The student survey was applied at school. Enumerators invited the student to a different classroom or to the court yard of the school to administer the IDT survey. In the case of IDTparents, we followed them up at home in the afternoon or during the weekend to increase the probability of finding them.

Urban

The IDT follow-up was conducted in two stages. The first phase took place from October to December of 2016 during which about 20% of the 2335 students sample was surveyed. The second phase took place from January to September of 2017, during which the remaining 80% of the sample was surveyed. As shown in Table 9, 96% of schools were visited, covering 85% of individual students and 80% of parents. It was easier to find the students than the parents, because when the numerators went to the schools, they had the opportunity to survey more than one child per visit. Additionally, it was more unlikely to find parents on weekdays, so in many cases they are visited at home only on weekends.

A new fieldworker position was created to reduce attrition and facilitate the work of the enumerators: scouts. They were responsible for contacting participating families in advance to remind them of the importance of their participation in the project, and to update the household contact data, reducing surveyor search costs. In some cases, lack of reliable administrative data increased the difficulty of contacting students and parents. In such cases, scouts allowed us to learn additional information about their whereabouts that made surveyors' work more efficient. Lists generated by scouts were given to less productive surveyors or to those with less administrative location information[27]. In some cases, this lack increased the probability of resign of very productive surveyors and the scout's work helped us to reduce that rate.

At the beginning of the urban fieldwork, we found that there were students who had dropped out of school. We were able to locate 108 students who dropped out in 2016 or 2017. The enumerators

[27] Administrative information was rather the one collected at the baseline or the one delivered by head teachers or teachers at the school.

were warned of these cases and trained with specific protocols for ascertaining their locations and effective communication.

By 2016, only 5 students reported not having studied that year due to problems with money (1), health (1) and the discomfort generated by the school environment. This finding is inconsistent with the response of the parents (7) who revealed that other reasons were also pregnancies, having a child, academic performance and personal and family health problems. The following year, 18 students reported that the reasons that they were not enrolled in school that year: 6 said that it was because they were going to have to repeat the year / they did badly, 3 said it was because of financial problems, and 3 said it was because they work. This was also not consistent with the response of the parents (36), who identified reasons similar to those of 2016.

Coverage

Table 9: Follow-up 2016-2017 urban rate of coverage

	Total	Target	% Coverage
# Schools visited	587	611	96%
# IDT students surveyed	1989	2335	85%
# IDT parents surveyed	1861	2335	80%

Rural

In rural areas, field work was conducted from late October to Decembe 2016. We visited 424 of the 434 target schools yielding about 98% school coverage. Similarly, student coverage was also high, nearly 96%, while parent coverage was slightly lower, about 89%. Most students were surveyed at school, which made the survey processes easier. Finding parents was more difficult depending on their occupations. Some occupations require people to migrate to other localities for work (i.e. mining activities or harvesting season).

One of our main focuses was to locate hard-to-find respondents as well as performing household visits for children who had dropped out of school or appeared to be at risk of doing so according to their teachers or school principal. Surveyors were trained to perform a household visit in all cases where the child appeared to have dropped out of school or had been missing school for several consecutive days. For cases where one of the parents was part of the study, surveyors always perform a household visit in addition to the school visit.

A total of 29 students who had dropped out of school were surveyed. The most common explanation regarding the reasons for dropping out of school was economic issues. Almost all children who reported having dropped out of school (27) said that they would like to return to school if they did not have any obstacles to doing so, and 24 had already determined a date by which they thought they would be back. Almost half (14) of the children reported that they made the decision to leave school on their own, while 5 of the children said that their parents made this decision without asking for their opinion.

Coverage

Table 10. Follow-up 2016 rural rate of coverage

	Surveys completed	Target	% Coverage
# Schools visited	424	434	97%
# IDT students surveyed	2,734	2,856	95%
# IDT parents surveyed	1,046	1,170	89%

We were not able to visit 10 schools, accounting for 15 students and 11 parents, that were part of our original target IDT sample. Seven of these schools were located in Arequipa, the area where our sample was the most disperse. As a result, accessing the schools was a challenge. For instance, in the district of Choco, the Castilla province of Arequipa, surveyors searched for the town where a particular school was located for over six hours, but were ultimately unable to do so. Given that our schedule and budget did not allow us to make repeated visits to schools, particularly in highly disperse areas, we could not go back to this community and perform another visit.

With regard to the SAP coverage, in addition to the schools we were unable to visit, there were seven schools in which we did not administer the SAP but where the IDT was completed. In some instances, survey teams arrived at difficult-to-reach schools after 12pm, which made it unfeasible to administer the SAP and continue with the IDTs as expected. Hence, only IDT's were administered to students, some of whom had to be interviewed in their homes given the school schedule. We also found a school in the Paruro Province (Cusco) that did not have a traditional schedule, which resulted in children being surveyed in their home as well. That particular school accommodates farming activities by allowing children to complete school tasks from home for a period of two weeks every month during the harvest season. All children from this school were surveyed with the IDT instrument in their homes.

In addition to the 15 IDT students that could not be surveyed at their respective schools, there were 107 parents that did not complete the survey. We have records for 83% of these visits. The most frequent reasons cited for why student did not complete the survey were: because the child had not gone to school, or because they did not attend the school listed in the administrative data.

In cases where children who had dropped out were not interviewed, the reason cited was either: the child was not found at home, or they lived in different cities/communities from their parents. Though we asked parents where those children currently lived, in most cases, their location was unknown, or the parents/relatives did not have a precise reference for their child's address. This often happens when children move to cities or larger communities with other relatives, but are not necessarily in constant contact with their parents.

Table 11. Status of incomplete surveys

	Freq.	Percent
Partially completed survey	1	1.12
The child is registered but did not come to school the day of the survey	27	30.34
The child has dropped out of school	6	6.74
The child refused to take the survey	1	1.12
The teachers and principal do not know the child	8	8.99
The child switched to another school	26	29.21
The child was not home	10	11.24
Other reasons	10	11.24
Total	89	100.00

With regard to parents, the majority of parents who were not surveyed were not found in their homes when the survey team visited them (Table 3). Though we did not perform repeat visits to households once we left the area, the three field supervisors returned to the household when possible to verify the status of the visit and perform the survey if the respondent was found.

Table 7. Status of incomplete parents' surveys

Status	Freq.	Percent
Partially completed survey	3	2.80
The parent refused to take part in the study	6	5.61
The parent was not home	81	75.70
The parent had moved to a different community/city	17	15.89
Total	107	100.00

Limitations in the follow-up

Field work was affected by the following issues:

- In urban areas, several events limited the coverage of our follow-up survey and negatively affected the enumerators' productivity and continuity. Those events were:
  - Several training sessions were applied during the fieldwork to accommodate job rotation.[6]

[6] As the enumerator job is a seasonal one, they are only expected to work for 2 months. Events reported above made field work much more extended than expected.

- Enumerators needed 2 - 3 visits to complete both student and parent follow-up surveys on average, and there were cases in which household members were not living in the same place so it took longer to find those families.
- In March of 2017, further delays were suffered due to the incidence of natural disasters. For safety reasons, we had to significantly reduce fieldwork activities in Lima. Many areas were affected by floods and mudslides making access to certain districts particularly difficult. Schools were suspended from March 16 to March 27 and in more precarious districts, school suspensions went on for several additional weeks. Certain districts were accessible only few weeks later.
- In August, there was a teachers' strike in Metropolitan Lima that lasted until September 4th, further limiting enumerators´ access to schools.

Results

1.1. Outcome Variables

In this section, before presenting the results, we report the main primary and secondary outcomes for each of the hypotheses planned for this study[28]. The data collection instruments used to measure each outcome are also reported: SAP survey, IDT survey (either IDT-Students or IDT-Parents), or Administrative Data (SIAGIE).

H1: Treatment increases/improves perceived returns to education

Primary outcomes

a. Students' perceived returns to finishing basic education increase
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 (Rural); IDT 2016 (Urban)
b. Students' perceived returns to pursuing/finishing higher education increase
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 (Rural); IDT 2016 (Urban)
c. Parents' perceived returns to finishing basic education increase
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 (Rural); IDT 2016 (Urban)
d. Parents' perceived returns to pursuing/finishing higher education increase
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 (Rural); IDT 2016 (Urban)

Secondary outcomes

e. Students' perceived returns to different educational levels increase for each level
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 (Rural); IDT 2016 (Urban)
f. Students' perceived distribution of labor income among different educational levels becomes monotonically increasing
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 (Rural); IDT 2016 (Urban)
g. Parents' perceived returns to different educational levels become monotonically increasing
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 (Rural); IDT 2016 (Urban)
h. Parents' perceived distribution of labor income among different educational levels becomes monotonically increasing

[28] The Table 64 in the Annex section reports the deviation from the initial pre-analysis plan (mainly due to the glitches of the IDT data).

- SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 (Rural); IDT 2016 (Urban)

H2: Treatment increases perceived feasibility of pursuing higher education

Primary outcomes

a. Students' perceived feasibility of attending higher education increases.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural; IDT 2016 Urban
b. Parents' perceived feasibility of their children accessing affordable higher education increases.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural; IDT 2016 Urban
c. The treatment effectively increases the probability of being aware of Beca 18.
    - SAP 2015, 2016 (Rural, Urban)
d. Perceived feasibility of getting any scholarship increases for students in top deciles of academic achievement.
    - SAP 2015, 2016 (Rural, Urban)

Secondary outcomes

e. Students become better informed on a wide variety of higher education majors
    - SAP 2015, 2016 (Rural, Urban)

H3: Effects on child labor

Primary outcomes

a. Given that children worked outside of their household nonzero hours at baseline, children's work hours decrease at follow-ups.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural; IDT 2016 Urban
b. Given that children spent nonzero hours doing household chores at baseline, their work hours decrease at follow-ups.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural; IDT 2016 Urban

Secondary outcomes

c. Children state they would rather not work if possible.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural; IDT 2016 Urban
d. Children state that their parents would not let them work if possible.
    - SAP 2015, 2016 (Rural, Urban)
e. Treatment reduces prevalence of child labor.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural

H4: Intervention effectively reduces drop-out rates

Primary outcomes

a. Intervention effectively reduces drop-out rates
    - Administrative Data – Siagie (2015, 2016, 2017)

H5: Students allocate more resources to human capital accumulation

Primary outcomes

a. Students voluntarily dedicate more time to studying.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural
b. Students voluntarily dedicate less time to working.
    - SAP 2015, 2016 (Rural, Urban)
c. Students are less likely to voluntarily skip schooldays.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural
d. Students look for more adequate information on better educational choices (i.e. schools or higher education providers, accordingly).
    - SAP 2015, 2016 (Rural, Urban)
e. Treatment effects over nationwide standardized (Evaluacion Censal de Estudiantes, ECE) tests is positive.
    - Administrative Data – ECE (*Evaluacion Censal de Estudiantes*)

H6: Parents allocate more resources to human capital accumulation

Primary outcomes

a. Parents' imposed study time (school attendance in addition to study time at home) increases.
    - SAP 2015, 2016 (Rural, Urban)
b. Parental time investment (helping children at home) increases.
    - SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural
c. Parental monetary investment such as educational expenditure increases.
    - IDT 2015 2016 (Rural)

H7: Treated households change long-run educational plans

Primary outcomes

a. Students change stated educational level and profession choices.
    - IDT 2016 Rural; IDT 2016 (Urban)

H8: Households change short-run educational choices

Primary outcomes

a. Treated students are less likely to dropout of school.
    - SAP 2015, 2016 (Rural, Urban)
b. Students study more for subjects related to their stated preferences.
    - SAP 2015, 2016 (Rural, Urban)
c. Parents get more involved in school decisions.
    - SAP 2015, 2016 (Rural, Urban)
d. Students spend more time studying.
    - SAP 2015, 2016 (Rural, Urban)
e. Parents invest more resources in human capital accumulation.

- SAP 2015, 2016 (Rural, Urban)

H9: Providing information is more effective for younger students

Primary outcomes

a. Interaction of age and treatment reduces treatment effect on switching schools.
    - SAP 2015, 2016 (Rural, Urban)
b. Interaction of age and treatment reduces treatment effect on work hours.
    - SAP 2015, 2016 (Rural, Urban)
c. Interaction of age and treatment reduces treatment effect on voluntary work.
    - SAP 2015, 2016 (Rural, Urban)

H10: Information provision affects kids of different abilities in math/science or language course differently

Primary outcomes

a. Interaction of declaring enjoying studying at baseline and treatment is positive on studying (IDT, Admin Data).
    - SAP 2015, 2016 (Rural, Urban)
b. Interaction of liking Math subjects better at baseline and treatment is positive on studying more Math and negative on studying language.
    - SAP 2015, 2016 (Rural, Urban)
c. Interaction of age and treatment reduces the treatment effect on voluntary work.
    - SAP 2015, 2016 (Rural, Urban)

H11: Providing information complements the effects of cash transfers from *Juntos* (Rural Sample only)

a. Child-labor decreases for treated Juntos-receiving households more than it would due to *Juntos* or the intervention independently.
    - SAP 2015, 2016 (Rural)
b. The interaction between receiving *Juntos* at baseline and receiving the treatment is positive for child labor outcomes.
    - SAP 2015, 2016 (Rural)
c. Plans for pursuing higher education in the future increase for treated students living in *Juntos*-receiving households.
    - SAP 2015, 2016 (Rural)
d. Parental time-allocation in children's education increase for treated students living in Juntos-receiving households.
    - IDT 2016 (Rural)
e. However, parental monetary investment in children's education does not change for treated students living in Juntos-receiving households.
    - IDT 2016 (Rural)

1.2. Main results

The objective of this section is to present the main results[29] from the project. "Choosing a better future" was a massive undertaking that included two interventions, a mass campaign and an intensive campaign, for parents and students representing both sexes, several grades, and dozens of schools across country. The wide scope of the project gave us the opportunity to report not only the average treatment effects of the treatments, but also on divergences and convergences in the effects that appear when accounting for significant heterogeneity.

This trade-off required a thorough analysis to ensure that the results were both accurate and robust. To this end, we show some preliminary results that will justify the introduction of several specifications[30]. As reported at the beginning of the document, in 2015, the take up of the Policy Pilot (PP) was about 33%. Meanwhile in rural areas the mass campaign achieved a 100% take-up, as IPA carefully managed the implementation of the intervention. With regard to the IDT intervention, in the case of rural areas, the take-up rate was 16%. In urban areas, the take-up rate was difficult to calculate due to technological challenges with the app.

Unfortunately, a glitch in the tablet software made it difficult to distinguish between students in the treatment and control groups for about half of the observations in the urban sample for the 2015 In-Depth treatment arm. To correct for this, we used enumerators reports on student assignment as a proxy for treatment status. However, the surveyor reports were imperfect, introducing noise into our analysis. To be maximally conservative, all the affected observations were excluded from the estimates presented here.

In 2016, IPA and its researchers were awarded a new grant to continue this investigation. The funding allowed us to better understand how parents and students (grades 5 through 11) respond to information about the returns to different levels of education by field, as well as financial information, and how these responses change for students of different grades as time passes. Specifically, the funding allowed us to enroll a new cohort of students and parents in the study with the follow up sample to evaluate the very short run treatment effects, and thus correct those follow up noises associated with the app software. The data collection of the new cohort also allows us to continue the follow up with students in 2018[31].

Second, regarding heterogeneities reported by the Self-Administered Paper Survey (SAP) instrument, as Table 12 shows, we found that girls were 5% less likely to say that they had difficulties answering SAP questions relative to boys. We also found that students in lower grades had a difficult time filling out the survey. This bias could affect the precision of our hypothesis testing estimates. We ran the same "difficulty-in-answering" regression using the level of education of the parents as controls but the results were not significant. Moreover, because parents' levels of education were left blank in many cases, the large number of missing values decreased the sample size. For that reason, we decided to only control for sex and grade.

[29] Some results require the use of baseline 2015 information. As MINEDU is engaging in legal proceedings with the hired enterprise in 2015, some variables from this data should not be published until the legal dispute is over.

[30] In order to make the analysis more readable and less cluttered by tables, we decided to present the main results of ITT regressions in the body of the document and the TOT specifications for the same regressions in the appendix to assess robustness checks and to evaluate whether the treatment was well-implemented.

[31] However, this follow-up analysis will not be part of this study.

Table 12: Students state that they had difficulties filling the survey

VARIABLES	(1) Difficult 2015	(2) Difficult 2015 Areg	(3) Difficult 2016	(4) Difficult 2016 Areg
ITT2015	-0.007	-0.007	-0.014	-0.013
	(0.015)	(0.015)	(0.009)	(0.009)
grade[32] = 2	-0.063***	-0.079***	-0.033*	-0.049***
	(0.007)	(0.015)	(0.018)	(0.006)
grade = 3	-0.130***	-0.146`	-0.094***	-0.109***
	(0.008)	(0.009)	(0.012)	(0.005)
Female	-0.053***	-0.053***	-0.025*	-0.024
	(0.003)	(0.002)	(0.014)	(0.014)
Observations	5,949	5,949	18,996	18,996
R-squared	0.014	0.014	0.009	0.018

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Areg refers to the same standard specification, but including fixed effects school type in each region.

1.2.1. Baseline characteristics: assessing the role of information

As the main objective of the project was to verify whether the provision of information can affect Peruvian students' educational attitudes and beliefs, time use, and likelihood of engaging in child labor, we refer to baseline status of the outcome variables we are trying to assess.

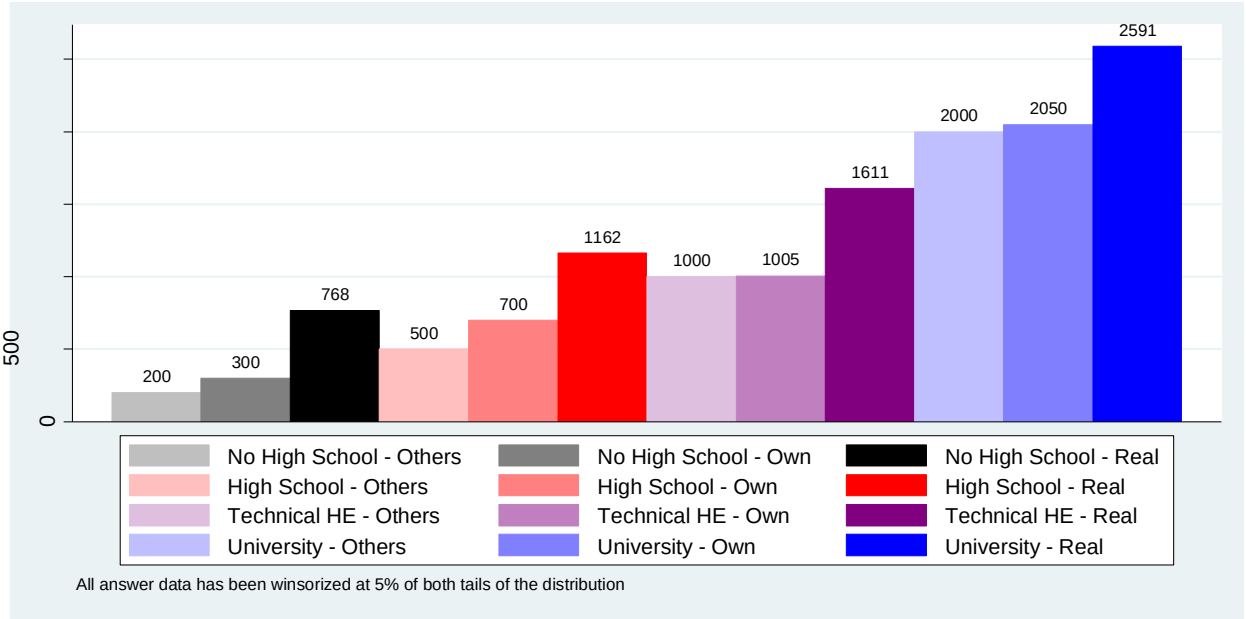
Students' perceptions on baseline status

First, in 2015 there existed biases in the beliefs of children about the **returns to achieving higher levels of education.**[33] Figure 3 showed that, even when the median child expected to earn a higher income relative to others of the same sex, they still underestimated the returns to technical higher education (THE) and university studies. The difference between what the median child expected a university graduate to earn, and the real wages in 2015 for a university graduate was 31%. The difference between what the median child expected a university graduate would earn and what they expected a non-university graduate would earn was 33%.

[32] For the sake of simplicity, we group grades into three categories: Grade 1 is composed of grades 5 and 6 (primary school); Grade 2 is composed of grades 7 and 8 (middle school); and Grade 3 is composed of grades 9 and 10 (high school). We do not include grade 11 in the regressions because we did not followed-up SAP students that finished basic education in 2016. Instead, when we refer to grade 5 and 6 (in rural's analysis) it, in effect, corresponds to 5th and 6th grade.

[33] We did the summary statistics with the sample 2015-2016 of 25,000 observations; the differences produced by changes in the number of observations are trivial. Therefore, we refer to the baseline report when we talk about baseline variables status.

Figure 3: Students' median perceived monthly labor income at different education levels for others, themselves, and real data values (Peruvian soles)

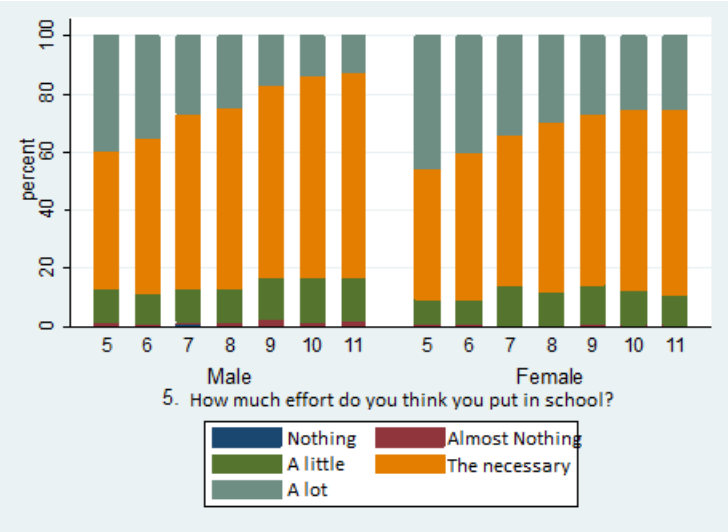


Moreover, when we estimate simple regressions between actual wages for each level of studies and what children think the average wage is for men and women between ages of 25 and 55, the results indicate that there is an extremely low correlation – 0.08, for urban areas and 0.07 for rural areas – as the IDT data suggested. Given the theory of change, we expect to see changes in beliefs, relative to the baseline, in response to new information about real earnings. Further, like students, parents with limited access to information appear to underestimate returns to completing secondary school and pursuing higher education. In the case of parents, the Baseline report showed that they underestimated the expected salaries of their children compared to what they believed about the average salary of the population.

Second, with regard to the **levels of perceived effort that children put into school**, Figure 4 showed a reduction in perceived effort in urban areas as children progress in school. While 40% of 5th grade boys and 45% of 5th grade girls perceive themselves as putting a lot of effort into school, the proportion decreases to 15% and 25%, respectively, by the last year of secondary school[34]. The proportion of those who perceive themselves as putting in "just the right" amount of effort conversely grows, and likely absorbs those who previously felt they put in a lot of effort. It is also interesting that girls' perceived effort is always higher than boys'. This pattern holds in other effort-related measures like voluntary and forced study hours (see Figure 18 and Figure 19 in the Appendix).

[34] We found that urban children in 5th and 6th grade had higher perceived effort than those in last year of school. Specifically, in the case of 5th graders 42% (40% of boys and 45% of girls) of the students consider they put a lot of effort in school.

Figure 4: Self-reported effort in School, by grade and sex



Third, **self-performance reported by students** on the baseline urban SAP survey shows that children think they perform better in language subjects than in Math: 13.9% think they are in the top quintile in Math performance, while 14.4% believe this to be true for language. However, this difference is entirely driven by girls' perceptions. Further, both girls and boys become less optimistic about their performance in language subjects as they progress through school. The same pattern appears when considering perceived ability in Math.

Fourth, we find **that perceived marginal returns to effort** (defined in the IDT survey as the perceived probability of improving ability, conditional on effort) decreased for Math as students got older by 5.7 percentage points until 10th grade (see Table 66 in the Appendix). Additionally, girls estimated probability of improvement with effort is 3 percentage points below boys' for Math but 3 percentage points higher in language subjects. The reduction in perceived probability of improvement with effort over time is greater for girls as well.

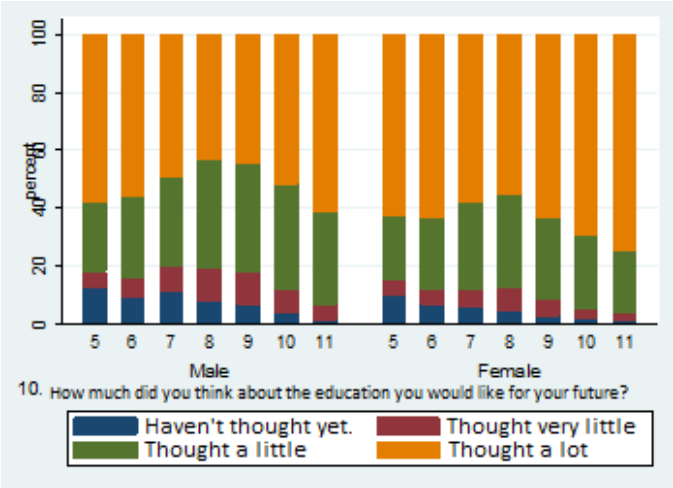
Fifth, regarding **children's perceptions of their parents' expectations and overall attitudes towards their education**, about 10% believe that their parents would let them be absent from school if they wanted, and would not oppose them dropping out of school. Additionally, girls perceive their parents as less accepting of their children dropping by 3 percentage points. Being absent seems to be frowned upon by parents during a child's last year of primary school (6th grade) with 4.4 percentage points less than 5th graders, but less so in the last years of secondary school with just 3.7 percentage points less than 5th graders. Interestingly, missing days of school is perceived by students to be more tolerable for their parents in secondary school (e.g. a difference of 13.5 percentage points in 11th grade relative to 6th grade).

Sixth, students' baseline status revealed that students had little **concern about future education**. Figure 5 shows that, on average, just 50% of boys and 65% of girls thought a lot about their future education. The trend suggests that children become more interested in future education as they reach higher grades in secondary school: between 8th and 11th grade, they increase by about 15% for both boys and girls. Students also reported their **desired level of future education** in the survey.

About 10% of both male and female students in early school grades only hoped to finish high school (see

Figure 20 in the Appendix). For boys, interest in technical studies apparently starts to increase relative to the percentage of students who prefer the idea of pursuing university in later grades. The preference for university was maintained by girls as they got older.

Figure 5: How much students have thought about future education, by grade and sex



Seventh, students' **understanding of opportunities to finance higher education** is limited and students in their senior year become **less optimistic about their existence**. Students were most aware of scholarships (42% of sample) and combining work with study (26%). For students in their senior year, these switch: scholarships decrease to 26% and combining work and study goes up to 46%. Further, relatively few respondents knew about the largest national scholarship program, **Beca 18**. Just 19% and 11% of students of the urban and rural sample, respectively, were familiar with the scholarship. Though, in urban areas, this increased to 53% by eleventh grade, academic eligibility is based on grades earned during the last three years of high school; only 11% of students know about the existence of the program before 9th grade. Both pieces of evidence support our hypothesis that there is room for raising awareness of the scholarship program through an informational campaign.

Eight, children perceive that the **probability of completing higher education is very high** (65% for technical programs and 67% for college). When asked how much higher this probability would be if they put a lot of effort into school and moved up to the highest ability group, students report probabilities of 73% and 74% for technical school and college, respectively. Thus, on average, students think effort makes completion of higher education 7.5 (technical school) and 7.8 (university) percentage points more likely. This increase doubles for students in the last year of secondary school. Notably this increase is the same regardless of sex, as seen in our regression analysis (See Table 67 in the Appendix).

Students' educational attitudes and behavior at baseline

All previous elements are important in our analysis as they may be correlated with child labor and have the potential to be modified by our policy intervention. The Baseline report also reports an estimate of time use within our samples, as well as an estimate of the prevalence of child labor.

It is clear that urban children in both primary and secondary education engage in substantially more leisure time than rural children do (as much as 3-4 times more). By contrast, rural children spend four times more time helping out at home than comparable children (children in primary school) in urban areas. The data revealed that in both urban and rural areas, boys dedicate more time to leisure than girls. By grade, the leisure time seems to decrease in urban areas as children get older (see Figure 21 in the Appendix).

Children in primary school in urban areas seem to have average work hours that are near-zero. Meanwhile, children in rural areas in 5th and 6th grade of primary school (around 10-12 years old) dedicate almost the same amount of time (2.5 hours per day on average) to activities that they consider work as their peers in urban areas that are in their 3rd through 5th years of secondary school (around 14-17 years old). In urban areas, the time for work / chores increases as children get older, which suggests that daily activities do not stay the same as they get older.

Also, children in rural areas spend 2.4 hours per day less studying, yet they spend more time in school than children in urban areas during primary school. We define "study" as study activities outside regular school hours, which normally consists of homework or non-mandatory study. In urban areas, girls study 1.3 more hours per week than boys on average, while in rural areas there is no difference between sexes. When separated into grades, the data do not show a clear trend as children get older.

In general, it is clear that the average day for rural children is longer than urban children when considering how many more hours are consumed by imposed work activities. This has a direct effect on the prevalence of child labor, as we will see below. Our data also show that, on average, children in rural areas dedicate almost 20 more hours to work and chores per week than those in urban areas. When considering sex, boys tend to dedicate more time to activities that they consider work, while girls do more chores in both rural and urban areas.

How beliefs and information about the future affect students' attitudes

Modern theoretical economics models assume individuals' behavior under the context of imperfect information and limited mental capability. Additionally, the psychological perspective suggests that information has a crucial role in changes in beliefs and motivations that ultimately shape attitudes and actions. Baseline facts reported up to this point illustrate that the imperfect information assumption holds for the case of students in early education but the question remains: does students' knowledge and belief system regarding educational issues shape their attitudes and behavior toward education in the present?

Table 13 shows that information and beliefs about the future are highly related to students' present academic performance. Students who are more concerned about their future and have a better understanding of educational issues put in the most effort, voluntarily study more hours, voluntarily work less hours, and are in the top deciles of academic achievement. Columns (1) and (2) show the

effects on beliefs and preferences for the future on effort; columns (3) and (4) show the effects on forced and voluntary study-hours respectively; column (5) reports the effects on voluntary child work hours; and columns (6) and (7) report the effects on being in the top decile of academic achievement for Mathematics and Verbal subjects, respectively.

As we can see from the regressions, after controlling for grade[35], sex, and travel time to school, thinking often about the future is positively correlated with the likelihood of being in the top level of effort in school, the likelihood of which is increased by 14%. The likelihood of thinking often about the future is also positively correlated with the chances of being in the top decile of academic achievement in Math and Verbal subjects relative to those that did not think about their future. Further, knowing about "*Beca 18*" is positively correlated with higher levels of effort, negatively correlated with forced study hours and positively correlated with voluntary study hours. It is also negatively correlated with voluntary work hours and is positively correlated with the likelihood of being in the top deciles of academic achievement. Moreover, the likelihood of having a preference for higher education increases student effort, as well as the likelihood of being in the top decile in Math subjects.

[35] For the sake of simplicity, we group grades into three categories (grade categories): Grade 1 is composed of grades 5 and 6 (primary school); Grade 2 is composed of grades 7 and 8 (middle school); and Grade 3 is composed of grades 9 and 10 (high school).

Table 13 Academic attitudes and its relations to perceptions and future plans

VARIABLES	(1) Effort = 4	(2) Effort = 5	(3) Study Hours: Forced, with adult	(5) Study hours: Voluntary	(7) Work hours: Voluntary	(1) Decile: Math	(2) Decile: Communi-cations
Think educ.: V. little	0.040**	-0.063***	-0.013	-0.596	0.750*	0.005	-0.002
	(0.017)	(0.019)	(0.417)	(0.406)	(0.385)	(0.015)	(0.016)
Think educ.: A little	0.009	0.024	-0.072	-0.084	-0.147	0.026**	0.034***
	(0.014)	(0.015)	(0.339)	(0.324)	(0.272)	(0.012)	(0.013)
Think educ.: A lot	-0.047***	0.139***	-0.284	0.306	0.182	0.030**	0.036***
	(0.013)	(0.014)	(0.330)	(0.315)	(0.278)	(0.013)	(0.013)
Know Scholarship? Yes	-0.016**	0.044***	0.567**	-0.433*	0.182	-0.028***	-0.008
	(0.008)	(0.010)	(0.228)	(0.230)	(0.200)	(0.009)	(0.009)
Know Beca 18? Yes	-0.021**	0.027**	-0.919***	1.149***	-0.567**	0.118***	0.109***
	(0.010)	(0.012)	(0.274)	(0.267)	(0.238)	(0.011)	(0.011)
Edu level desired:	0.088**	-0.007	0.775	0.751	1.322	0.003	-0.025
	(0.042)	(0.048)	(1.322)	(1.064)	(1.199)	(0.037)	(0.041)
Edu level desired: Technical school	0.077*	0.013	-0.275	-0.048	0.877	0.007	-0.018
	(0.042)	(0.047)	(1.265)	(1.035)	(1.180)	(0.035)	(0.040)
Edu level desired: University	0.045	0.093**	-0.597	0.762	0.699	0.101***	0.065
	(0.042)	(0.047)	(1.254)	(1.039)	(1.168)	(0.035)	(0.040)
grade = 2	0.055***	-0.108***	-1.298***	0.681***	-0.192	-0.320***	-0.291***
	(0.009)	(0.012)	(0.262)	(0.251)	(0.211)	(0.017)	(0.019)
grade = 3	0.112***	-0.205***	-1.885***	1.707***	1.054***	-0.333***	-0.313***
	(0.010)	(0.012)	(0.264)	(0.258)	(0.213)	(0.017)	(0.019)
Female	-0.020***	0.047***	0.025	0.290*	-0.306**	-0.001	0.064***
	(0.007)	(0.007)	(0.176)	(0.152)	(0.138)	(0.007)	(0.008)
Time travel to sch.	0.000	-0.000	0.003	0.008	0.011**	-0.001***	-0.001***
	(0.000)	(0.000)	(0.005)	(0.005)	(0.005)	(0.000)	(0.000)
Total Working Hours			0.026***	0.037***	0.645***	-0.001***	-0.001***
			(0.009)	(0.009)	(0.013)	(0.000)	(0.000)
Total Study Hours			0.454***	0.465***	0.031***	0.000***	0.000**
			(0.006)	(0.006)	(0.003)	(0.000)	(0.000)
Observations	21,412	21,412	21,473	21,473	21,473	21,471	21,471
R-squared	0.183	0.090	0.625	0.646	0.594	0.197	0.193
N of Fixed Effects	412	412	412	412	412	412	412

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Thereby, we can confirm that thoughts and plans (or intentions) about educational issues are significantly correlated with the effort students invest in school *today*. The mechanism underlying these results requires further research but we can say that additional effort and being more

concerned with educational issues may shape students' actual attitudes towards education, including effort, time allocation in work and study hours, and consequently on academic achievement.

Given these findings, the project hypothesizes that the Policy Pilot and IDT will shape students' educational attitudes, or at least will correct biases in students' beliefs and expectations that will eventually translate into improved attitudes and behavior towards education.

1.2.2. Take-up Regressions:

As mentioned at the beginning of the document, in 2015, the implementation of the Policy Pilot faced several difficulties. Specifically, some of the videos were delivered late, while others were not delivered at all. Thus, only 43% of the schools in the treated sample received the videos. Further, there was limited implementation: only 75% of the 43% that received the videos effectively projected them. In the end, only 33% of the schools in the treatment group successfully received the treatment. Additionally, schools prioritized by IPA had a take-up of 50%. One of the reasons for the low uptake of the videos is that 53% of schools that received the videos had other activities scheduled for the time the videos were meant to be shown.

The 2016 implementation involved the same treatment and control schools as those in 2015. This allowed us to correct for the mistakes of 2015, and also learn how to correctly evaluate a mass intervention like the Policy Pilot so as to increase the take up of the treatment to the level intended. We believe this learning process is key for future scale-up's. To this end, the 2016 Policy Pilot implementation took several additional improvements. As a result, approximately 66% of the schools in the treatment group took up the treatment. Table 14 shows the first-stage instrumental variable regressions when controlling for stratified randomization fixed effects.

Table 14: SAP sample first stage instrumental variables regressions

VARIABLES	(1) Take up 2015: School	(2) Take up 2016: School	(3) Take up 2015: Student	(4) Take up 2016: Student
ITT School	0.417***	0.655***	0.059***	0.134***
	(0.091)	(0.068)	(0.017)	(0.021)
Observations	28,740	28,740	28,740	28,740
R-squared	0.340	0.478	0.030	0.039

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Further, student take-up, defined as the correlation between students' 'intention to treat' status within treated and control schools and whether they remembered having watched DFM videos in 2015, also improved.[36] From 2015 to 2016, student take up increased by around 8 percentage points (i.e. an improvement of 160%) as can be seen from Table 14. However, because students were likely

[36] Student take-up was estimated based on the number of students who answered that they remembered seeing the video.

to report an incorrect answer as to whether they saw the videos, we did not use their reports as indicators. The distribution of students among each group is presented in Table 15.

Table 15: Student take up vs school take up for the Policy Pilot

Student\School	Did not project video	Projected video	Total
	DFM 2015		
Did not see	14171	2844	17015
	(69)	(56)	(67)
Did see	6290	2199	8489
	(31)	(44)	(33)
Total	20461	5043	25504
	(100)	(100)	(100)
	DFM 2016		
Did not see	11308	4815	16123
	(70)	(52)	(63)
Did see	4921	4460	9381
	(30)	(48)	(37)
Total	16229	9275	25504
	(100)	(100)	(100)

Note: Numbers in parentheses indicate percentages of students of the total students inside effectively treated and not treated schools.

Table 15 shows the intersection of school take up and student take up (based on student memory). As is shown in the table, 20,461 students were enrolled in schools where the videos were not projected in 2015, while only 5,043 students went to schools where the videos were projected. The second section of the table shows that 31% of the students at schools that did not project the videos, erroneously reported that they had seen the videos. Yet, we are confident that they could not have seen the videos as they had not been projected in their schools by the time we collected the follow-up SAP data. Also, at schools that projected the videos, 56% of students incorrectly reported that they did not remember seeing the DFM videos. While it is true that many students could have been absent at the time videos were projected, it is unlikely that over half of the students were absent on a single day (however we could not track this statistic). The same trend is present in the 2016 take up regressions. In the case of the rural sample, the Policy Pilot was well implemented, achieving a level of compliance of almost 100%.

The ToT regressions that follow will reflect the results of the urban sample. The first stage regressions allow us to calculate unbiased coefficients that estimate the treatment effects of the videos[37] as if perfectly implemented. These results are crucial to understanding the implications of a massive information campaign on educational outcomes if well-implemented, moving forward with a possible mass scale-up of the intervention.

[37] In the case of the IDT sample, as in the rural sample, the level of compliance was around 100%. For the sake of simplicity, in the urban area we just present ITT regressions using the take up variable as a proxy for treatment for App 2016 treatment.

For the results that follow, we present a summary of the results for each hypothesis in urban and rural areas. Those results are divided into mass and intensive intervention treatment effects. In the case of the urban sample, we use only the IDT to calculate very short-run treatment effects, meanwhile in rural areas the IDT is used to test very short-run effects and 1-year lapse effect. We discuss urban and rural results separately, with additional details about our sub-hypotheses and heterogeneous treatment effects. We present the full regression results in a series of tables that appear at the end of the analysis for each geographical region.

1.2.3. H1: Treatment increases/improves perceived returns to education

Summary of results for hypothesis 1

App treatment effects increase both students' and parents' expected returns to all levels of education. As both students and parents underestimated salaries at baseline, the App treatment narrowed the gap between perceptions and reality. Moreover, the urban mass intervention increases perceived returns to finishing basic education, technical education, and university relative to not finishing by about 8%, 4%, and 8% respectively.

While expected wages to all higher levels of education increased in the urban sample, several heterogeneous treatment effects emerged. For example, within the IDT urban sample, parents appear to be slightly but significantly more optimistic about boys' earnings relative to girls'; on average the difference between expected wages is 9% without completing secondary school and close to 5.6% for university graduates. After the treatment was delivered, parents' expectations regarding their children's wages increases for both boys and girls. However, girls' parents expected wages only increases in the case of higher education. Further, the effect is only 10% as large as the treatment effect on boys' parents.

Meanwhile, girls, regardless of their parents' non-significant changes in expectations, feel more optimistic about their earnings potential after receiving information. Their expected salaries increased by more than 200 Peruvian soles (PEN) in the case that they achieve higher levels of education, an increase which is as large as or larger than that of their male counterparts. They are even more optimistic than boys about finishing college. Expected wages increase by 228 PEN and 196 PEN for girls and boys respectively – i.e. 16% higher. Moreover, the mass intervention effect in urban areas was mainly driven by boys in the case of finishing high school – 13% for boys relative to 4% for girls. By contrast, the effects on expected wages are mainly driven by girls in the case of technical education and university, which increased by 11% and 19% respectively.

In the case of grade heterogeneities, treatment effects increase for parents as students enter higher grades. For example, parents of students in grades category 1, 2 and 3 increase their expectations for the wages of university graduates by 88 PEN, 96 PEN, 115 PEN respectively.

In the case of the rural sample, treatment effects make girls and their parents much more optimistic than boys and boys' parents about the returns to all levels of education. There are no significant differences between students in 5^{th} and 6^{th} grade.

Urban results

As demonstrated by the Table 16 regressions, the App treatment effects immediately increase both students' and parents' expected wages for all levels of education:[38] no high school (NHS), complete high school (CHS), technical career (TEC) and college (UNI). Below we list the main outcomes from the table.

Table 16: IDT treatment effects on own expected wages by level of education in urban areas

	P: EW NHS	P: EW CHS	P: EW TEC	P: EW UNI	S: EW NHS	S: EW CHS	S: EW TEC	S: EW UNI
ALL SAMPLE								
Treat S	24.255***	21.404**	46.575***	42.741**	173.599***	212.416***	226.511***	211.645***
	(9.140)	(10.211)	(15.025)	(20.474)	(8.291)	(10.806)	(13.111)	(15.294)
Treat P	32.274***	52.847***	70.950***	102.112***	-26.293***	-29.318**	-32.580**	-10.522
	(5.915)	(7.536)	(11.167)	(15.792)	(9.005)	(11.879)	(14.525)	(16.826)
Follow-up	7.091	24.835**	8.349	15.373	14.355	10.377	6.321	36.902*
	(8.963)	(11.531)	(17.376)	(23.101)	(10.169)	(13.325)	(16.217)	(18.971)
Observations	1,890	1,890	1,890	1,890	3,294	3,294	3,294	3,294
R-squared	0.028	0.047	0.047	0.040	0.121	0.107	0.082	0.062
GIRLS SAMPLE								
Treat S	24.800***	27.952***	55.626***	84.662***	167.878***	210.911***	229.325***	228.285***
	(8.236)	(6.915)	(12.327)	(16.805)	(11.830)	(16.166)	(20.217)	(23.335)
Treat P	5.223	3.793	13.872**	12.470**	-43.472***	-55.133***	-40.616*	-27.057
	(3.908)	(2.579)	(5.388)	(5.808)	(12.729)	(16.816)	(21.432)	(24.669)
Follow-up	13.008	42.322***	37.906*	40.040	7.587	1.796	5.741	-6.081
	(9.864)	(13.368)	(22.686)	(30.117)	(14.702)	(19.617)	(24.715)	(28.590)
Observations	911	911	911	911	1,641	1,641	1,641	1,641
R-squared	0.025	0.061	0.052	0.052	0.109	0.104	0.077	0.054
BOYS SAMPLE								
Treat S	21.696	11.685	33.738	-1.411	178.236***	212.402***	223.194***	196.677***
	(15.600)	(17.939)	(26.038)	(35.572)	(11.658)	(14.482)	(16.903)	(19.951)
Treat P	57.984***	99.137***	124.381***	186.922***	-8.969	-2.965	-24.248	7.957
	(10.682)	(13.904)	(20.642)	(29.261)	(12.722)	(16.675)	(19.481)	(22.674)
Follow-up	5.069	14.137	-12.880	-1.106	23.407*	21.723	7.447	80.001***
	(14.357)	(18.038)	(25.778)	(34.558)	(14.009)	(18.000)	(21.138)	(25.020)
Observations	979	979	979	979	1,653	1,653	1,653	1,653
R-squared	0.036	0.064	0.060	0.051	0.136	0.112	0.087	0.074
GRADE 1 SAMPLE								
Treat S	53.829***	48.762**	63.510**	50.572	183.502***	213.904***	223.225***	208.576***
	(18.421)	(21.085)	(27.727)	(42.201)	(14.094)	(18.400)	(23.226)	(25.541)
Treat P	17.184**	33.125**	45.884**	88.304***	-37.790**	-30.186	-46.776*	-16.680
	(8.436)	(13.228)	(19.178)	(31.241)	(16.534)	(22.048)	(27.389)	(31.059)
Follow-up	14.136	33.404	-29.425	-52.957	7.668	17.487	7.302	56.284*
	(31.678)	(41.700)	(45.774)	(46.627)	(17.639)	(23.359)	(29.498)	(32.177)
Observations	396	396	396	396	1,514	1,514	1,514	1,514
R-squared	0.042	0.048	0.049	0.037	0.067	0.056	0.040	0.034
GRADE 2 SAMPLE								
Treat S	9.099	31.733*	75.865***	65.317**	161.841***	202.252***	233.028***	212.255***
	(14.232)	(16.383)	(23.825)	(30.643)	(14.460)	(17.669)	(23.269)	(28.684)
Treat P	38.260***	53.991***	60.109***	96.151***	-5.637	-18.001	-33.287	-18.383
	(11.627)	(12.465)	(17.251)	(22.403)	(12.548)	(14.904)	(21.664)	(25.701)
Follow-up	28.274**	28.307	-0.165	-21.847	38.641*	12.856	45.695	47.707
	(14.297)	(19.463)	(29.154)	(41.027)	(23.030)	(25.252)	(36.853)	(45.123)

[38] Results are robust and become bigger even when accounting for school fixed effects as can be see in Table 68 in the Appendix.

Observations	736	736	736	736	901	901	901	901
R-squared	0.035	0.061	0.062	0.049	0.186	0.180	0.158	0.093
GRADE 3 SAMPLE								
Treat S	22.297	-3.483	10.755	18.652	171.036***	215.008***	229.689***	203.374***
	(15.154)	(16.284)	(25.508)	(34.946)	(14.109)	(19.816)	(21.461)	(25.571)
Treat P	34.182***	61.577***	94.703***	115.494***	-26.585**	-31.474*	-22.043	19.990
	(8.250)	(12.532)	(19.635)	(28.472)	(12.947)	(18.814)	(19.670)	(24.357)
Follow-up	-7.201	24.975*	22.691	57.517*	-0.211	-12.592	8.822	-6.653
	(12.917)	(14.938)	(24.671)	(32.402)	(17.819)	(24.003)	(28.289)	(36.361)
Observations	758	758	758	758	879	879	879	879
R-squared	0.023	0.040	0.041	0.041	0.180	0.166	0.147	0.090

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The heading of the panel P:EW NHS indicates P for parents, S for students, and EW for expected wages and NHS, CHS, TEC and UNI for the level of education stated. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

H1.A: Students' perceived returns to finishing basic education increase:

For this sub-hypothesis, basic education is defined as primary and secondary education. The app treatment increases perceived returns to finishing basic education for students in the very short run (immediately after information was given) by about 212 PEN. There are no significant treatment differences by sex. Moreover, the Policy Pilot increases perceived returns to finishing basic education relative to not finishing it by about 8%, as shown by the TOT regressions in Table 69. The mass intervention has long term effects, defined as a one-year lapse, in this area.

H1.B: Students' perceived returns to finishing higher education increase:

The App treatment increases the perceived returns to finishing higher education. The magnitude of the bias correction is slightly bigger for the perceived returns to finishing a technical degree relative to finishing college by 15 PEN (i.e. 7% bigger). This is consistent across sex and grades. Further, treatment effects are bigger for girls than boys by 32 PEN. Regarding the mass intervention, TOT show that treatment effects in urban areas increases marginal returns of higher education relative to not finishing high school by about 4% and 8% in the cases of finishing technical school and university, respectively. The effect was only driven by girls in the case of both technical education and university, with effect sizes of 11% and 19% respectively.

H1.C: Parents' perceived returns to finishing basic education increase:

App treatment increases the perceived returns to finishing basic education for parents in the short run. However, boys' parents are much more optimistic than girls' about returns after receiving the information via an app. Treatment effects are not significant for girls' parents. Further, the trend across grades shows that treatment effects become bigger for parents as students enter later grades.

H1.D. Parents' perceived returns to pursuing/finishing higher education increase:

Like the results above, App treatment increases the perceived returns to finishing higher education for parents in the short term. In this case, contrary to students' perceptions, the magnitude of the

wage bias correction of finishing college is bigger than that of finishing a technical degree by 30 PEN, or 42%. This is consistent across sex and grade. Again, boys' parents become more optimistic than girls' parents in their perceptions of the returns to both technical school and college. The treatment effect on boys' parents is almost 10 times as the effect on girls' parents.

Rural results

The App treatment effects increased students' and parents' expected wages for all educational levels right after information was delivered. The treatment effect increases students' expected wages by 170 PEN for individuals who do not complete secondary school, 173 PEN for high school graduates, 121 PEN if technical school graduates, and 42 PEN for college graduates. In the case of parents, treatment effects are 145 PEN, 304 PEN, 390 PEN, and 363 PEN for NHS, CHS, TEC and UNI respectively. Girls and their parents perceived positive returns for all educational levels. Boys do the same for all levels except for college, while boys' parents seemed to only adjust their beliefs about finishing high school. Table 17 presents the results for parents and students.

Table 17: IDT treatment effects on own expected wages by level of education in rural areas

	P:EW NHS	P: EW CHS	P: EW TEC	P: EW UNI	S:EW NHS	S: EW CHS	S: EW TEC	S: EW UNI
ALL SAMPLE								
Treat S	13.187	-94.669	-158.193	-74.953	170.286***	173.896***	121.098***	42.495*
	(65.332)	(98.090)	(147.820)	(152.594)	(16.587)	(23.746)	(25.855)	(23.885)
Treat P	145.455**	304.545***	390.909***	363.636**	-24.747	19.263	-7.292	64.743
	(63.315)	(94.720)	(144.801)	(149.121)	(28.051)	(38.565)	(43.603)	(41.983)
Observations	1,016	1,016	1,016	1,016	2,709	2,709	2,709	2,709
R-squared	0.092	0.070	0.065	0.078	0.051	0.033	0.012	0.006
GIRLS SAMPLE								
Treat S	-23.688	-102.801	-300.957	-84.858	207.307***	206.129***	182.952***	93.747***
	(100.510)	(128.368)	(198.384)	(169.064)	(23.403)	(34.569)	(36.501)	(35.230)
Treat P	166.667*	308.333**	575.000***	391.667**	-66.699	-4.415	-67.873	94.505
	(97.716)	(121.967)	(193.562)	(161.847)	(41.472)	(57.367)	(62.654)	(63.042)
Observations	496	496	496	496	1,319	1,319	1,319	1,319
R-squared	0.075	0.059	0.094	0.082	0.067	0.040	0.023	0.018
BOYS SAMPLE								
Treat S	53.307	-86.056	24.024	-58.287	135.322***	143.457***	62.684*	-5.890
	(77.979)	(152.204)	(201.212)	(268.065)	(23.394)	(32.622)	(36.417)	(32.274)
Treat P	120.000	300.000**	170.000	330.000	14.839	41.697	49.939	37.270
	(74.781)	(148.754)	(197.064)	(264.601)	(37.950)	(51.886)	(60.663)	(55.434)
Observations	520	520	520	520	1,390	1,390	1,390	1,390
R-squared	0.110	0.085	0.043	0.074	0.040	0.027	0.006	0.001
GRADE 5 SAMPLE								
Treat S	-224.026**	-669.913**	23.593	620.346	172.693***	139.100***	98.843**	32.873
	(108.598)	(320.995)	(392.425)	(640.129)	(25.799)	(37.971)	(38.823)	(33.021)
Treat P	350.000***	850.000***	150.000	-400.000	-9.441	85.136	-35.888	41.373
	(106.414)	(319.243)	(390.186)	(638.486)	(42.773)	(60.020)	(64.830)	(59.283)
Observations	459	459	459	459	1,167	1,167	1,167	1,167
R-squared	0.073	0.075	0.036	0.051	0.052	0.030	0.007	0.003
GRADE 6 SAMPLE								
Treat S	-	-	-	-	168.689***	198.826***	136.595***	49.119
	-	-	-	-	(21.679)	(30.351)	(34.587)	(33.475)
Treat P	188.235***	236.863***	286.275***	350.588***	-39.277	-34.120	23.405	88.136
	(23.491)	(37.927)	(41.879)	(45.374)	(37.009)	(49.908)	(58.683)	(58.815)
Observations	518	518	518	518	1,542	1,542	1,542	1,542
R-squared	0.114	0.072	0.085	0.107	0.050	0.039	0.017	0.008

Note: The heading of the panel P:EW NHS indicates P for parents, S for students EW for expected wages and NHS, CHS, TEC and UNI for the level of education stated. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

H1.A: Students' perceived returns to finishing basic education increase:

App treatment increases students' perceived returns to finishing high school in the short run by about 304 PEN. The effect is not heterogeneous between sexes. Moreover, we note that the Policy Pilot increases perceived returns to finishing basic education relative to not finishing for both boys and girls, and for the overall sample as shown in Table 17.

H1.B: Students' perceived returns to finishing higher education increase:

App treatment increases students' perceived returns to finishing high school, finishing a technical degree, and finishing college 174 PEN, 121 PEN, and 43 PEN. However, the magnitude of the bias correction for the perceived returns to finishing a technical career is bigger than for finishing college by 79 PEN (three times bigger). This is consistent across sex and grades. Further, the treatment effects, associated with an increase of 93 PEN, are only significant for girls in the case of finishing college. Additionally, the effects are 39% bigger for 6th graders than for 5th graders in the case of finishing a technical career.

H1.C: Parents' perceived returns to finishing basic education increase:

App treatment increases perceived returns to finishing basic education for parents right after information was shown by about 145 PEN and 304 PEN for NHS, CHS respectively. Treatment effects on expected wages after finishing high school are driven by both girls and boys equally.

H1.D: Parents' perceived returns to pursuing/finishing higher education increase:

Like the results above, App treatment effectively increased parents' perceived returns to finishing higher education. For parents, the magnitude of the wage bias correction for technical school is bigger, by 79 PEN, and more significant than that of finishing college. This is consistent across sex and grades. Treatment effects on girls' parents are the main drivers of the overall effect.

1.2.4. H2: Treatment increases perceived feasibility of pursuing higher education

Summary of results for hypothesis 2:

As can be seen from the results above, the perceived feasibility of achieving higher education increases for both parents and students in urban areas when the video was delivered. Perceptions of the likelihood of finishing higher education with and without effort increased by 4.4 and 4.2 percentage points, respectively, for technical studies, and 4.5 and 4.6 percentage points for college studies. In this area, girls and girls' parents are more optimistic than boys and boys' parents. However, with regard to perceptions about the probability of completing higher education with effort after the treatment relative to finishing high school without effort, the treatment appears to make boys and boys' parents more optimistic than girls'. In the case of the rural sample, the treatment does not have a significant effect on the overall sample of students – it only has an effect on those in 6th grade in all the cases, as they are closer to finishing primary school.

The massive campaign had long lasting effects on student awareness of the Beca 18 scholarship. The likelihood of being aware of Beca 18 increases by 16 percentage points for treatment group in the urban sample. This effect is bigger for girls than boys, and shrinks in significance and magnitude from 18 percentage points to 10 percentage points as students go through higher grades in school. The same occurs with rural students, however the magnitude of the average treatment effect is just 8 percentage points.

Urban results

H2.A: Students' perceived feasibility of their attending higher education increases:

As shown in Table 18, students' perceived feasibility of achieving higher education increases. On average, the treatment increases perceptions of the likelihood of finishing technical education with and without effort by 4.4 and 4.2 percentage points, respectively. In the case of finishing college with effort and without effort, the treatment effects increased parents' perceptions by around 4.5 and 4.6 percentage points respectively. Finally, the results indicate that after receiving the treatment, the expected probability of finishing a technical program or college increases by 2.5 percentage points on average, relative to the probability of finishing high school without effort. The difference is likely related to achieving higher levels of education.

Table 18: IDT treatment effects on students' perceptions of the likelihood that they achieve higher education in urban areas

	(1) TEC With Effort	(2) TEC No Effort	(3) TEC Video & Effort	(4) UNI With Effort	(5) UNI No Effort	(6) UNI Video & Effort
ALL SAMPLE						
Treat S	4.430***	4.149***	2.548**	4.449***	4.552***	2.476*
	(0.308)	(0.388)	(1.246)	(0.280)	(0.411)	(1.308)
Treat P	-0.157	-0.746**	4.703***	-0.125	-0.559	5.530***
	(0.298)	(0.358)	(1.074)	(0.275)	(0.370)	(1.140)
Follow-up	-0.674*	-1.041**	3.682***	-1.081***	-0.941**	4.897***
	(0.371)	(0.447)	(1.207)	(0.339)	(0.461)	(1.264)
Observations	3,295	3,295	3,295	3,295	3,295	3,295
R-squared	0.060	0.031	0.015	0.067	0.039	0.018
GIRLS SAMPLE						
Treat S	4.394***	3.924***	1.120	4.715***	4.673***	0.730
	(0.471)	(0.541)	(1.792)	(0.424)	(0.634)	(1.869)
Treat P	-0.401	-0.770	5.627***	-0.495	-0.687	5.674***
	(0.425)	(0.515)	(1.496)	(0.400)	(0.575)	(1.581)
Follow-up	-0.834	-0.958	3.700**	-1.405***	-1.498**	5.114***
	(0.546)	(0.633)	(1.730)	(0.498)	(0.710)	(1.797)
Observations	1,641	1,641	1,641	1,641	1,641	1,641
R-squared	0.056	0.027	0.014	0.068	0.035	0.015
BOYS SAMPLE						
Treat S	4.458***	4.362***	3.943**	4.183***	4.460***	4.087**
	(0.402)	(0.552)	(1.729)	(0.365)	(0.522)	(1.820)
Treat P	0.089	-0.735	3.884**	0.268	-0.416	5.554***
	(0.414)	(0.497)	(1.539)	(0.374)	(0.453)	(1.632)
Follow-up	-0.486	-1.100*	3.626**	-0.745	-0.385	4.719***
	(0.507)	(0.630)	(1.678)	(0.460)	(0.587)	(1.768)
Observations	1,654	1,654	1,654	1,654	1,654	1,654
R-squared	0.065	0.036	0.017	0.067	0.045	0.023
GRADE 1 SAMPLE						
Treat S	4.762***	3.700***	1.706	3.886***	3.509***	0.196
	(0.496)	(0.613)	(2.145)	(0.396)	(0.534)	(2.152)
Treat P	0.019	-0.594	2.080	0.171	0.186	3.509**
	(0.511)	(0.572)	(1.546)	(0.465)	(0.561)	(1.631)

Follow-up	-1.057	-0.830	1.555	-0.586	0.098	2.436
	(0.650)	(0.763)	(1.911)	(0.513)	(0.673)	(1.971)
Observations	1,515	1,515	1,515	1,515	1,515	1,515
R-squared	0.038	0.017	0.003	0.033	0.021	0.004
GRADE 2 SAMPLE						
Treat S	3.942***	3.720***	1.326	4.142***	4.955***	1.325
	(0.595)	(0.654)	(2.182)	(0.469)	(0.912)	(2.251)
Treat P	0.867*	-0.907	9.537***	0.452	-2.055**	10.770***
	(0.493)	(0.581)	(2.099)	(0.353)	(0.826)	(2.187)
Follow-up	-0.139	-0.477	-0.241	-0.444	-0.529	-2.228
	(0.881)	(1.039)	(2.878)	(0.758)	(1.162)	(3.198)
Observations	901	901	901	901	901	901
R-squared	0.083	0.041	0.032	0.099	0.047	0.037
GRADE 3 SAMPLE						
Treat S	4.356***	5.361***	-0.737	5.397***	5.643***	-0.368
	(0.539)	(0.800)	(2.305)	(0.573)	(0.752)	(2.512)
Treat P	-1.149**	-1.240*	8.988***	-1.246**	-0.588	9.475***
	(0.487)	(0.725)	(2.249)	(0.514)	(0.649)	(2.481)
Follow-up	-1.506**	-0.992	-2.638	-1.894***	-1.494*	-1.356
	(0.696)	(1.099)	(2.707)	(0.696)	(0.867)	(2.948)
Observations	879	879	879	879	879	879
R-squared	0.075	0.049	0.020	0.110	0.074	0.019

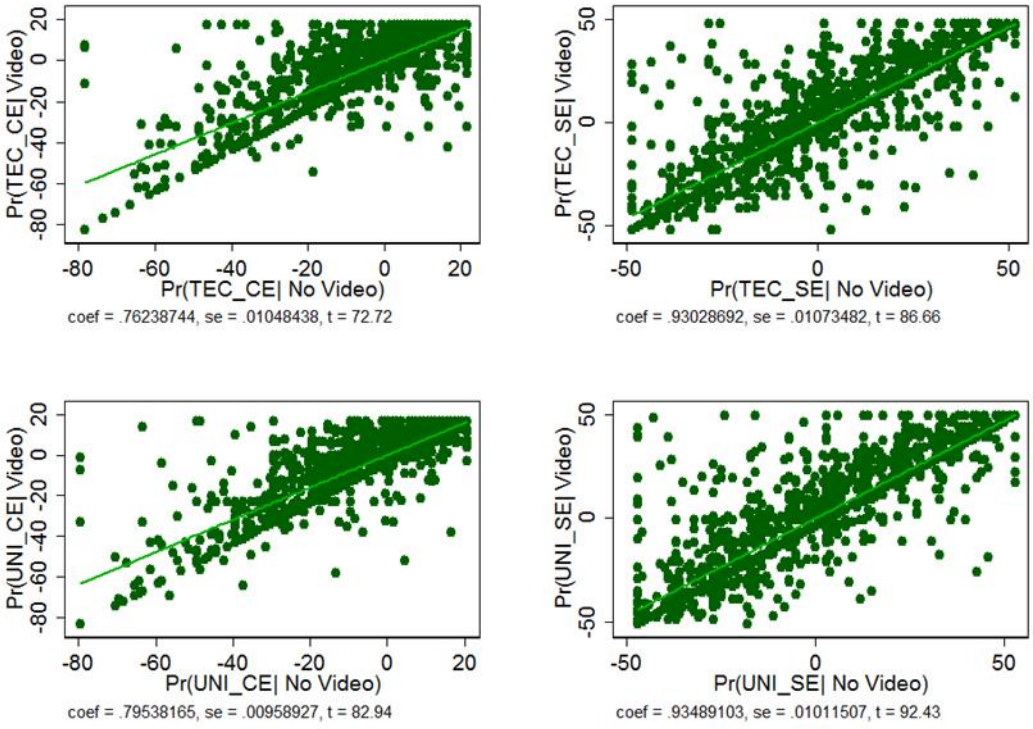
Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: dependent variables are differentials of probabilities of achieving higher education. Columns' (1) and (4) dependent variables are the differential between the probability of kids achieving higher education given that they put effort in after the treatment minus the same indicator before the treatment. For columns' (2) and (5), dependent variables are the same as (1) and (4) but given that children put no effort in. Finally, columns' (3) and (6) dependent variables are the differentials in perceptions about the probability of the child finishing higher education with effort after the treatment video minus the probability of finishing high school without effort. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

Additionally, as Figure 6 shows, there is no convergence in treated students with regard to perceptions of the likelihood of completing higher education without effort when treatment was shown. Meanwhile, convergence appears when students are asked about the likelihood that they finish higher education with effort. Apparently, the treatment has a greater impact when students take effort into account. A similar result was found for parents' perceptions.

Figure 6: IDT treated students' convergence in beliefs about the likelihood of their children achieving higher education in urban areas



H2.B: Parents' perceived feasibility of their own children accessing affordable higher education increases:

As shown in Table 19, parents' perceptions of the feasibility of their own children accessing affordable higher education increases. On average, the treatment increases parents' perceptions of the likelihood that their children finish technical education with effort and without effort by 2.4% and 2.7%, respectively. In the case of finishing college with effort and without effort, the treatment increases parents' perceptions by approximately 3.1% and 3.4% respectively. Finally, the treatment effect on finishing technical studies and college with effort relative to the probability of finishing high school without effort is offset by about 6.7%. This last result is promising, because it suggests that parents' perceptions of the likelihood that their children attend university if they put effort into school is almost 7% greater than that of just finishing high school without effort.

Table 19: IDT treatment effects on parents' perceptions of the likelihood that their children achieve higher education in urban areas

	(1) TEC With Effort	(2) TEC No Effort	(3) TEC Video & Effort	(4) UNI With Effort	(5) UNI No Effort	(6) UNI Video & Effort
ALL SAMPLE						
Treat S	-0.211	0.449	0.242	-0.283	0.638	1.239
	(0.393)	(0.502)	(1.491)	(0.442)	(0.527)	(1.515)
Treat P	2.368***	2.741***	6.718***	3.103***	3.380***	6.732***
	(0.235)	(0.324)	(1.368)	(0.300)	(0.359)	(1.399)
Follow-up	-1.317***	-1.628***	-3.026**	-1.632***	-1.696***	-1.205
	(0.337)	(0.418)	(1.451)	(0.357)	(0.443)	(1.484)
Observations	2,799	2,799	2,799	2,799	2,799	2,799
R-squared	0.040	0.035	0.015	0.053	0.047	0.013
GIRLS SAMPLE						
Treat S	-0.377	0.490	-1.029	-0.380	-0.213	0.065
	(0.599)	(0.726)	(2.125)	(0.712)	(0.765)	(2.244)
Treat P	2.821***	2.746***	5.369***	3.297***	3.855***	5.758***
	(0.342)	(0.435)	(1.857)	(0.459)	(0.529)	(1.988)
Follow-up	-1.678***	-1.644**	-3.773*	-1.780***	-1.038	-1.165
	(0.488)	(0.653)	(2.080)	(0.555)	(0.640)	(2.186)
Observations	1,364	1,364	1,364	1,364	1,364	1,364
R-squared	0.054	0.037	0.013	0.057	0.050	0.008
BOYS SAMPLE						
Treat S	-0.017	0.413	1.377	-0.178	1.381*	2.249
	(0.516)	(0.703)	(2.096)	(0.547)	(0.723)	(2.061)
Treat P	1.938***	2.736***	8.110***	2.920***	2.920***	7.732***
	(0.323)	(0.477)	(2.006)	(0.392)	(0.485)	(1.971)
Follow-up	-1.010**	-1.617***	-2.107	-1.503***	-2.267***	-1.083
	(0.470)	(0.537)	(2.032)	(0.468)	(0.605)	(2.029)
Observations	1,435	1,435	1,435	1,435	1,435	1,435
R-squared	0.030	0.033	0.019	0.050	0.047	0.018
GRADE 1 SAMPLE						
Treat S	0.110	0.507	2.844	0.435	1.542***	4.532**
	(0.537)	(0.516)	(2.217)	(0.541)	(0.588)	(2.304)
Treat P	0.729***	0.572***	-2.202	1.030***	0.769***	-1.017
	(0.215)	(0.214)	(1.775)	(0.193)	(0.271)	(1.827)
Follow-up	-1.815***	-1.507**	-7.826***	-2.621***	-2.898***	-6.178***
	(0.672)	(0.629)	(2.234)	(0.687)	(0.668)	(2.313)
Observations	1,300	1,300	1,300	1,300	1,300	1,300
R-squared	0.031	0.020	0.010	0.054	0.054	0.007
GRADE 2 SAMPLE						
Treat S	-0.354	2.022	-4.413	-1.824	1.027	-7.289**
	(0.850)	(1.336)	(2.885)	(1.126)	(1.272)	(3.017)
Treat P	3.803***	4.317***	20.477***	5.781***	5.344***	21.437***
	(0.691)	(1.024)	(2.980)	(0.977)	(0.920)	(3.079)
Follow-up	0.577	0.875	-9.655***	0.352	2.549*	-5.701*
	(0.806)	(1.264)	(3.154)	(1.096)	(1.435)	(3.322)
Observations	741	741	741	741	741	741
R-squared	0.050	0.050	0.085	0.056	0.062	0.070
GRADE 3 SAMPLE						
Treat S	-1.333	-1.600	-11.561***	-0.746	-0.955	-7.074**

	(0.967)	(1.211)	(3.195)	(1.061)	(1.330)	(3.215)
Treat P	4.211***	4.584***	21.718***	4.605***	5.027***	18.699***
	(0.730)	(1.023)	(3.404)	(0.896)	(1.191)	(3.481)
Follow-up	-1.583**	-1.220	-2.871	-1.395*	-0.565	-2.817
	(0.639)	(0.811)	(3.289)	(0.773)	(0.876)	(3.247)
Observations	758	758	758	758	758	758
R-squared	0.037	0.030	0.050	0.044	0.035	0.038

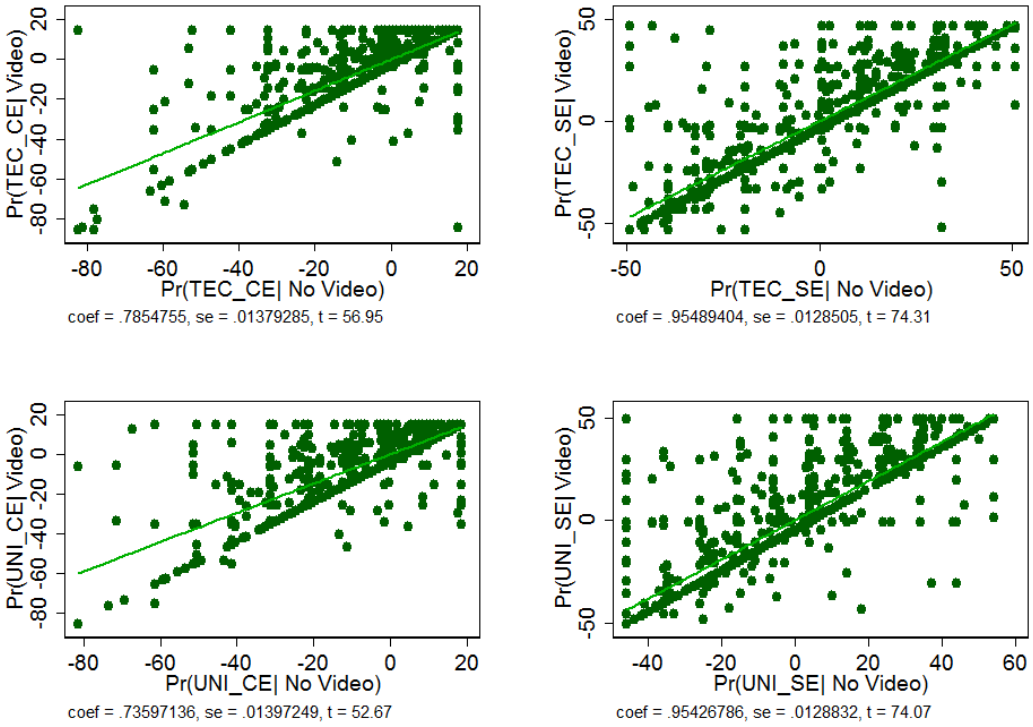
Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: dependent variables are differences between the probabilities of achieving higher education. Columns' (1) and (4) dependent variables are the differences between the probability of kids achieving higher education given that they put in effort after the treatment minus the same indicator before the treatment. For columns' (2) and (5) dependent variables are the same as (1) and (4) but given that children put in no effort. Finally, columns' (3) and (6) dependent variables are the differences in parents' perceptions about the probability of his/her kid finishing higher education with effort after the treatment video minus the probability of finishing high school without effort. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

Also, as Figure 7 shows, there is no convergence in treated parents with regard to perceptions about the likelihood of their children achieving higher education without effort when the treatment was shown. Meanwhile, convergence appears when parents are asked about the likelihood of their child finishing higher education with effort. Interestingly, the treatment has a greater impact when parents take the effort that their child puts into school into consideration.

Figure 7: IDT treated parents' convergence in beliefs about the likelihood of their kids achieving higher education in urban areas



When considering heterogeneous treatment effects, we can see that the treatment makes girls' parents more optimistic about the likelihood that their children finish higher education with and without effort than boys' parents. However, the increase is much bigger for boys' parents when they compare their likelihood of finishing higher education relative to finishing secondary school without effort. In the case of boys, it seems that parents drastically underestimate the probability that their children will finish higher education. Therefore, there exists more room for growth in parents' perceptions about boys' opportunities through information campaigns.

H2.C: The treatment effectively increases the probability of being aware of Beca 18:

Being given information increases the overall likelihood of knowing about Beca 18 by 16%. This effect is bigger for girls (17%) than boys (15%). Additionally, when comparing effects across grades, we can see that the treatment increases the likelihood of knowing about Beca 18 by 18% for students in earlier grades, and becomes insignificant for students in later grades.

Table 20: PP Treatment effects on Knowledge of Beca 18 in urban areas

	(1)	(12)	(23)	(34)	(45)	(56)
	All Sample	Girls Sample	Boys Sample	Grade 1 Sample	Grade 2 Sample	Grade 3 Sample

Treatment	0.157***	0.168***	0.146***	0.175***	0.124	0.104
	(0.023)	(0.035)	(0.021)	(0.011)	(0.078)	(0.073)
Observations	28,740	14,498	14,242	14,547	7,233	6,960

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

H2. D. Perceived feasibility of getting any scholarship increases for students in top deciles of academic achievement:

Results from Table 21 indicate that the perceived feasibility of getting any scholarship increases for students in the top decile of academic achievement. The overall effect is positive but not significant. In the case of Math, the effects are only significant for boys, whose perceived probability of getting a scholarship increases by about 14%. Meanwhile, in the case of language, the effect is only significant for boys (20%) and primary students.

Table 21: PP treatment effects on perceived feasibility of getting scholarship for top students in urban areas

	(2) All Sample	(13) Girls Sample	(24) Boys Sample	(35) Grade 1 Sample	(46) Grade 2 Sample	(57) Grade 3 Sample
TOP 10% IN MATH SUBJECTS						
Treatment	0.088	0.031	0.139*	0.080	0.178	0.184
	(0.121)	(0.213)	(0.080)	(0.106)	(0.488)	(0.401)
Observations	7,781	4,015	3,766	5,903	933	945
TOP 10% IN VERBAL SUBJECTS						
Treatment	0.139	0.083	0.207*	0.149*	0.396	-0.120
	(0.131)	(0.167)	(0.110)	(0.082)	(0.852)	(0.510)
Observations	8,165	4,604	3,561	6,001	1,101	1,063

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

H2.E. Students become better informed on a wide variety of higher education majors

Students became better informed on a variety of higher education majors. As can be seen from Table 22, the Policy Pilot treatment reduces the absolute value of the difference between expected wages and real wages by about 96 PEN for the Education major, 277 PEN for the Law major, and 262 PEN

for a Business major. The wage differentials in Education, Law, and Business are consistent across sexes. When accounting for grade heterogeneities, we can see that differentials decrease more significantly for students in middle grades for Law. Meanwhile, for students in secondary school, the differential decreases for Education majors.

Table 22: PP treatment effects on the difference between perceived and real average wages by major in urban areas

	(6)	(7)	(8)	(9)	(10)	(11)
	Dif Avg EDU	Dif Avg AHC	Dif Avg LAW	Dif Avg BUS	Dif Avg SCI	Dif Avg HEA
ALL SAMPLE						
Treatment	-95.921***	-47.187	-276.908***	-261.996***	-64.246	-88.074
	(21.418)	(84.179)	(97.010)	(86.230)	(122.840)	(261.840)
Observations	11,934	11,144	10,176	10,635	10,282	10,625
GIRLS SAMPLE						
Treatment	-102.393***	-135.720	-211.021**	-286.441***	-581.576*	-223.883
	(34.243)	(120.493)	(92.635)	(110.823)	(329.840)	(446.875)
Observations	6,313	5,830	5,307	5,466	5,058	5,594
BOYS SAMPLE						
Treatment	-99.093***	5.287	-338.074**	-276.523**	316.456	-9.574
	(28.275)	(110.742)	(154.862)	(113.253)	(198.467)	(177.880)
Observations	5,621	5,314	4,869	5,169	5,224	5,031
GRADE 1 SAMPLE						
Treatment	-71.921	36.235	-15.928	-122.283*	266.157	13.487
	(49.695)	(103.694)	(148.768)	(73.324)	(224.266)	(465.769)
Observations	4,067	3,967	3,597	3,800	3,689	3,774
GRADE 2 SAMPLE						
Treatment	-4.396	14.428	-730.760***	-250.205	-188.891	47.802
	(50.604)	(173.374)	(186.877)	(166.490)	(662.970)	(479.632)
Observations	3,728	3,476	3,184	3,266	3,168	3,298
GRADE 3 SAMPLE						
Treatment	-142.681***	-135.590	-127.511	-336.499	-268.537	-170.096
	(50.525)	(109.750)	(140.956)	(316.124)	(297.528)	(287.697)
Observations	4,139	3,701	3,395	3,569	3,425	3,553

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Each panel regression's dependent variable is the absolute value of the differential of expected wages in 2016 and the real wages for each major chose. The abbreviations EDU, AHC, LAW, BUS, SCI and HEA refer to majors in education, arts and humanities, law, Sciences, and health respectively.

Rural results

H2.A: Students' perceived feasibility of attending higher education increases

As shown in Table 23, students' perceived feasibility of attaining higher education increases but the effect is not significant. On average, the treatment increases perceptions of the likelihood of finishing technical education with effort and without effort by 0.9% and 0.7%, respectively. In the case of finishing college with effort and without effort, the treatment increases students' perceptions of the likelihood of completion by around 0.9% and -0.7%, respectively. The treatment effect on finishing technical studies and college with effort relative to the probability of finishing high school without effort increases by 0.7 percentage points on average. The reduction is likely related to achieving higher levels of education.

When accounting for heterogeneous treatment effects, we find that 6th graders became more optimistic about completing technical school and college, and the effects are bigger when taking effort into account. For boys, the treatment effect on finishing technical studies and college with effort relative to the probability of finishing high school without effort increases 4.5 percentage points on average. This is likely due to achieving higher levels of education.

Table 23: IDT treatment effects on students' perceptions of the likelihood of completing higher education in rural areas

	Prob. Update TEC With Effort	Prob. Update TEC No Effort	Prob. Update TEC Video & Effort	Prob. Update UNI With Effort	Prob. Update UNI No Effort	Prob. Update UNI Video & Effort
ALL SAMPLE						
Treat S	0.899	0.674	2.515	0.946	-0.746	0.696
	(4.626)	(2.165)	(5.046)	(3.728)	(2.402)	(4.550)
Treat P	3.500	3.682*	0.218	4.136	5.864**	3.228
	(4.594)	(2.043)	(5.038)	(3.691)	(2.316)	(4.563)
Observations	1,016	1,016	1,016	1,016	1,016	1,016
R-squared	0.057	0.037	0.002	0.083	0.064	0.004
GIRLS SAMPLE						
Treat S	3.776	1.813	4.322	2.787	-1.131	-0.556
	(7.229)	(2.097)	(7.481)	(2.773)	(2.712)	(6.166)
Treat P	1.667	3.000*	-0.784	2.583	5.833**	4.515
	(7.180)	(1.793)	(7.423)	(2.663)	(2.565)	(6.153)
Observations	496	496	496	496	496	496
R-squared	0.072	0.041	0.004	0.093	0.061	0.005
BOYS SAMPLE						
Treat S	-2.278	-0.572	0.133	-1.187	-0.394	2.102
	(5.275)	(4.051)	(6.439)	(7.468)	(4.173)	(6.764)
Treat P	5.700	4.500	1.805	6.000	5.900	1.779
	(5.229)	(3.939)	(6.474)	(7.434)	(4.070)	(6.806)
Observations	520	520	520	520	520	520
R-squared	0.047	0.034	0.001	0.076	0.068	0.004
GRADE 5 SAMPLE						
Treat S	1.487	-11.517*	-3.132*	-1.320	-17.013***	-1.539
	(6.790)	(6.816)	(1.790)	(7.842)	(0.975)	(2.547)
Treat P	1.500	14.500**	3.044	7.000	23.000***	3.580
	(6.740)	(6.740)	(1.849)	(7.804)	(0.000)	(2.713)

	Prob. Update TEC With Effort	Prob. Update TEC No Effort	Prob. Update TEC Video & Effort	Prob. Update UNI With Effort	Prob. Update UNI No Effort	Prob. Update UNI Video & Effort
Observations	459	459	459	459	459	459
R-squared	0.027	0.024	0.000	0.105	0.088	0.001
GRADE 6 SAMPLE						
Treat S	5.678***	5.600***	4.966**	4.541***	4.329***	4.632*
	(0.715)	(1.002)	(2.443)	(0.716)	(0.832)	(2.559)
Treat P	-	-	-	-	-	-
	-	-	-	-	-	-
Observations	518	518	518	518	518	518
R-squared	0.112	0.059	0.008	0.074	0.051	0.006

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: dependent variables are the differences between the probability of achieving higher education. Columns' (1) and (4) dependents variables are the difference between the probability of kids achieving higher education given that they put in effort after the treatment minus the same indicator before the treatment. For columns' (2) and (5) dependent variables are the same as (1) and (4) but given that children put no effort in. Finally, columns' (3) and (6) dependent variables are the differentials in perceptions about the probability of kid finishing higher education with effort after the treatment video minus the probability of finishing high school without effort. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

When using IDT data from 2016, we note that the App treatment increases students' perceived likelihood of attending both technical programs and university. These effects are bigger for technical programs when considering student effort. Without considering effort, the effects are bigger for university. The App treatment positively affects boys and girls, and the effects seem to be bigger for girls. On average, the treatment increases students' perceptions of the likelihood of finishing technical education with effort and without effort by 4.3% and 4.4%, respectively. In the case of finishing college with effort and without effort, treatment effects on students' perceptions are around 4% and 4.7% respectively. Finally, the treatment effect on finishing technical studies and college with effort relative to the probability of finishing high school without effort reduces by approximately 3 percentage points. The reduction is likely related to achieving higher studies.

Table 24: IDT treatment effects on students' perceptions of the likelihood of achieving higher education [rural data]

	(1) TEC With Effort	(2) TEC No Effort	(3) TEC Video & Effort	(4) UNI With Effort	(5) UNI No Effort	(6) UNI Video & Effort
ALL SAMPLE						
Treat S	4.293***	4.380***	3.453***	4.007***	4.672***	2.977***
	(0.436)	(0.557)	(1.092)	(0.397)	(0.519)	(1.136)
Treat P	0.272	-1.711*	2.473*	0.574	-0.239	2.063
	(0.719)	(0.941)	(1.406)	(0.622)	(0.833)	(1.458)
Observations	2,709	2,709	2,709	2,709	2,709	2,709
R-squared	0.055	0.027	0.009	0.065	0.044	0.006
GIRLS SAMPLE						
Treat S	4.554***	4.574***	3.560**	3.806***	4.290***	4.124**
	(0.682)	(0.780)	(1.562)	(0.624)	(0.759)	(1.643)
Treat P	-0.518	-2.036	2.323	0.694	-0.255	1.700
	(1.051)	(1.345)	(2.023)	(0.944)	(1.260)	(2.110)
Observations	1,319	1,319	1,319	1,319	1,319	1,319
R-squared	0.050	0.030	0.009	0.053	0.035	0.008
BOYS SAMPLE						
Treat S	4.046***	4.198***	3.350**	4.196***	5.033***	1.885
	(0.551)	(0.794)	(1.530)	(0.499)	(0.712)	(1.573)
Treat P	1.015	-1.406	2.613	0.460	-0.227	2.406
	(0.983)	(1.317)	(1.957)	(0.818)	(1.102)	(2.019)
Observations	1,390	1,390	1,390	1,390	1,390	1,390
R-squared	0.063	0.025	0.009	0.079	0.055	0.004
GRADE 5 SAMPLE						
Treat S	3.617***	4.946***	0.931	3.275***	4.025***	0.141
	(0.639)	(0.931)	(1.712)	(0.583)	(0.833)	(1.816)
Treat P	0.962	-3.202**	2.662	1.548*	0.660	3.164
	(1.008)	(1.406)	(2.044)	(0.897)	(1.281)	(2.221)
Observations	1,167	1,167	1,167	1,167	1,167	1,167
R-squared	0.052	0.030	0.003	0.063	0.036	0.002
GRADE 6 SAMPLE						
Treat S	4.773***	3.973***	5.304***	4.528***	5.133***	5.049***
	(0.590)	(0.686)	(1.416)	(0.537)	(0.663)	(1.450)
Treat P	-0.224	-0.459	2.436	-0.172	-0.933	1.279
	(1.019)	(1.281)	(1.948)	(0.860)	(1.097)	(1.941)
Observations	1,542	1,542	1,542	1,542	1,542	1,542
R-squared	0.059	0.028	0.016	0.069	0.053	0.012

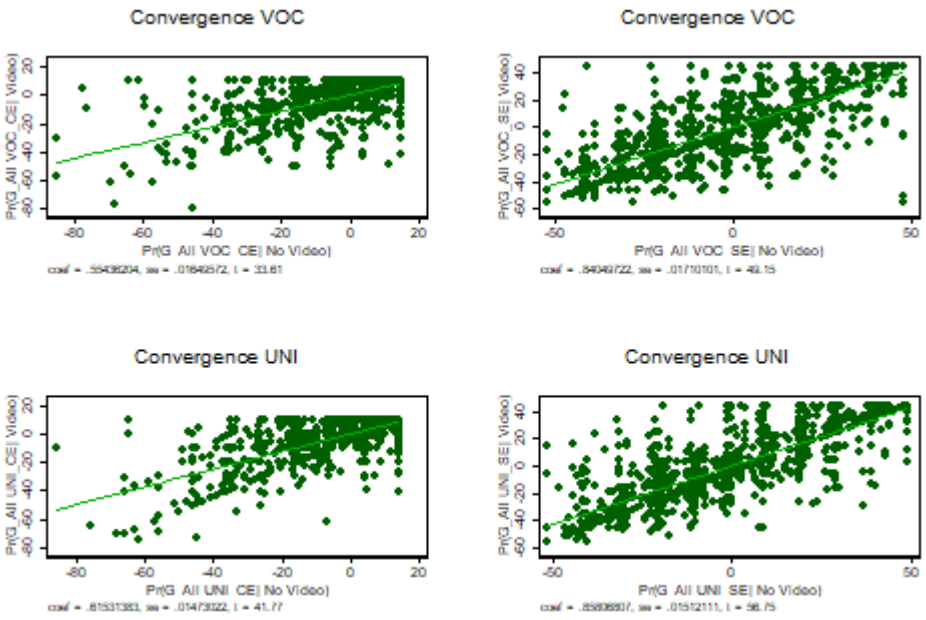
Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: dependent variables are the difference between the probabilities of achieving higher education. Columns' (1) and (4) dependents variables are the differences between the probability of kids achieving higher education given that they put in effort after the treatment minus the same indicator before the treatment. For columns' (2) and (5) dependent variables are the same as (1) and (4) but given that children put no effort in. Finally, columns' (3) and (6) dependent variables are the differences in perceptions about the probability of a child finishing higher education with effort after the treatment video minus the probability of finishing high school without effort. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

Additionally, as Figure 8 shows, there is no convergence in treated students with regard to perceptions of the likelihood of completing higher education without effort when treatment was shown. Meanwhile, convergence appears when students are asked about the likelihood that they finish higher education with effort. Apparently, the treatment has a greater impact when students take effort into account. A similar result was found for parents' perceptions.

Figure 8: IDT treated students' convergence in beliefs about the likelihood of achieving higher education in rural areas



H2.B: Parents' perceived feasibility of their own children attaining affordable higher education increases

As shown in Table 25, parents' perceived feasibility of their own children attaining affordable higher education increases. On average, the treatment increases parents' perceptions of the likelihood that their children finish technical education with effort and without effort by 3.5 percentage points and 3.7 percentage points respectively. In the case of finishing college with effort and without effort, the effects of the treatment on parents' perceptions are around 4.1 percentage points and 5.9 percentage points, respectively. Finally, the effect on finishing college with effort relative to the probability of finishing high school without effort positively shifts by approximately 3.2 percentage points. The reduction is likely related to achieving higher levels of education. This last result, though not significant, is still promising, because it suggests that parents' perceptions about the likelihood of their children achieving higher education if they put in effort is almost 3 percentage points greater than their perceptions of the probability of only finishing high school without effort.

When accounting for heterogeneity, we can see that the treatment makes boys' parents more optimistic about their sons finishing higher education with and without effort compared with girls' parents. However, the increase is much bigger for girls' parents when they compared the likelihood of finishing college relative to finishing high school without effort. In the case of boys, it seems that

parents underestimate the probability that their sons will finish higher education. Therefore, there is more room for growth in parents' perceptions about boys' opportunities through information campaigns.

Table 25: IDT Parents' perceived feasibility of their own children accessing affordable higher education increases in rural areas

	(1) TEC With Effort	(2) TEC No Effort	(3) TEC Video & Effort	(4) UNI With Effort	(5) UNI No Effort	(6) UNI Video & Effort
ALL SAMPLE						
Treat S	0.899	0.674	2.515	0.946	-0.746	0.696
	(4.626)	(2.165)	(5.046)	(3.728)	(2.402)	(4.550)
Treat P	3.500	3.682*	0.218	4.136	5.864**	3.228
	(4.594)	(2.043)	(5.038)	(3.691)	(2.316)	(4.563)
Observations	1,016	1,016	1,016	1,016	1,016	1,016
R-squared	0.057	0.037	0.002	0.083	0.064	0.004
GIRLS SAMPLE						
Treat S	3.776	1.813	4.322	2.787	-1.131	-0.556
	(7.229)	(2.097)	(7.481)	(2.773)	(2.712)	(6.166)
Treat P	1.667	3.000*	-0.784	2.583	5.833**	4.515
	(7.180)	(1.793)	(7.423)	(2.663)	(2.565)	(6.153)
Observations	496	496	496	496	496	496
R-squared	0.072	0.041	0.004	0.093	0.061	0.005
BOYS SAMPLE						
Treat S	-2.278	-0.572	0.133	-1.187	-0.394	2.102
	(5.275)	(4.051)	(6.439)	(7.468)	(4.173)	(6.764)
Treat P	5.700	4.500	1.805	6.000	5.900	1.779
	(5.229)	(3.939)	(6.474)	(7.434)	(4.070)	(6.806)
Observations	520	520	520	520	520	520
R-squared	0.047	0.034	0.001	0.076	0.068	0.004
GRADE 5 SAMPLE						
Treat S	1.487	-11.517*	-3.132*	-1.320	-17.013***	-1.539
	(6.790)	(6.816)	(1.790)	(7.842)	(0.975)	(2.547)
Treat P	1.500	14.500**	3.044	7.000	23.000***	3.580
	(6.740)	(6.740)	(1.849)	(7.804)	(0.000)	(2.713)
Observations	459	459	459	459	459	459
R-squared	0.027	0.024	0.000	0.105	0.088	0.001
GRADE 6 SAMPLE						
Treat S	-	-	-	-	-	-
	-	-	-	-	-	-
Treat P	5.678***	5.600***	4.966**	4.541***	4.329***	4.632*
	(0.715)	(1.002)	(2.443)	(0.716)	(0.832)	(2.559)
Observations	518	518	518	518	518	518
R-squared	0.112	0.059	0.008	0.074	0.051	0.006

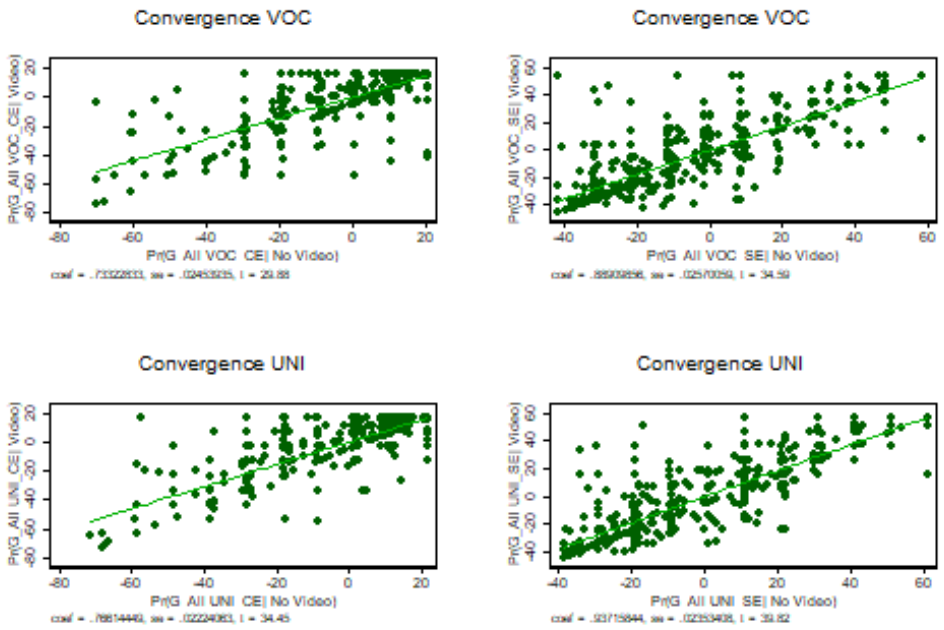
Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: dependent variables are the difference between probabilities of achieving higher education. Columns' (1) and (4) dependents variables are the differences between the probability of kids achieving higher education given that they put in effort after the treatment minus the same indicator before the treatment. For columns' (2) and (5) dependent variables are the same as (1) and (4) but given that children put in no effort. Finally, columns' (3) and (6) dependent variables are the differences in parents' perceptions about the probability of his/her child finishing higher education with effort after the treatment video minus the probability of finishing high school without effort. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

Also, as Figure 9 shows, there is no convergence in treated parents with regard to perceptions about the likelihood that their children will complete higher education without effort when the treatment was delivered. Meanwhile, convergence seems to appear when parents are asked about their child's likelihood of finishing higher education with effort. Apparently, treatment has greater impact when parents take their child's effort into consideration.

Figure 9: IDT treated parents' convergence in beliefs about the likelihood that their children complete higher education in rural areas



H2.C: The treatment effectively increases the probability of being aware of Beca 18:

The delivery of information increases the likelihood that students report being aware of 'Beca 18'. As shown in Table 26, treatment effects are significant for boys, girls, 5th and 6th graders (see Table 26). We notice that the treatment effects are bigger for boys than girls, and when comparing across grades, the treatment effects are bigger for 5th graders than 6th graders. These results are particularly important because, through 'Beca 18', talented low-income students are able afford higher education.

Table 26: PP treatment effects on 'Beca 18' in rural areas

	(1)	(2)	(3)	(4)	(5)
	Beca 18	Beca 18	Beca 18	Beca 18	Beca 18
	ITT - linear	ITT - linear	ITT - linear	ITT - linear	ITT - linear
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
ITT2015	0.081***	0.054**	0.104***	0.088**	0.079***
	(0.008)	(0.014)	(0.013)	(0.015)	(0.008)
Observations	3,404	1,643	1,761	1,728	1,676
R-squared	0.017	0.013	0.022	0.026	0.014

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

H2.D: Perceived feasibility of getting any scholarship increases for students in the top deciles of academic achievement

The informational campaign does not have a significant impact on students' perceived feasibility of getting any scholarship for those in the top deciles of academic achievement regardless of subjects (Table 27 and Table 28). However, when analyzing the differences between sexes, boys in the top deciles of academic achievement seem more optimistic than girls.

Table 27: PP treatment effects on the perceived feasibility of getting a scholarship for students in the top deciles [Math] in rural areas

	(1) Pr. Schship. Q1 MATH	(2) Pr. Schship. Q1 MATH	(3) Pr. Schship. Q1 MATH	(4) Pr. Schship. Q1 MATH	(5) Pr. Schship. Q1 MATH
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
ITT2015	0.089	0.023	0.128	0.277	-0.096
	(0.078)	(0.072)	(0.120)	(0.202)	(0.305)
Observations	2,249	1,099	1,150	1,137	1,112
R-squared	0.003	0.005	0.002	0.005	0.005

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

Table 28: PP treatment effects on the perceived feasibility of getting a scholarship for students in the top deciles [Communication] in rural areas

	(1) Pr. Schship. Q1 COMM	(2) Pr. Schship. Q1 COMM	(3) Pr. Schship. Q1 COMM	(4) Pr. Schship. Q1 COMM	(5) Pr. Schship. Q1 COMM
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
ITT2015	0.145*	0.084	0.188	0.302	-0.000
	(0.054)	(0.105)	(0.141)	(0.215)	(0.251)
Observations	2,337	1,157	1,180	1,165	1,172
R-squared	0.004	0.005	0.003	0.005	0.005

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

H2.E: Students become better informed on a wide variety of higher education majors

As shown in Table 29, the information campaign increased students' preferences for majors related to Science and technology. When accounting for differences in sex and grade, the treatment increased boys' preference for majors related to Social Sciences and humanities and decreased their preference for majors related to education. The campaign also seems to decrease 6th graders' interest in majors related to law and political Sciences.

Table 29: PP Students become better informed on a wide variety of higher education majors in rural areas

	(1) Major EDU ITT	(2) Major AHC ITT	(3) Major LAW ITT	(4) Major BUS ITT	(5) Major SCI ITT	(6) Major HEA ITT
ALL SAMPLE						
ITT2015	-0.022	0.010	-0.005	0.018	0.017*	-0.013
	(0.010)	(0.007)	(0.003)	(0.036)	(0.006)	(0.009)
Observations	3,387	3,387	3,387	3,387	3,387	3,387
R-squared	0.003	0.003	0.003	0.005	0.002	0.003
GIRLS SAMPLE						
ITT2015	-0.014	-0.014	-0.011	0.004	-0.001	-0.013
	(0.011)	(0.010)	(0.009)	(0.027)	(0.026)	(0.006)
Observations	1,636	1,636	1,636	1,636	1,636	1,636
R-squared	0.002	0.001	0.004	0.004	0.005	0.005
BOYS SAMPLE						
ITT2015	-0.028**	0.033***	-0.001	0.031	0.029	-0.010
	(0.008)	(0.005)	(0.011)	(0.044)	(0.020)	(0.013)
Observations	1,751	1,751	1,751	1,751	1,751	1,751
R-squared	0.008	0.008	0.002	0.006	0.002	0.006
GRADE 5 SAMPLE						
ITT2015	-0.026	0.004	0.011	0.025	0.030	-0.013
	(0.012)	(0.017)	(0.007)	(0.045)	(0.017)	(0.007)
Observations	1,721	1,721	1,721	1,721	1,721	1,721
R-squared	0.003	0.002	0.003	0.012	0.004	0.001
GRADE 6 SAMPLE						
ITT2015	-0.020	0.016	-0.022***	0.012	0.005	-0.013
	(0.030)	(0.008)	(0.002)	(0.027)	(0.010)	(0.016)
Observations	1,666	1,666	1,666	1,666	1,666	1,666
R-squared	0.003	0.006	0.005	0.001	0.001	0.008

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Each panel regression's dependent variable is the absolute value of the differential of expected wages in 2016 and the real wages for each major chose. The abbreviations EDU, AHC, LAW, BUS, SCI and HEA refer to majors in education, arts and humanities, law, Sciences, and health respectively.

1.2.5. H3: Effects on child labor

Summary of results for hypothesis 3:

The Policy Pilot reduced child labor to some extent in both urban and rural areas. In urban area, a reduction in child labor was found but the effect was only significant for girl with a reduction of 3 percentage point, or 15%. In rural areas, the effects on child labor was not observed.

Additionally, the Policy Pilot reduced total work hours by 1.3 hours per day in rural areas, but the effect is not significant. In urban areas, the Policy Pilot actually seemed to increase work hours by 2 hours per day for children who reported working nonzero hours. The effect was mainly driven by $5^{th}/6^{th}$ graders and students in secondary school with 6 and 2 hours per day respectively.

With regard to voluntary work hours, the mass campaign treatment had non-significant effects on the likelihood that urban students reported working zero hours voluntarily in 2016; the same is true in rural areas. When broken down by grade and sex, results indicate that for the urban sample, treatment effects increase the likelihood of working non-zero hours only for boys and 5^{th}/6^{th} graders by 7 percentage points and 6 percentage points, respectively.

In both urban and rural areas, the mass intervention's treatment effects reduced the likelihood that students worked zero hours voluntarily in 2016. However, the effects are only significant for boys and students in secondary school in urban areas and for 6^{th} graders in rural areas.

In rural area, IDT treatment reduced child labor but the effect is only visible and statistically significant for 6^{th} graders with a reduction of 6.5 percentage point. The child labor is mainly driven by the reduction of worst forms of child labor; the reduction is about 7.3 percentage point (i.e. a reduction of 89% incidence) for 6^{th} graders. The investigation into the work environments that children were subjected to found that the IDT treatment had non-significant effect on the probability that children spent time working in hazardous conditions in rural areas.

Urban results

H3.A. Given that children worked outside of their household nonzero hours at baseline, children's work hours decrease at follow-ups:

Policy Pilot treatment increases work hours by 2.2 hours per day for urban children that worked more than zero hours at baseline. This effect is mainly driven by students in middle and high school, meanwhile there are no effects for primary graders. Middle schoolers that worked nonzero hours at baseline increased their work hours by about 6 hours relative to primary students and by 3.2 hour relative to secondary students. There are no sex heterogeneities in the urban area.

H3.B. Given that children spent nonzero hours doing household chores at baseline, their work hours decrease at follow-ups:

Given that at baseline children did household chores treatment effects of the mass intervention did not significantly affect their remunerated hours at follow-ups. There is a positive and significant increase of 1.4 hours only for students in secondary school.

H3.C. Children state they would rather not work if possible:

The dependent variable here takes the value of one if the student stated that he worked 0 hours and takes the value of zero if they stated they worked voluntarily at follow up. We use this indicator based on the assumption that if a student worked non-zero voluntary hours, it is because they wish to work. Results suggest that the overall treatment effects of the Policy Pilot are not significant and therefore do not change the probability that children choose not to work voluntarily at follow-up. However, treatment effects reduce boys' intentions to voluntarily work.

H3.D. Children state parents would not let them work if possible:

In this case, the dependent variable takes the value of one when children state that their parents did not impose work hours last week upon follow-up. The overall treatment effect of the Policy Pilot is negative and significant. However, when accounting for heterogeneities, we see that the negative effect is entirely driven by boys, and non-existent for girls. Moreover, when we account for grade heterogeneities, the treatment effects only appear to be negative and significant for higher graders, and are essentially zero for early and middle schoolers.

Table 30: PP treatment effects on child work in urban areas

	(1) Total WH | CW15=1	(2) Total WH | CH15=1	(3) C No V-WH	(4) P No F-WH
ALL SAMPLE				
Treatment	2.201**	0.397	-0.022	-0.038*
	(1.036)	(0.514)	(0.015)	(0.020)
Observations	6,815	4,690	28,740	28,740
GIRLS SAMPLE				
Treatment	0.368	-0.892	0.017	-0.004
	(0.956)	(1.296)	(0.019)	(0.020)
Observations	2,764	2,408	14,498	14,498
BOYS SAMPLE				
Treatment	3.275	1.574	-0.066**	-0.074***
	(2.088)	(0.978)	(0.032)	(0.027)
Observations	4,051	2,282	14,242	14,242
GRADE 1 SAMPLE				
Treatment	0.579	-0.470	-0.013	-0.018
	(0.701)	(0.782)	(0.013)	(0.012)
Observations	3,302	2,634	14,547	14,547
GRADE 2 SAMPLE				
Treatment	5.915***	1.456	-0.056*	-0.062
	(1.879)	(1.753)	(0.030)	(0.049)
Observations	1,754	911	7,233	7,233
GRADE 3 SAMPLE				
Treatment	2.719*	1.401**	-0.020	-0.086***
	(1.521)	(0.569)	(0.020)	(0.027)
Observations	1,759	1,145	6,960	6,960

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

Note: Panel (1) and (2) show work hours regressions for the sample of students who stated doing non zero child work hours CW = 1 and non-zero child help hours CH = 1 respectively. Panel (3) and (4) show regression results of the treatment effects over the likelihood of students doing zero work hours voluntarily and zero work hours imposed by parents upon follow-up respectively.

H3.E. Treatment reduces prevalence of child labor:

Before discussing the results of the child labor regressions, it is important to state the definition of child labor and its operational definition for the statistical analysis. As stated by United Nations (2015), child labor is "work that children should not be doing because they are too young to work, or – if they are old enough to work – because it is dangerous or otherwise unsuitable for them."

For operational purposes, we define child labor as children 11 years old or younger, working for 1 or more hours per week in any economic activity (excluding regular household chores) is considered child labor, and children between 12 and 17 years old doing doing any activity that is considered hazardous as per Ministerial Resolution (MR) No. 14-2016-TR of the Ministry of Labor and Employment Promotion [39].

In the case of hazardous child labor, we use the following definition: Children 5-9 years of age and younger, doing any work for more than 24 hours per week or working in economic activities listed as hazardous by Peru's Ministry of Women and Vulnerable Populations (see appendix H). Children 10-13 years of age, doing working for more than 24 weekly hours or 4 hours per day, or working in economic activities listed as hazardous by Peru's Ministry of Women and Vulnerable Populations (see appendix H). Children 14 years of age and older, performing work for more than 36 hours per week, or 6 hours per day, or working in any of the economic activities listed as hazardous by Peru's Ministry of Women and Vulnerable Populations and children 10-17, doing any work from 7pm to 7am.

Results from the SAP survey[40] suggest that the informative videos from the Policy Pilot reduce the prevalence of child labor only for girls by 15% in urban areas, as can be seen in Table 31. The child labor reduction because of the video campaign was mainly driven by the significant reduction in hours spent doing household chores for girls as can be seen from Table 75 in the appendix. The reduction in household's chores was also observed in primary and 5^{th}/6^{th} graders but that result did not affect the child labor indicator.

[39] Ministerio de Trabajo Promoción del Empleo (MTPE) in Spanish.

[40] Simple stratum fixed effects do not guide us to consistent estimators. Therefore, we introduce fixed effects to the model for each pair of similar treatment and control schools based on dropout related characteristics like percentage of poors near the school, number of students enrolled, a dichotomous variable that indicates if the school is private or public, number of teachers on the school and if the school is secondary or primary.

Table 31: PP treatment effects on the prevalence of child labor in urban areas

	(2) Child Labor ALL SAMPLE	(6) Child Labor GIRLS SAMPLE	(10) Child Labor BOYS SAMPLE	(14) Child Labor GRADE 1 SAMPLE	(18) Child Labor GRADE 2 SAMPLE	(22) Child Labor GRADE 3 SAMPLE
ITT2015	-0.016	-0.030**	-0.001	-0.016	-0.009	-0.038
	(0.011)	(0.010)	(0.014)	(0.010)	(0.012)	(0.022)
Observations	28,344	14,317	14,027	14,546	7,218	6,580
R-squared	0.047	0.063	0.060	0.059	0.075	0.083

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Rural results

Child labor is a particularly important topic to highlight in rural areas. At the endline, about 89% of students had engaged in child labor.

Using the IDT and SAP data from 2015 and 2016, we were able to measure one year effects of the intensive and massive intervention treatment in 2015 on students' responses about child labor and time allocation. We found that the Policy Pilot treatment had effects on the number of hours that children in rural areas spent working.

H3.A: Given that children worked outside of their household nonzero hours at baseline, children's work hours decreased at follow-up:

We notice that the App treatment reduces self-reported working hours by about 1.6 hours, but the effect is not significant. Considering heterogeneity across groups, we find a reduction in girls' self-reported working hours, but again the effect is not significant. However, though non-significant, the results suggest that parents are willing to re-allocate their childrens' time from work activities to other activities, which supports our hypothesis that there is room for improvement through the activities with parents (see Table 73 on the Appendix).

Using data from the Policy Pilot intervention, we notice that the treatment reduces work hours by about one hour for children that worked more than zero hours at baseline. The Policy Pilot had significant effects on boys and girls. Boys report less working hours – about 4 hours less. However, girls that worked in 2015 report more working hours in 2016. Also, when considering heterogeneity across grades, we notice a significant impact on 6th graders.

H3.B. Given that at baseline, children spent nonzero hours doing household chores, their work hours decrease at follow-ups:

Given that at baseline, children spent time doing household chores, their work hours are significantly reduced at follow-up. We observe that the Policy Pilot treatment reduces hours spent on household chores by about 3 hours. When accounting for heterogeneity, we find a significant impact for both 5^{th} and 6^{th} graders, with a larger effect on the second group.

H3.C. Children state they would rather not work if possible:

The dependent variable here takes the value of one if the student stated that they worked zero hours and takes the value of 1 if they stated they worked non-zero hours at baseline. Results suggest that the Policy Pilot treatment had no significant impact on the probability that students choose not to work voluntarily at follow up (see column 3 in Table 32).

However, when considering voluntary work hours for the overall sample, we find a significant impact on children that reported working in 2015. When accounting for heterogeneities across grades, we find that 5^{th} and 6^{th} graders decreased their self-reported voluntary work hours (see Table 74 in Appendix).

H3.D. Children state parents would not let them work if possible:

In this case, the dependent variable takes the value of one when children state that their parents did not impose work hours on them last week upon follow up. The overall treatment effect of the Policy Piltot is negative but not significant. When we account for heterogeneity, we do not find any effect on boys or girls. However, when we account for grade heterogeneities, the treatment affects appear to be negative and significant for 6^{th} graders.

Table 32: PP treatment effects on working hours in rural areas

	(1)	(2)	(3)	(4)
	WH | CW15=1	WH | CH15 = 1	C No V-WH	P No F-WH
ALL SAMPLE				
ITT2015	-1.273	-2.870***	0.014	-0.002
	(1.121)	(0.303)	(0.010)	(0.014)
Observations	1,611	1,611	3,404	3,404
R-squared	0.515	0.485	0.028	0.035
GIRLS SAMPLE				
ITT2015	2.497**	-0.503	0.002	-0.002
	(0.470)	(1.951)	(0.009)	(0.020)
Observations	716	741	1,643	1,643
R-squared	0.527	0.480	0.022	0.027
BOYS SAMPLE				
ITT2015	-4.422**	-4.640	0.026	-0.002
	(1.118)	(2.129)	(0.016)	(0.008)
Observations	895	870	1,761	1,761
R-squared	0.515	0.504	0.038	0.046
GRADE 5 SAMPLE				
ITT2015	0.446	-1.798*	0.022	0.021
	(1.813)	(0.643)	(0.013)	(0.032)

	(1)	(2)	(3)	(4)
	WH | CW15=1	WH | CH15 = 1	C No V-WH	P No F-WH
Observations	813	841	1,728	1,728
R-squared	0.519	0.515	0.039	0.045
GRADE 6 SAMPLE				
ITT2015	-3.272**	-4.763**	0.008	-0.023*
	(0.702)	(1.032)	(0.007)	(0.009)
Observations	798	770	1,676	1,676
R-squared	0.513	0.456	0.020	0.029

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Panel (1) and (2) show work hours regressions for the sample of students who stated doing non zero child work hours CW = 1 and non zero child help hours CH = 1 respectively. Panel (3) and (4) show regression results of the treatment effects over the likelihood of students doing zero work hours voluntarily and zero work hours imposed by parents upon follow-up respectively.

We also analyzed treatment effects on hazardous work reported by students using IDT data[41]. Table 33 shows that the intensive campaign treatment effect reduced the probability of being involved in hazardous work, by 1.3 percentage points, i.e. a reduction of 1.4%, but this effect is not significant. When accounting for heterogeneities we can see that there are not significant changes across sexes or grades. When it comes to the worst forms of child labor, the intensive campaign treatment effect successfully reduced the probability of being involved in very dangerous forms of work, by 7.3 percentage points for students in 6th grade.

Table 33: IDT treatment effects on hazardous work in rural areas

	(1) Hazardous work ITT - linear	(2) Hazardous work ITT - linear	(3) Hazardous work ITT - linear	(4) Hazardous work ITT - linear	(5) Hazardous work ITT - linear
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
ITT Kid	-0.013	0.022	-0.028	0.029	-0.050
	(0.025)	(0.038)	(0.046)	(0.032)	(0.038)
Observations	2,536	1,240	1,296	1,097	1,439
R-squared	0.251	0.393	0.387	0.260	0.225

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

[41] Since MINEDU was in charge on implementing the SAP survey in urban area, they were interested in reducing the overall survey duration simplifying questions that were difficult to answers for children. During the BL survey, hazardous CL was difficult to answer, and also more than half of the students did not answer this question. These considerations was taken into consideration to drop the hazardous child labor questions from the SAP survey in the urban areas. Therefore, we concurred with DoL to drop hazardous child labor questions out of the sample for children in urban areas.

	(1) Hazardous work ToT - IV	(2) Hazardous work ToT - IV	(3) Hazardous work ToT - IV	(4) Hazardous work ToT - IV	(5) Hazardous work ToT - IV
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
ITT Kid	-0.064	0.106	-0.114	0.147	-0.229
	(0.125)	(0.193)	(0.172)	(0.155)	(0.187)
Observations	2,536	1,240	1,296	1,097	1,439
R-squared					

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

Table 34: IDT treatment effects on worst forms of child labor in rural areas

	(1) Worst forms ITT - linear	(2) Worst forms ITT - linear	(3) Worst forms ITT - linear	(4) Worst forms ITT - linear	(5) Worst forms ITT - linear
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
ITT Kid	-0.034	-0.003	-0.045	0.011	-0.073**
	(0.022)	(0.033)	(0.040)	(0.029)	(0.032)
Observations	2,536	1,240	1,296	1,097	1,439
R-squared	0.236	0.369	0.381	0.256	0.214

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

H3.E. Treatment reduces prevalence of child labor:

Results from the SAP survey suggest that the informative videos of the Policy Pilot reduce the prevalence of child labor in rural areas a year after the intervention but this effect is not significant. The overall effect of the Policy Pilot intervention remains non-significant when accounting for whether students were engaged in child labor in 2015. When accounting for heterogeneities, we find that boys seem to be less likely to engage in child labor than girls at followups but the effect is not significant.

We also find that the Policy Pilot does not seem to have significant impacts on the number of self-reported hours students dedicate to household chores (see Table 76 in the Appendix). Finally, the informational campaign reduced students' voluntary work hours for those students that reported working in 2015 (see Table 74 in Appendix). These results suggest that the intervention successfully affects students' work hours, but the impact does not seem to be enough to affect child labor. This may be related to the high prevalence of child labor – about 89% – in our rural sample.

Table 35: PP treatment effects on the prevalence of child labor in rural areas

	(1)	(2)
	Child Labor 16 Control CL15	Child Labor 16 |CL15==1
	ITT - linear	ITT - linear
ALL SAMPLE		
ITT2015	-0.005	-0.012
	(0.003)	(0.010)
Observations	3,398	2,674
R-squared	0.006	0.001
GIRLS SAMPLE		
ITT2015	-0.008	-0.007
	(0.007)	(0.013)
Observations	1,642	1,237
R-squared	0.003	0.002
BOYS SAMPLE		
ITT2015	-0.002	-0.017
	(0.011)	(0.012)
Observations	1,756	1,437
R-squared	0.010	0.002
GRADE 5 SAMPLE		
ITT2015	-0.010	-0.016
	(0.007)	(0.017)
Observations	1,725	1,343
R-squared	0.007	0.002
GRADE 6 SAMPLE		
ITT2015	-0.001	-0.011
	(0.009)	(0.009)
Observations	1,673	1,331
R-squared	0.007	0.003

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

A similar analysis was done with the app. We find that the intensive campaign treatment had significant impact on the 6th grade students; the campaign reduced the probability of being involved in child labor by 6.5 percentage points.

Table 36: IDT treatment effects over prevalence of child labor in rural areas

	(1)	(2)	(3)	(4)	(5)
	Child labor 2016 vs. Treat2016	Child labor 2016 vs. ITT Kid	Child labor 2016 vs. Treat Kid	Child labor 2016-2015 vs. ITT Kid	Child labor 2016-2015 vs. Treat Kid
	ITT - linear	ITT - linear	ToT - IV	ITT - linear	ToT - IV
ALL SAMPLE					
Treatment	-0.075	-0.028	-0.133	-0.031	-0.150
	(0.052)	(0.022)	(0.109)	(0.022)	(0.116)
Observations	2,685	2,602	2,602	2,536	2,536
R-squared	0.245	0.243		0.238	
GIRLS SAMPLE					
Treatment	-0.066	-0.004	-0.016	-0.004	-0.020
	(0.092)	(0.032)	(0.160)	(0.033)	(0.181)
Observations	1,310	1,272	1,272	1,240	1,240
R-squared	0.326	0.371		0.367	
BOYS SAMPLE					
Treatment	-0.089	-0.045	-0.192	-0.047	-0.191
	(0.074)	(0.039)	(0.159)	(0.040)	(0.157)
Observations	1,375	1,330	1,330	1,296	1,296
R-squared	0.372	0.384		0.381	
GRADE 5 SAMPLE					
Treatment	-0.069	0.015	0.072	0.017	0.085
	(0.172)	(0.028)	(0.134)	(0.029)	(0.141)
Observations	1,161	1,122	1,122	1,097	1,097
R-squared	0.361	0.260		0.260	
GRADE 6 SAMPLE					
Treatment	-0.074	-0.065**	-0.289*	-0.072**	-0.334*
	(0.057)	(0.032)	(0.163)	(0.032)	(0.175)
Observations	1,524	1,480	1,480	1,439	1,439
R-squared	0.280	0.220		0.214	

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

1.2.6. H5: Students allocate more resources to human capital accumulation

Summary of results for hypothesis 5:

In rural areas, there was a non-significant increase in voluntary study hours by all groups except for 5th graders. However, ther was a significant increase in the proportion of students that said they spent any time voluntarily studying for both Math and Communications, though boys benefited more than girls. The effect on Math studies was driven by 5th graders and boys, and the effects on communication were driven by 6th graders. Surprisingly, children in urban areas reduced their

voluntary study hours. This effect was driven by boys, and may have been the result of optimism bias. However, voluntary hours increased for secondary students.

Additionally, rural students were significantly less likely to voluntarily work, working 2 hours less per week on average. In rural areas, students were less likely to skip school, but the effect was not significant. In urban areas, girls were less likely to skip school while boys were actually more likely to do so. Also, urban students – especially girls – were more likely to seek information about higher education from reliable sources like PEC and Pronabec.

Finally, the reallocation of time oriented toward human capital accumulation caused by the Policy Pilot apparently had major effects on cognitive test scores on tests like the "Evaluación Censal de Estudiantes" (ECE, in Spanish) for students in eighth grade[42]. There was an increase in Math and Verbal scores of about 4% and 3% the standard deviation respectively that was mainly driven by girls. Results suggest that the policy did not only increase average scores for both sexes, but also narrowed the sex gap in Math by about 35%.

Urban results

H5.A. Students voluntarily dedicate more time to studying:

Counterintuitively, treated students reduced voluntary study hours. This result is entirely driven by boys. However, there is an increase in study hours for students in secondary school of 1.3 hours.

H5.B. Students voluntarily dedicate less time to working:

Second, Table 37 shows that the treatment does not have an effect on voluntarily work hours, even when accounting for heterogeneities.

H5.C. Students are less likely to voluntarily skip schooldays:

Third, treatment effects over skipping school are diffuse. As can be seen from the results presented in Table 37, the overall coefficient of the treatment effect is positive but not significant. The coefficient is negative for girls but positive for boys. Finally, the effect was positive for students in primary school, negative for students in $5^{th}/6^{th}$ grade, positive for students in secondary school.

H5.D. Students look for more adequate information on better educational choices

Fifth, students look for more accurate information on better educational choices. Columns (4) and (5) show treatment effects on the most frequently utilized sources of information according students, in this case PRONABEC and PEC, respectively. The overall effect suggests that children rely more on PRONABEC information relative to other sources. Apparently, the treatment increases the probability of preferring PRONABEC over other sources for girls more than boys. Also, when accounting for grade heterogeneities, the treatment increases the likelihood of choosing PRONABEC in $5^{th}/6^{th}$ grade and secondary school.

[42] This analysis was only conducted for urban area since the targeting population for rural was fifth and sixth graders.

Table 37: PP - Students allocate more resources to human capital accumulation in urban areas

	(1) Volunt SH	(2) Volunt WH	(3) Days Absent	(4) PRONABEC	(5) PEC
ALL SAMPLE					
Treatment	-0.433	0.031	0.007	0.070**	0.031
	(0.661)	(0.460)	(0.104)	(0.032)	(0.021)
Observations	28,740	28,740	20,106	28,386	28,386
GIRLS SAMPLE					
Treatment	-0.039	0.039	-0.034	0.099**	0.062**
	(1.265)	(0.625)	(0.109)	(0.047)	(0.026)
Observations	14,498	14,498	10,278	14,336	14,336
BOYS SAMPLE					
Treatment	-0.781**	0.143	0.034	0.038**	0.001
	(0.336)	(0.453)	(0.109)	(0.018)	(0.022)
Observations	14,242	14,242	9,828	14,050	14,050
GRADE 1 SAMPLE					
Treatment	-1.033	0.295	0.050	0.026**	0.018
	(0.670)	(0.719)	(0.059)	(0.012)	(0.014)
Observations	14,547	14,547	9,755	14,388	14,388
GRADE 2 SAMPLE					
Treatment	-0.262	0.191	-0.189	0.133***	0.043
	(0.695)	(1.332)	(0.264)	(0.041)	(0.048)
Observations	7,233	7,233	5,090	7,122	7,122
GRADE 3 SAMPLE					
Treatment	1.286*	-1.309	0.094	0.161***	0.039
	(0.744)	(0.817)	(0.122)	(0.034)	(0.052)
Observations	6,960	6,960	5,261	6,876	6,876

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: SH and WH are study hours and work hours respectively.

H5.E. Treatment effects over nationwide standardized (Evaluacion Censal de Estudiantes, ECE) tests is positive

The average treatment effect of the Policy Pilot is positive. Treatment effects increase ECE scores by about 2 and 3 points, or 3% and 4% of a standard deviation, for Verbal and Math sections, respectively. When accounting for sex heterogeneities, the increase is mainly driven by girls. Girls increase their Verbal scores by about 3 points, while boys' scores do not significantly increase. In the case of Math, girls increase their scores by 5 points on average, while boys increase their scores by 2

points (from an average score of 566 and 574 points for girls and boys, respectively). The video does not only increase average standardized scores for both sexes, but also reduces the sex gap for Math by about 35%.

Table 38: PP treatment effects over ECE's scores in Mathematics and Verbal in urban areas

	(1) ECE Verbal All Sample	(2) ECE Verbal Girls Sample	(3) ECE Verbal Boys Sample	(4) ECE Mathematics All Sample	(5) ECE Mathematics Girls Sample	(6) ECE Mathematics Boys Sample
ITT 2015	1.869**	2.944***	0.889	3.324***	5.092***	2.211*
	(0.869)	(1.105)	(0.957)	(1.054)	(1.286)	(1.251)
Observations	103,494	53,019	50,475	103,414	52,976	50,438
R-squared	0.184	0.209	0.162	0.230	0.261	0.222

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: [1] ECE Scores range from 100 to 1000 points with averages of 583 and 570 and standard deviations of 75 and 36 points for Math and Verbal, respectively. [2] All specifications include age, relative classroom ranking in Math and Verbal subjects, and stratum fixed effects; however, coefficients and significance holds even without including controls.

Rural results

H5.A: Students voluntarily dedicate more time to studying:

The 2015 App treatment increases the number of hours that students self-reported having spent studying, but these effects are not significant. As shown in Table 39, when considering heterogeneity across groups, we find an increase in students' self-reported study hours, except for 5th graders. Again, these effects are not significant.

Table 39: IDT treatment effects on student's voluntary hours of studying in rural areas

	(1) Weekly SH ToT - IV	(2) Weekly SH ToT - IV	(3) Weekly SH ToT - IV	(4) Weekly SH ToT - IV	(4) Weekly SH ToT - IV
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
Treat Kid	1.188	1.497	0.901	-0.564	2.840
	(2.374)	(3.536)	(3.300)	(3.466)	(3.216)
Observations	2,617	1,277	1,340	1,127	1,490

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: SH are study hours.

Using SAP data, we notice that the informational campaign increased the proportion of students that reported spending some number of hours studying. Accounting for heterogeneities across sexes and

grades, we find that boys are more willing to dedicate time to studying, as are 5th graders. When considering hours spent studying by subject, we notice that the intervention increases the proportion of students that reported spending time studying Math and communication. The treatment effects are significant for the first group. As shown in Table 40, the campaign has significant effects on boys and 5th graders for Math subjects and negative effects for 6th graders and communication subjects.

Table 40: PP - Students voluntarily dedicate more time to studying in rural areas

	(1) Total SH ITT - linear	(2) Total FSH ITT - linear	(3) Total VSH ITT - linear	(4) Study Math ITT - linear	(5) Study Comm. ITT - linear
ALL SAMPLE					
ITT2015	0.019*	0.017	0.007	0.028*	0.001
	(0.007)	(0.010)	(0.004)	(0.009)	(0.005)
Observations	3,404	3,404	3,404	3,404	3,404
R-squared	0.006	0.014	0.002	0.005	0.009
GIRLS SAMPLE					
ITT2015	0.010	0.024**	-0.007	0.021	0.007
	(0.007)	(0.007)	(0.009)	(0.012)	(0.006)
Observations	1,643	1,643	1,643	1,643	1,643
R-squared	0.001	0.013	0.001	0.002	0.006
BOYS SAMPLE					
ITT2015	0.027	0.009	0.021***	0.036**	-0.005
	(0.014)	(0.018)	(0.003)	(0.009)	(0.004)
Observations	1,761	1,761	1,761	1,761	1,761
R-squared	0.016	0.016	0.008	0.008	0.014
GRADE 5 SAMPLE					
ITT2015	0.039	0.034**	0.021***	0.055**	0.028***
	(0.019)	(0.009)	(0.002)	(0.014)	(0.005)
Observations	1,728	1,728	1,728	1,728	1,728
R-squared	0.011	0.015	0.004	0.010	0.015
GRADE 6 SAMPLE					
ITT2015	-0.002	-0.001	-0.006	0.002	-0.027***
	(0.003)	(0.025)	(0.007)	(0.007)	(0.004)
Observations	1,676	1,676	1,676	1,676	1,676
R-squared	0.012	0.018	0.002	0.003	0.007

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: SH FSH and VSH are total, imposed, and voluntary study hours respectively.

H5.B: Students voluntarily dedicated less time to working:

Table 41 shows that students voluntarily dedicated less time to work. The treatment resulted in a decrease in voluntary work hours of about 2 hours. We find that the effect is significant for girls, boys, 5th and 6th graders. The effect is bigger for boys compared to girls, and is also bigger for 6th graders than 5th graders.

H5.C: Students are less likely to voluntarily skip days of school:

We find that students are less likely to voluntarily skip school. As shown in Table 41, we notice a reduction in absences for both boys and girls, but these effects are not significant. Similar results are found using IDT data (see Table 79 on the Appendix).

Table 41: PP - Students allocate more resources to human capital accumulation in rural areas

	(1) Volunt SH	(2) Volunt WH	(4) Days Absent
ALL SAMPLE			
ITT2015	-0.521	-2.196**	-0.431
	(1.421)	(0.665)	(0.215)
Observations	3,404	3,404	2,062
R-squared	0.048	0.299	0.003
GIRLS SAMPLE			
ITT2015	-0.693	-1.932*	-0.256
	(1.217)	(0.815)	(0.297)
Observations	1,643	1,643	981
R-squared	0.035	0.278	0.004
BOYS SAMPLE			
ITT2015	-0.336	-2.456*	-0.631*
	(1.576)	(0.989)	(0.203)
Observations	1,761	1,761	1,081
R-squared	0.062	0.326	0.006
GRADE 5 SAMPLE			
ITT2015	1.274	-2.005*	-0.169
	(0.699)	(0.802)	(0.289)
Observations	1,728	1,728	1,042
R-squared	0.067	0.341	0.000
GRADE 6 SAMPLE			
ITT2015	-2.453	-2.639**	-0.698**
	(1.995)	(0.478)	(0.152)
Observations	1,676	1,676	1,020
R-squared	0.036	0.255	0.009

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

Note: SH and WH are study hours and work hours respectively.

1.2.7. H6: Parents allocate more resources to human capital accumulation

Summary of results for hypothesis 6:

Imposed study time increased significantly by between 1 and 4 hours in urban areas. The increase in imposed study time is mainly driven by boys, 5^{th}/6^{th} graders, and students in secondary school. In

rural areas, there were no significant effects on imposed study hours, parental time investment, or parental monetary investment.

Urban results

H6.A: Parents' imposed study time (school attendance in addition to study time at home) increases:

As shown in Table 42, imposed study hours increase significantly. When we account for heterogeneity, we can see that the effect is mainly driven by boys, who studied 2.1 more hours on average. The treatment effects on forced study hours are non-significant for girls in all cases (with an adult, without an adult, and in total). Meanwhile, the effects are positive and signficant in all cases for boys. The coefficient is also positive and significant for 5^{th}/6^{th} graders and students in secondary school; the effect is bigger for the former group. On average, the Policy Pilot increases the amount of resources that parents spent on human capital accumulation by between one and three hours.

Table 42: PP treatment effects on imposed study hours in urban areas

	(1) Forc SH With Adult	(2) Forc SH No Adult	(3) Forc SH Total
ALL SAMPLE			
Treatment	1.121***	0.634	1.711**
	(0.359)	(0.429)	(0.736)
Observations	28,740	28,740	28,740
GIRLS SAMPLE			
Treatment	0.092	0.279	0.355
	(0.513)	(0.520)	(0.979)
Observations	14,498	14,498	14,498
BOYS SAMPLE			
Treatment	2.144***	1.049**	3.119***
	(0.385)	(0.482)	(0.764)
Observations	14,242	14,242	14,242
GRADE 1 SAMPLE			
Treatment	0.155	-0.062	0.053
	(0.747)	(0.515)	(1.244)
Observations	14,547	14,547	14,547
GRADE 2 SAMPLE			
Treatment	4.076***	2.002*	6.031***
	(0.387)	(1.082)	(1.422)
Observations	7,233	7,233	7,233
GRADE 3 SAMPLE			
Treatment	1.771***	1.624	3.314***
	(0.202)	(1.001)	(0.817)
Observations	6,960	6,960	6,960

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: SH are study hours.

Rural results

H6.A: Parents' imposed study time (school attendance in addition to study time at home) increases:

The effects of the treatment on hours of study that are imposed on children is not significant. The aggregate effects over forced hours of study with an adult are negative, while the effects over forced hours of study without an adult and in aggregate are positive as can be seen in columns (1), (2), and (3) in Table 43. However, when we account for heterogeneity, the coefficient changes. Treatment effects are positive for 5th graders in all cases, while for 6th graders, the treatment effects are negative on forced study hours with an adult and total forced hours.

Table 43: Policy Pilot - Parent-imposed study time (school attendance in addition to study time at home) increases in rural areas

	(1) Forc SH With Adult	(2) Forc SH No Adult	(3) Forc SH Total
ALL SAMPLE			
ITT2015	-0.603	0.186	0.080
	(1.421)	(0.424)	(0.276)
Observations	3,404	3,404	3,404
R-squared	0.630	0.599	0.618
GIRLS SAMPLE			
ITT2015	-0.626	0.566	0.074
	(1.363)	(0.908)	(0.487)
Observations	1,643	1,643	1,643
R-squared	0.620	0.582	0.599
BOYS SAMPLE			
ITT2015	-0.626	-0.238	0.082
	(1.437)	(0.110)	(0.128)
Observations	1,761	1,761	1,761
R-squared	0.641	0.615	0.635
GRADE 5 SAMPLE			
ITT2015	0.559	0.159	0.406
	(1.751)	(0.863)	(0.205)
Observations	1,728	1,728	1,728
R-squared	0.636	0.575	0.603
GRADE 6 SAMPLE			
ITT2015	-1.857	0.174	-0.180
	(1.195)	(0.312)	(0.565)
Observations	1,676	1,676	1,676
R-squared	0.625	0.626	0.636

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

Note: SH are study hours.

H6.B: Parental time investment (helping children at home) increases:

The App treatment does not have significant effects on parental time investment. These results remain the same when considering heterogeneity across groups.

Table 44: IDT Treatment effects on parental time investment in rural areas

	(1) Time invest ITT - linear	(2) Time invest ITT - linear	(3) Time invest ITT - linear	(4) Time invest ITT - linear	(5) Time invest ITT - linear
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
ITT Parent	-0.046	0.013	-0.253	0.012	-0.096
	(0.085)	(0.171)	(0.225)	(0.114)	(0.122)
Observations	928	452	476	441	487
R-squared	0.490	0.723	0.697	0.508	0.473

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

H6.C: Parental monetary investment such as educational expenditure increases:

The App treatment does not have significant effect on parental monetary investment. These results remain the same when considering heterogeneity across groups.

Table 45: IDT Treatment effects on parental monetary investment such as educational expenditure increases in rural areas

	(1) Educ spending ITT - linear	(2) Educ spending ITT - linear	(3) Educ spending ITT - linear	(4) Educ spending ITT - linear	(5) Educ spending ITT - linear
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
ITT Parent	-48.713	-83.000	-121.688	-86.335	-17.000
	(74.090)	(155.577)	(155.447)	(151.680)	(54.711)
Observations	944	459	485	442	502
R-squared	0.527	0.710	0.805	0.559	0.494

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

1.2.8. H7: Treated households change long-run educational plans

Summary of results for hypothesis 7:

Students and parents in both urban and rural areas updated and improved their perspectives about higher education and career tracks by a significant amount. Interestingly, in urban areas, the effects were stronger for children in earlier grades, and for the parents of children in later grades. In rural areas, the effects were strongest for girls, while in urban areas, the effects were strongest for boys.

Urban results

H7.A. Students change stated educational level and profession choices:

The information resulted in changes in students and parents' short run attitudes towards future education, as we can see in Table 46. Regressions show that the treatment caused parents and students to significantly update and improve their perspectives about the desired level of education

for the child. Results are consistent across sexes and grades. However, there are some differences between groups: the treatment effect is bigger for boys than girls and the effect on parents is bigger for students in later grades. In the case of students, however, the effect is bigger for earlier grades. The effect on updating and improving education goals was lower at follow-up because, at the time of the 2016 treatment, parents and students had retained their updated information from the 2015 treatment. This supports the claim that the treatment results in lasting treatment effects on future education plans.

Table 46: IDT Treatment effects on parents' and students' plans for education in the future in urban areas

	Parents update	Parents update Areg	Parents improve	Parents improve Areg	Students update	Students update Areg	Students improve	Students improve Areg
ALL SAMPLE								
Treat S	0.009	0.015	0.008	0.007	0.130***	0.134***	0.094***	0.097***
	(0.010)	(0.012)	(0.009)	(0.010)	(0.011)	(0.012)	(0.009)	(0.011)
Treat P	0.072***	0.057***	0.054***	0.052***	-0.014	-0.021*	-0.008	-0.013
	(0.009)	(0.012)	(0.008)	(0.011)	(0.010)	(0.012)	(0.008)	(0.010)
Follow-up	-0.037***		-0.030***		-0.024**		-0.020**	
	(0.009)		(0.008)		(0.011)		(0.009)	
Observations	2,801	2,801	2,801	2,801	3,295	3,292	3,295	3,292
R-squared	0.041	0.268	0.031	0.251	0.048	0.257	0.034	0.252
GIRLS SAMPLE								
Treat S	-0.018	0.003	-0.009	0.007	0.118***	0.101***	0.083***	0.068***
	(0.014)	(0.018)	(0.013)	(0.016)	(0.015)	(0.017)	(0.012)	(0.014)
Treat P	0.086***	0.048***	0.066***	0.040**	-0.026**	-0.019	-0.015	-0.010
	(0.013)	(0.018)	(0.012)	(0.017)	(0.013)	(0.016)	(0.011)	(0.014)
Follow-up	-0.016		-0.014		-0.023*		-0.022*	
	(0.014)		(0.012)		(0.014)		(0.012)	
Observations	1,366	1,366	1,366	1,366	1,641	1,639	1,641	1,639
R-squared	0.041	0.437	0.031	0.405	0.043	0.412	0.029	0.422
BOYS SAMPLE								
Treat S	0.032**	0.020	0.022*	0.011	0.142***	0.143***	0.104***	0.107***
	(0.013)	(0.018)	(0.012)	(0.015)	(0.016)	(0.020)	(0.014)	(0.017)
Treat P	0.058***	0.059***	0.042***	0.054***	-0.004	-0.010	-0.001	-0.002
	(0.013)	(0.019)	(0.011)	(0.016)	(0.014)	(0.020)	(0.013)	(0.017)
Follow-up	-0.055***		-0.044***		-0.023		-0.017	
	(0.013)		(0.011)		(0.016)		(0.014)	
Observations	1,435	1,435	1,435	1,435	1,654	1,653	1,654	1,653
R-squared	0.047	0.316	0.035	0.321	0.055	0.366	0.040	0.375
GRADE 1 SAMPLE								
Treat S	0.037***	0.035***	0.033***	0.028***	0.144***	0.167***	0.100***	0.117***
	(0.011)	(0.011)	(0.010)	(0.010)	(0.021)	(0.026)	(0.018)	(0.021)
Treat P	0.027***	0.023**	0.022***	0.022***	-0.048***	-0.066***	-0.036***	-0.051***
	(0.009)	(0.009)	(0.008)	(0.008)	(0.016)	(0.020)	(0.013)	(0.017)
Follow-up	-0.073***		-0.062***		-0.047**		-0.034**	
	(0.011)		(0.010)		(0.020)		(0.016)	
Observations	1,300	1,300	1,300	1,300	1,515	1,514	1,515	1,514
R-squared	0.060	0.541	0.051	0.564	0.032	0.293	0.022	0.300
GRADE 2 SAMPLE								
Treat S	0.002	0.013	0.013	0.000	0.134***	0.138***	0.099***	0.098***
	(0.024)	(0.030)	(0.021)	(0.026)	(0.018)	(0.021)	(0.016)	(0.019)
Treat P	0.106***	0.076**	0.072***	0.076**	0.017	0.032	0.016	0.035

	Parents update	Parents update Areg	Parents improve	Parents improve Areg	Students update	Students update Areg	Students improve	Students improve Areg
	(0.025)	(0.038)	(0.022)	(0.033)	(0.018)	(0.027)	(0.016)	(0.024)
Follow-up	-0.019		-0.030		-0.022		-0.020	
	(0.027)		(0.024)		(0.024)		(0.021)	
Observations	741	741	741	741	901	900	901	900
R-squared	0.036	0.427	0.028	0.423	0.081	0.403	0.060	0.375
GRADE 3 SAMPLE								
Treat S	-0.032	-0.022	-0.039**	-0.034	0.102***	0.087***	0.078***	0.065***
	(0.023)	(0.029)	(0.020)	(0.025)	(0.017)	(0.018)	(0.015)	(0.017)
Treat P	0.116***	0.095***	0.094***	0.086***	0.008	0.023	0.008	0.023
	(0.024)	(0.037)	(0.021)	(0.032)	(0.017)	(0.021)	(0.015)	(0.019)
Follow-up	0.014		0.017		-0.004		0.004	
	(0.023)		(0.020)		(0.019)		(0.017)	
Observations	760	760	760	760	879	878	879	878
R-squared	0.034	0.344	0.028	0.331	0.056	0.474	0.043	0.438

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

Note: Areg is the standard specification but absorbing by school fixed effects. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

Rural results

H7.A: Students change stated educational level and profession choices:

Like in urban areas, providing information changes students' and parents' short-run attitudes towards future education in rural areas, as shown in Table 47. The treatment significantly updates and improves students' and parents' perspectives about their desired education level. Results are consistent across sexes and grades. However, the effect is bigger for girls than boys.

Table 47: IDT Students change stated educational level and profession choices in urban areas

	Student: Edu Plans update	Student: Edu Plans improve	Parent: Edu Plans update	Parent: Edu Plans improve
ALL SAMPLE				
Treat S	0.116***	0.069***	0.020	0.080*
	(0.010)	(0.008)	(0.048)	(0.041)
Treat P	-0.001	0.005	0.091*	0.000
	(0.013)	(0.010)	(0.048)	(0.041)
Observations	2,709	2,709	1,016	1,016
R-squared	0.061	0.037	0.058	0.044
GIRLS SAMPLE				
Treat S	0.118***	0.076***	0.002	0.055
	(0.014)	(0.012)	(0.058)	(0.047)
Treat P	-0.003	0.001	0.083	-0.000
	(0.018)	(0.015)	(0.058)	(0.047)
Observations	1,319	1,319	496	496
R-squared	0.062	0.040	0.045	0.030
BOYS SAMPLE				
Treat S	0.114***	0.063***	0.035	0.104
	(0.014)	(0.011)	(0.078)	(0.068)
Treat P	0.002	0.009	0.100	-0.000
	(0.018)	(0.014)	(0.078)	(0.068)
Observations	1,390	1,390	520	520
R-squared	0.060	0.034	0.072	0.056
GRADE 5 SAMPLE				
Treat S	0.108***	0.067***	-0.896***	0.078
	(0.015)	(0.012)	(0.154)	(0.135)
Treat P	-0.000	-0.006	1.000***	-0.000
	(0.019)	(0.015)	(0.154)	(0.135)
Observations	1,167	1,167	459	459
R-squared	0.057	0.033	0.123	0.040
GRADE 6 SAMPLE				
Treat S	0.121***	0.070***	-	-
	(0.013)	(0.011)	-	-
Treat P	0.000	0.016	0.118***	0.082***
	(0.018)	(0.014)	(0.020)	(0.017)
Observations	1,542	1,542	518	518
R-squared	0.065	0.040	0.063	0.044

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

1.2.9. H8: Treated households change short-run educational choices

Summary of results for hypothesis 8:

With regard to study hours, students in urban areas dedicated more time to studying their preferred subjects. The opposite was true in the rural areas. Additionally, while girls in urban areas studied

significantly more for Math and boys studied more for both communications and Math classes, in rural areas, boys studied less for communications classes and girls studied less for Math classes.

Additionally, in both urban and rural areas, parental involvement increased, but the effect was only significant for boys in rural areas and girls in urban areas. Specifically, girls and primary students in urban areas were less likely to believe that their parents would let them be absent from school or drop out. In rural areas, girls were less likely to believe their parents would let them be absent, and boys were less likely to believe that their parents would let them drop out. The treatment had no effect on voluntary study hours in rural areas. However, voluntary study hours increased significantly for urban areas, as did forced study hours. Specifically, imposed study time with and without adults present increased by 4 hours and 2 hours, respectively, for $5^{th}/6^{th}$ graders and by almost 2 hours (with and without adults) for students in secondary school.

Urban results

H8.A. Treated students are less likely to dropout of school:

As Table 48 shows, the Policy Pilot reduces the dropout rate for the sample of students surveyed by SAP; the coefficient is negative and significant in all sub-samples except for primary school students. Treatment effects reduce dropout rates more in girls than boys. The treatment also reduces dropout rates more in $5^{th}/6^{th}$ graders and students in secondary school.

H8.B: Students study more for subjects related to their stated preferences:

The Policy Pilot treatment apparently increases study hours for subjects related to students' stated preferences. The coefficients in columns 2 (Verbal) and 3 (Math) are positive in the overall sample but only significant in the case of Math. When accounting for heterogeneity, we can see that the treatment reduces study hours for Verbal subjects in girls, while for boys, the opposite occurs. In the case of Math, the treatment increases study hours by 1 hour both girls and 2 hours for boys. Further, in the case of Verbal study hours, there are significant effects for middle (2.4 hours) and senior graders (1.5 hours), while, for Math hours, the effect is significant for primary students (1.3) and secondary (2.7 hours) students.

H8.C: Parents get more involved in school decisions:

Regression results show that the treatment effects increase parents' involvement in school decisions. Students treated by the Policy Pilot perceive their parents as less willing to let them be absent or drop out of school, as we can see in Table 48, columns (4) and (5), respectively. In the case of students' perceptions of their parents' willingness to let them dropout, the coefficient is negative and significant for the overall sample. The same results are found for girls, but not boys. Further, when accounting for differences between grades, we can see that the treatment effects are significant for the $5^{th}/6^{th}$ grade and secondary school sample. Meanwhile, in the case of students' perceptions of their parents' willingness to let them be absent, the treatment effects are zero for the overall sample but negative and significant for primary school students.

H8.D: Students spend more time studying:

There are positive treatment effects on voluntary study hours, but they are not significant. Here, we control for baseline status as there were time use imbalances at baseline.

H8.E: Parents invest more resources in human capital accumulation:

Like before, the treatment effects of the Policy Pilot increases imposed study hours with and without an adult, as shown in columns (7) and (8), respectively, but the effect is not significant. The coefficient for imposed study hours with an adult is significant for boys, who were forced to study 1.4 additional hours. When dividing the sample by grades, we find that students in the treatment group increased their imposed study hours with and without an adult, by 4 and 2 hours, respectively, for 5th/6th graders, and by 1.8 and 1.7 hours, respectively, for secondary students. These results suggest that the Policy Pilot has greater effects on dropout decisions for students in $5^{th}/6^{th}$ grade relative to primary and secondary school.

Table 48: PP Treatment effects on H8 dependent variables – urban sample

	(1) ComSoc SH	(2) MatSci SH	(3) Par Dpout	(4) Par Absent	(5) Volunt SH	(6) WA Forc SH	(7) NA Forc SH
ALL SAMPLE							
Treatment	0.679**	1.604***	-0.019**	-0.002	0.677*	1.139***	0.663
	(0.318)	(0.253)	(0.009)	(0.009)	(0.374)	(0.366)	(0.428)
Observations	3,459	4,495	26,935	26,934	28,740	28,647	28,647
GIRLS SAMPLE							
Treatment	-1.002***	1.012***	-0.022***	-0.011	0.531	0.130	0.323
	(0.299)	(0.129)	(0.006)	(0.011)	(0.929)	(0.525)	(0.531)
Observations	2,050	1,810	13,606	13,632	14,498	14,444	14,444
BOYS SAMPLE							
Treatment	3.007***	2.088***	-0.013	0.008	0.839*	2.142***	1.065**
	(0.529)	(0.322)	(0.013)	(0.014)	(0.435)	(0.383)	(0.473)
Observations	1,409	2,685	13,329	13,302	14,242	14,203	14,203
GRADE 1 SAMPLE							
Treatment	0.399	1.342***	-0.004	-0.021***	0.363	0.155	-0.062
	(0.282)	(0.483)	(0.008)	(0.007)	(0.417)	(0.747)	(0.515)
Observations	2,577	3,488	13,637	13,570	14,547	14,547	14,547
GRADE 2 SAMPLE							
Treatment	2.392**	1.832	-0.048***	0.063***	1.095**	4.085***	2.011*
	(1.111)	(2.000)	(0.010)	(0.023)	(0.455)	(0.386)	(1.079)
Observations	350	471	6,691	6,734	7,233	7,230	7,230
GRADE 3 SAMPLE							
Treatment	1.548**	2.709**	-0.046***	-0.001	1.600**	1.835***	1.775*
	(0.712)	(1.306)	(0.010)	(0.015)	(0.796)	(0.185)	(1.049)
Observations	532	536	6,607	6,630	6,960	6,870	6,870

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Panel (1) shows regressions of study hours in communication and Social Sciences; panel (2) shows regressions on study hours of Mathematics and Sciences; panel (3) dependent variable indicates if the student believes that his or her parent is willing to let him dropout school; panel (4) indicates if the student believes that his or her parent would let him or her be absent; and panel (5), (6) and (7) dependent variables are voluntary study hours, forced study hours with an adult and forced study hours without an adult respectively. In each time use regression's specification, we control for baseline time use status to control for baseline imbalances.

Rural results

H8.A. Treated students are less likely to drop out of school:

The Policy Pilot has no significant effects on school dropout rates for the sample of students surveyed by SAP.

H8.B: Students study more for subjects related to their stated preferences:

The Policy Pilot treatment effect does not increase study hours for subjects related to students' stated preferences. On the contrary, the treatment reduces boys' and 6th graders' study hours in Communications and Social Science subjects, and it reduces girls' study hours for Math.

H8.C: Parents get more involved in school decisions:

Regression results show that the treatment improves parents' involvement in school decisions but this effect is only significant for boys. Students treated by the Policy Pilot were less likely to believe that their parents would let them dropout of school, as we can see in Table 48, column (4).

H8.D. Students spend more time studying:

The treatment decreased voluntary study hours, but the effect is not significant.

H8.E. Parents invest more resources in human capital accumulation:

Like before, the treatment effects from the Policy Pilot reduced forced study hours with and without an adult, as seen in columns (6) and (7), respectively. However, these results are insignificant even when accounting for heterogeneous treatment effects. Parents do not seem to invest time resources on human capital accumulation.

Table 49: PP treated households change short-run education plans – rural sample

	(1) Drop Out PP	(2) ComSoc SH	(3) MatSci SH	(4) Par Dpout	(5) Par Absent	(6) WA Forc SH	(7) NA Forc SH	(8) NA Volunt SH
ALL SAMPLE								
ITT2015	0.200	-4.200**	-0.764	-0.005	0.004	-0.872	-0.133	-1.330
	(0.213)	(0.906)	(0.558)	(0.012)	(0.003)	(1.142)	(1.747)	(2.165)
Observations	3,404	952	1,750	3,284	3,310	3,403	3,403	3,403
R-squared	0.002	0.008	0.003	0.003	0.002	0.002	0.005	0.002
GIRLS SAMPLE								
ITT2015	0.105	0.262	-1.699**	0.016	0.014***	-1.166	0.900	-1.137
	(0.110)	(1.779)	(0.293)	(0.020)	(0.001)	(0.586)	(1.516)	(1.647)
Observations	1,643	517	775	1,588	1,603	1,643	1,643	1,643
R-squared	0.002	0.007	0.007	0.002	0.003	0.005	0.009	0.002
BOYS SAMPLE								
ITT2015	0.285	-9.398***	-0.024	-0.026**	-0.006	-0.641	-1.193	-1.528
	(0.309)	(0.382)	(1.394)	(0.007)	(0.006)	(1.786)	(2.040)	(2.675)
Observations	1,761	435	975	1,696	1,707	1,760	1,760	1,760
R-squared	0.002	0.025	0.001	0.006	0.002	0.001	0.005	0.005
GRADE 5 SAMPLE								
ITT2015	0.096	-3.164	0.741	-0.003	0.010	0.873	0.507	0.598
	(0.106)	(1.798)	(2.300)	(0.008)	(0.006)	(0.601)	(0.560)	(1.773)
Observations	1,728	518	872	1,665	1,679	1,727	1,727	1,727
R-squared	0.002	0.004	0.003	0.001	0.002	0.002	0.005	0.002
GRADE 6 SAMPLE								
ITT2015	0.320	-5.524*	-2.583*	-0.010	-0.002	-2.790	-0.886	-3.299
	(0.314)	(1.803)	(1.059)	(0.019)	(0.002)	(1.822)	(2.959)	(2.459)
Observations	1,676	434	878	1,619	1,631	1,676	1,676	1,676
R-squared	0.002	0.024	0.004	0.007	0.003	0.004	0.005	0.007

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Panel (1) shows dropout regressions; panel (2) shows regressions of study hours in communication and Social Sciences, panel (3) shows regressions on study hours of Mathematics and Sciences; panel (4) dependent variable indicates if the student believes that his or her parent is willing to let him dropout school; panel (5) indicates if the student believes that his or her parent would let him or her be absent; and panel (6), (7) and (8) dependent variables are voluntary study hours, forced study hours with an adult and forced study hours without an adult respectively. In each time use regression's specification, we control for baseline time use status to control for baseline imbalances.

1.2.10. H9: Providing information is more effective for younger students

Summary of results for hypothesis 9:

The interaction between the treatment and age reduces the negative effect on school switching in urban areas, suggesting that the effect of the treatment is stronger for younger students and weaker in later grades. However, the effect was only significant for primary and middle-schoolers. The interaction has no effect on switching schools in rural areas. Similarly, the interaction between age and treatment decreases the treatment effect on work hours in both urban and rural areas. Though

the effect is only significant for boys in rural areas and girls in urbans ones, the results support the theory that younger students are more likely to reduce their work hours in response to the treatment than older students. Finally, in both urban and rural areas, the interaction between age and treatment reveals that older students are less likely to increase their voluntary work hours than are younger students. This effect is only significant for girls and secondary students in urban areas.

Urban results

H9.A. Interaction of age and treatment reduces the treatment effect on switching schools:

The interaction between age and treatment reduced the negative treatment effect on switching schools, but the effects are near-zero as can be seen in Table 50.

H9.B. Interaction of age and treatment reduces treatment effect on work hours:

The interaction of age and treatment decreases the treatment effect on hours spent working, as seen in column (2). Though coefficient is negative, the standard errors are large, reducing the significance. When accounting for heterogeneity, we can see that interaction significantly reduces the effect of the treatment by 0.3 hours for girls and 1.5 hours for secondary students.

H9.C. Interaction of age and treatment reduces treatment effect on voluntary work:

The same occurs for voluntary work hours. The interaction of age and treatment is negative. The effect is only significant for girls.

Table 50: PP - Providing information is more effective for younger students in urban areas

	(1) School Switch	(2) Total Work Hours	(3) Voluntary Work Hours
ALL SAMPLE			
ITT2015 = 1	-0.047	1.614	1.501
	(0.030)	(2.311)	(1.033)
ITT 2015 x Age	0.004	-0.149	-0.104
	(0.002)	(0.177)	(0.073)
Observations	28,740	28,740	28,740
GIRLS SAMPLE			
ITT2015 = 1	-0.028	2.911	1.136
	(0.023)	(2.035)	(0.859)
ITT 2015 x Age	0.002	-0.275*	-0.095
	(0.002)	(0.141)	(0.060)
Observations	14,498	14,498	14,498
BOYS SAMPLE			
ITT2015 = 1	-0.069	0.018	1.687
	(0.043)	(5.531)	(1.772)
ITT 2015 x Age	0.006	0.002	-0.093
	(0.003)	(0.420)	(0.132)
Observations	14,242	14,242	14,242
GRADE 1 SAMPLE			
ITT2015 = 1	-0.290	1.492	0.160
	(0.171)	(3.492)	(2.007)
ITT 2015 x Age	0.026	-0.137	0.012
	(0.015)	(0.315)	(0.189)
Observations	14,547	14,547	14,547
GRADE 2 SAMPLE			
ITT2015 = 1	-0.035	-3.729	-5.814**
	(0.090)	(3.109)	(1.751)
ITT 2015 x Age	0.002	0.239	0.467**
	(0.007)	(0.254)	(0.140)
Observations	7,233	7,233	7,233
GRADE 3 SAMPLE			
ITT2015 = 1	-0.012	10.535	8.529***
	(0.020)	(7.328)	(1.152)
ITT 2015 x Age	0.001	-0.722	-0.576***
	(0.001)	(0.507)	(0.074)
Observations	6,960	6,960	6,960

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

Rural results

H9.A: Interaction of age and treatment reduces the treatment effect on switching schools:

The interaction of age and treatment does not reduce treatment effect on school switching as Table 51, column (1) shows.

H9.B: Interaction of age and treatment reduces the treatment effect on work hours:

The interaction of age and treatment reduces the effect of the treatment on hours spent working, as seen in column (2) in Table 51. This effect is significant for boys. For the remaining sub-samples, the coefficients are negative (expect for 6^{th} graders), but large standard errors reduce the significance.

H9.C: Interaction of age and treatment reduces the treatment effect on voluntary work:

The same occurs for voluntary work hours. The interaction of age and treatment is negative when accounting for heterogeneity as we can see from column (3) in Table 51.

Table 51: PP - Providing information is more effective for younger students in rural areas

	(1) SchoolSwitch	(2) Total Work Hours	(3) Voluntary Work Hours
ALL SAMPLE			
ITT2015	-0.022	-5.091	0.376
	(0.237)	(15.810)	(19.229)
ITT2015 x Age	0.002	-0.013	-0.402
	(0.020)	(1.178)	(1.538)
Observations	3,402	3,402	3,402
R-squared	0.274	0.012	0.008
GIRLS SAMPLE			
ITT2015	0.031	-27.774	-7.623
	(0.280)	(33.495)	(18.658)
ITT2015 x Age	-0.004	2.163	0.372
	(0.022)	(2.798)	(1.503)
Observations	1,642	1,642	1,642
R-squared	0.272	0.007	0.005
BOYS SAMPLE			
ITT2015	-0.052	11.734	6.196
	(0.205)	(5.360)	(21.948)
ITT2015 x Age	0.006	-1.668**	-0.985
	(0.018)	(0.412)	(1.776)
Observations	1,760	1,760	1,760
R-squared	0.277	0.023	0.018
GRADE 5 SAMPLE			
ITT2015	-0.027	14.098	15.781
	(0.040)	(21.469)	(19.735)
ITT2015 x Age	0.003	-1.659	-1.745
	(0.004)	(1.694)	(1.585)
Observations	1,726	1,726	1,726
R-squared	0.020	0.013	0.009
GRADE 6 SAMPLE			
ITT2015	0.031	-34.719***	-19.907
	(0.114)	(4.568)	(13.106)
ITT2015 x Age	-0.001	2.347***	1.223
	(0.008)	(0.325)	(1.050)
Observations	1,676	1,676	1,676
R-squared	0.863	0.027	0.016

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

1.2.11. H10: Information provision affects kids of different abilities differently (Math/Science or language course)

Summary of results for hypothesis 10:

For middle-school students in urban areas and 5th grade students in rural areas who reported enjoying studying at baseline, the positive treatment effect on voluntary study hours is significantly larger relative to those who did not report enjoying studying at baseline. For secondary students in urban areas who enjoyed studying at baseline, the treatment effect is negative and significant.

Additionally, for students in urban areas who reported prefering Math, the effect on hours spent studying for Verbal subjects was augmented, and the hours spent studying for Math even more so. In rural areas, only girls who preferred Math studied more voluntarily for Math. None of the subject-specific effects were significant.

Finally, the interaction of age and the treatment increased the negative effect of the treatment on voluntary work hours for 5th/6th graders in urban areas, while it decreased the negative treatment effect on voluntary work hours for secondary students. The interaction between age and treatment had no significant effects on voluntary work hours in rural areas.

Urban results

H10.A: Interaction of reporting to enjoy studying at baseline and treatment is positive on studying:

The interaction between reporting enjoying studying at baseline and treatment is zero in almost all cases. However, the interactive effect is positive and significant for 5th/6th grade students and negative and significant for secondary students.

H10.B: Interaction of liking Math subjects better at baseline and treatment is positive on studying more Math and negative on studying language:

The effect of the treatment on the number of hours spent studying Verbal subjects is positive for students who reported preferring Math subjects at baseline. The same students see even larger effects when considering the hours spent studying Math. However, these coefficients are not significant. In the case of secondary students, the coefficients are significant, but negative.

H10.C: Interaction of age and treatment reduces the treatment effect on voluntary work:

The interaction between age and the treatment reduces the treatment effect on voluntary study hours. However, these results are not significant. The effects were only significant for 5th/6th graders and secondary students. In the former, the treatment effect reduces voluntary work hours but the interaction shrinks the magnitude. Meanwhile, the latter shows that the interaction reduces the positive treatment effect.

Table 52: PP - Information provision affects children of different STEM and Verbal abilities differently in urban areas

	(1)	(2)	(3)	(5)
	Voluntary study hours	ComSoc study hours	MatSci study hours	Voluntary work hours
	Enjoy Studying	Enjoy Math	Enjoy Math	ITTxAge
VARIABLES	ITT	TOT	TOT	ITT

ALL SAMPLE				
Treatment		0.905	0.797	
		(0.762)	(0.625)	
ITT2015 = 1	0.261			1.554
	(0.189)			(1.156)
ITT 2015 x Total SH 2015	0.002			
	(0.015)			
ITT 2015 x Age				-0.108
				(0.084)
Observations	28,740	11,109	11,109	28,647
BOYS SAMPLE				
Treatment		0.429	0.551	
		(1.118)	(1.454)	
ITT2015 = 1	0.212			0.749
	(0.325)			(1.022)
ITT 2015 x Total SH 2015	0.000			
	(0.006)			
ITT 2015 x Age				-0.064
				(0.074)
Observations	14,498	5,899	5,899	14,444
GIRLS SAMPLE				
Treatment		1.298**	1.097*	
		(0.525)	(0.653)	
ITT2015 = 1	0.328**			2.279
	(0.122)			(2.193)
ITT 2015 x Total SH 2015	0.003			
	(0.024)			
ITT 2015 x Age				-0.140
				(0.166)
Observations	14,242	5,210	5,210	14,203
GRADE 1 SAMPLE				
Treatment		1.213*	0.772	
		(0.650)	(0.731)	
ITT2015 = 1	-0.008			0.160
	(0.246)			(2.007)
ITT 2015 x Total SH 2015	0.019			
	(0.012)			
ITT 2015 x Age				0.012
				(0.189)
Observations	14,547	5,224	5,224	14,547
GRADE 2 SAMPLE				
Treatment		0.720	1.829	
		(1.256)	(1.129)	
ITT2015 = 1	-0.068			-6.020***
	(0.103)			(1.506)
ITT 2015 x Total SH 2015	0.037**			
	(0.014)			
ITT 2015 x Age				0.483***
				(0.119)
Observations	7,233	2,687	2,687	7,230
GRADE 3 SAMPLE				
Treatment		0.058	-0.403	
		(0.358)	(0.433)	

ITT2015 = 1	1.348***			15.711***
	(0.186)			(3.286)
ITT 2015 x Total SH 2015	-0.074**			
	(0.027)			
ITT 2015 x Age				-1.047***
				(0.223)
Observations	6,960	3,198	3,198	6,870

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

Rural results

H10.A: Interaction of reporting to enjoy studying at baseline and treatment is positive on studying:

The interaction between reporting enjoying studying at baseline and the treatment is significant for 5th graders.

H10.B. Interaction of liking Math subjects better at baseline and treatment is positive on studying more Math and negative on studying language:

The Policy Pilot has no significant effects on study hours in Math or language for students who reported prefering Math or language subjects at baseline. These results persist when accounting for heterogeneities across grades. However, we find a significant increase in Math study hours for girls.

H10.C. Interaction of age and treatment reduces treatment effect on voluntary work:

The interaction of age and treatment reduces the effect of the treatment on voluntary work, even when accounting for differences between groups. In all cases, the coefficient is not significant.

Table 53: PP - Information provision affects children of different STEM and Verbal abilities differently in rural areas

	(1)	(2)	(3)	(4)
	Voluntary study hours	ComSoc study hours	MatSci study hours	Voluntary work hours
	Enjoy Study	Enjoy Math	Enjoy Math	ITTxAge
All Sample				
ITT2015	-0.568	-4.542	-1.176	3.394
	(0.495)	(2.665)	(1.295)	(7.696)
ITT2015 x Voluntary SH	0.035**			
	(0.011)			
ITT2015 x Age				-0.403
				(0.534)
Observations	3,404	523	523	3,403
R-squared	0.619	0.015	0.005	0.003

Girls Sample				
ITT2015	-0.560	-3.903	3.189*	5.676
	(1.125)	(2.019)	(1.148)	(16.532)
ITT2015 x Voluntary SH	0.036			
	(0.040)			
ITT2015 x Age				-0.583
				(1.281)
Observations	1,643	235	235	1,643
R-squared	0.599	0.016	0.016	0.004
Boys Sample				
ITT2015	-0.584	-5.113	-4.799	2.480
	(0.559)	(3.446)	(2.074)	(5.520)
ITT2015 x Voluntary SH	0.034			
	(0.026)			
ITT2015 x Age				-0.343
				(0.630)
Observations	1,761	288	288	1,760
R-squared	0.635	0.015	0.007	0.005
Grade 5 Sample				
ITT2015	-0.691	-4.738	1.322	-9.338
	(0.459)	(7.019)	(6.957)	(8.912)
ITT2015 x Voluntary SH	0.060*			
	(0.019)			
ITT2015 x Age				0.901
				(0.636)
Observations	1,728	252	252	1,727
R-squared	0.604	0.016	0.007	0.002
Grade 6 Sample				
ITT2015	-0.426	-4.087	-3.366	-5.577
	(1.060)	(2.827)	(6.624)	(14.690)
ITT2015 x Voluntary SH	0.013			
	(0.026)			
ITT2015 x Age				0.188
				(1.136)
Observations	1,676	271	271	1,676
R-squared	0.636	0.024	0.008	0.009

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

1.2.12. H11: Providing information complements the effects of cash transfers from *Juntos* (Rural Sample only)

Juntos is a large scale Conditional Cash Transfer (CCT) Program in Peru that transfers 200 PEN – the equivalent of about 60 USD – every two months to poor families located in the rural highlands. The following conditions must be met in order to receive the transfer: all children and adolescents must attend school, and all children under the age of 5 must attend their growth monitoring checkups. Some studies have suggested that Juntos has an important impact on cognitive and nutritional outcomes (Perova & Vakis; 2009, 2011). Therefore, we explore whether providing information is complementary to cash transfers from Juntos.

Summary of results for hypothesis 11:

While child labor decreases for both Juntos recipients and non-Juntos recipients that receive the treatment, the effects are only significant for Juntos recipients. Being a member of a Juntos recipient household and receving the informational campaign reduces the probability of being involved in child labor. Moreover, the informational campaign is complementary to Juntos cash transfers with regard to students' work hours. Children in households that received the Juntos cash transfer reported working 2.5 fewer hours than the control. While children in non-Juntos households reported working fewer hours as well, the difference was smaller and non-significant. The treatment had no effect on future plans, including level of education and major selection. However, non-significant results suggested that students in households that received Juntos were more likely to be interested in Science and Business majors, while non-Juntos households were more likely to be interested in majoring in a Social Science field.

H11.A: Child-labor decreases for treated Juntos-receiving households more than it would due to Juntos *or the intervention independently:*

Providing information seems to be complementary to Juntos cash transfers on child labor. We notice a significant reduction of 1.2 percentage points in the probability of being involved in child labor (i.e. a reduction of 2.8%). The intervention is also complementary to cash Juntos transfers with regard to the effects on students' self-reported hours spent working. As shown in Table 54, child labor decreases for treated Juntos-receiving households. We found that working hours decreases significantly for treated Juntos-receiving households, while for children from non-Juntos receiving households, working hours decrease but not significantly.

H11.B: The interaction between receiving Juntos *at baseline and receiving the treatment is positive for child labor outcomes.*

When considering weekly working hours, we observe that students from *Juntos*-receiving households report working fewer hours. The informational campaign decreases students' self-reported work time by 2.5 hours per week. The effect remains significant for students that reported working in 2015.

H11.C: Plans for pursuing higher education in the future increase for treated students living in Juntos-*receiving households*

As shown in Table 55, the treatment does not have a significant effect on students' plans for pursuing higher education. However, when comparing preferences across majors, we notice that students from *Juntos*-receiving households seem to be more interested in majors related to Business and Science and Technology, but these effects are not significant. The same students are less interested in majors related to education and Law and Political Science. Students living in non-Juntos-receiving households seem to be less interested in Science and Technology-related majors and seem to be more interested in the Social Sciences.

Table 54: PP - Providing information is complementary to cash transfers from *Juntos*

	(1) Child Labor 2016 | CL15=1	(2) Child Labor 2016	(3) Child Work 2016	(4) WH 2016	(5) Log (WH 2016)	(6) WH | CW15=1	(7) Log(WH) | CW15=1
JUNTOS SAMPLE							
ITT2015	-0.012**	-0.035*	-0.035*	-2.453*	-0.108	-1.652*	-0.104*
	(0.001)	(0.004)	(0.004)	(0.261)	(0.023)	(0.246)	(0.008)
Observations	1,192	2,447	2,447	2,509	2,509	1,219	1,219
R-squared	0.002	0.011	0.011	0.007	0.012	0.012	0.018
NON JUNTOS SAMPLE							
ITT2015	-0.033	-0.055	-0.055	-0.917	-0.109	-0.286	-0.062
	(0.042)	(0.033)	(0.033)	(3.213)	(0.194)	(3.439)	(0.279)
Observations	383	874	874	893	893	392	392
R-squared	0.018	0.048	0.048	0.064	0.102	0.077	0.101

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Columns (1) and (2) present results for child labor, but just (1) includes child labor status reported in 2015. Column (3) shows results for the outcome child work which takes the value of 1 if children report working non-zero hours. Columns (4) to (7) show results for students' self-reported working hours in 2016.

Table 55: PP - Plans for pursuing higher education in the future increase for treated students living in *Juntos*-receiving households

	(1) Higher education	(2) Eff Inst	(3) Eff Univ	(4) Major EDU	(5) Major AHS	(6) Major LAW	(7) Major BUS	(8) Major SCI	(9) Major HEA
JUNTOS SAMPLE									
ITT2015	-0.003	-0.008	0.066	-0.009**	-0.014	-0.007**	0.010	0.043	-0.017
	(0.010)	(0.030)	(0.167)	(0.000)	(0.003)	(0.000)	(0.046)	(0.007)	(0.011)
Observations	2,509	2,498	2,503	2,495	2,495	2,495	2,495	2,495	2,495
R-squared	0.000	0.000	0.000	0.003	0.001	0.003	0.002	0.005	0.002
NON JUNTOS SAMPLE									
ITT2015	0.023	0.134	0.197	-0.063	0.083**	0.001	0.044	-0.059***	-0.001
	(0.020)	(0.063)	(0.110)	(0.041)	(0.023)	(0.011)	(0.032)	(0.009)	(0.011)
Observations	893	889	891	890	890	890	890	890	890
R-squared	0.017	0.010	0.007	0.010	0.014	0.007	0.011	0.008	0.010

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: panel (1) dependent variable is a dichotomous variable that takes the value of one if the student states that he would like to achieve higher education; panel (2) dependent variable is the likelihood of finishing technical studies with effort; panel (3) dependent variable is the likelihood of finishing universitary studies with effort; panel (4), (5), (6), (7), (8) and (9) dependent variable is a dichotomous variable that takes the value of one if the student choose follow a major in education, arts, humanities and Social Sciences, law, business, Sciences, and health respectively.

H11.D: Parental time-allocation in children's education increase for treated students living in Juntos-receiving households.

The IDT treatment does not seem to be complementary to Juntos cash transfers on parental time investment. These results remain the same when considering heterogeneity across groups.

Table 56: IDT parental time-allocation in children's education increase for treated students living in Juntos-receiving households (IDT-Parents)

	(1) Time invest: A lot ITT	(2) Time invest: A lot TOT-IV	(3) Time invest: Almost always ITT	(4) Time invest: Almost always TOT-IV
JUNTOS SAMPLE				
ITT Student	0.041	0.263	-0.017	-0.105
	(0.061)	(0.482)	(0.077)	(0.484)
Observations	638	638	638	638
R-squared	0.578	-	0.527	-
NON JUNTOS SAMPLE				
ITT Student	0.000	0.000	-0.097	-0.750
	(0.000)	(0.850)	(0.195)	(1.146)
Observations	285	285	285	285
R-squared	0.741	-	0.580	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

H11.E: However, parental monetary investment in children's education does not change for treated students living in Juntos-receiving households.

The IDT treatment does not seem to be complementary to Juntos cash transfers on parental monetary investment. These results remain the same when considering heterogeneity across groups.

Table 57: IDT parental monetary investment in children's education does not change for treated students living in Juntos-receiving households (IDT-Parents)

	(1) Educ spending ITT	(2) Educ spending TOT-IV
JUNTOS SAMPLE		
ITT Student	-87.355	-563.211
	(75.987)	(424.920)
Observations	643	643
R-squared	0.528	
NON JUNTOS SAMPLE		
ITT Student	6.452	50.000
	(348.663)	(1,666.747)
Observations	296	296
R-squared	0.583	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

1.2.13. Testing scale-up options (Policy Pilot results)

H4: Intervention effectively reduces drop-out rates

Given the availability of administrative data, we were able to analyze the effects of the Policy Pilot on 2015-2016 drop-out rates, and on the two-year 2015-2017 drop-out rates. First, we estimate the ITT regressions so as to capture the pure effect of our randomly assigned treatment. We then estimate TOT regressions that help to correct for implementation problems like school attrition that affected the take up of the treatment. TOT results reveal insights about how the treatment could affect dropout rates in a well implemented scale up scenario.

For the aforementioned regressions, we used SIAGIE administrative data which contains enrollment data for each student in the Peruvian educational system from 2013 through 2017. We present pooled rather than cross-sectional regressions in this report because of registry problems present in 2015 that introduce contamination and imbalances in the dependent variable. We identified those registry errors when we found that students enrolled in 2015 dropped out of school in 2016 but then supposedly returned in to school in 2017 (but not in the grade we would have expected if that had actually dropped out the year before).

The advantage of using pooled regressions is that they reduce the number of observations with measurement error, as we include enrollment data from previous years that were less contaminated. Moreover, we introduce enrollment status from previous years for treated and control schools so

that we can assess measurement error[43] associated with schools' enrollment registry on SIAGIE, and intra-grade variation via school and grade fixed effects.

Further, we defined a two-year dropout rate (2015-2017). We created the indicator because it is the Peruvian Ministry of Education's official dropout measure, and clearly defines children's exit from the educational system. A decline in this metric could indicate that the intervention has long-lasting effects on students' and parents' educational decisions. As we will see below, one-year and two-year dropout regressions show consistent results.

Summary of results for hypothesis 4:

The Policy Pilot had a significant negative effect on one-year drop out rates in both rural and urban areas. In both areas, the effect was driven by boys, and in urban areas, the effect was largest for 5th and 6th graders. The pilot had even larger negative effects on two-year dropout rates across groups in both urban and rural areas, all of which were significant. In urban areas, the effect was larger for boys than girls, as well as for younger children relative to older ones.

Urban Sample

Table 58 presents the results for the one-year dropout rate in urban areas. We compare treated students in 2015, with 5th through 10th grade students from all non-treated and treated schools from 2013 through 2016 and found that Policy Pilot had no overall effect on the one-year dropout in 2016. However, when accounting for heterogeneities (Table 59), results suggest that the Policy Pilot treatment did produce effects in boys and students in 5th and 6th grade.

Table 58: PP Urban – One-year dropout rate

	(1)	(2)	(3)
VARIABLES	Basic	DFM Schools	DFM (2015)
ITT	-0.084	0.045	-0.039
	(0.071)	(0.080)	(0.078)
Observations	10,984,451	3,749,871	1,208,964
R-squared	0.105	0.100	0.087
N of Fixed Effects	98141	15216	1247
Group Mean	3.337	3.192	3.217

*** p<0.01, ** p<0.05, * p<0.1

Note: panel (1) shows the pooled regression which includes all the peruvian students registered on SIAGIE; panel (2) restricts the pool to only those students who belong to DFM schools; panel (3) is a cross section of all the students intervened by DFM in 2015.

[43] This can be done because on the first instance, the ones that registry enrolment data on SIAGIE platform are school principals.

Table 59: PP - Urban one-year dropout rate with grade heterogeneity

VARIABLES	(4) Female=0	(5) Female=1	(6) Grade=5	(7) Grade=6	(8) Grade=7	(9) Grade=8	(10) Grade=9	(11) Grade=10
ITT	-0.207**	0.043	-0.231***	-0.196*	0.042	0.093	0.190	-0.003
	(0.094)	(0.077)	(0.073)	(0.100)	(0.150)	(0.141)	(0.155)	(0.157)
Observations	5,597,096	5,387,355	1,396,131	1,327,770	1,476,822	1,398,525	1,333,478	1,247,567
R-squared	0.118	0.113	0.082	0.143	0.138	0.112	0.098	0.078
N of Fixed Effects	95861	96462	14807	14551	9771	9713	9624	9457
Group Mean	3.545	3.119	1.560	3.500	4.368	4.599	4.977	4.848

Robust standard errors in parentheses. Standard errors are clustered at the school level.

*** p<0.01, ** p<0.05, * p<0.1

Note: panel (4) and (5) restricts the panel (1) regressions to boys and girls respectively; panel (6) through (11) restricts the panel (1) regressions to grades 5 through 10 respectively.

When analysis was done the improved implementation of 2016, we found that the Policy Pilot reduced the two-year dropout rate by about 1.8 percentage points, or 18.8% of the total two years dropout rate. This evidence is significant and consistent even when considering heterogeneities between sexes and grades. Table 60 shows that the Policy Pilot treatment effects were bigger for boys than girls and also the dropout rate reduction decreases in magnitude as grade levels increase. The biggest effects are present among 5^{th} and 6^{th} graders.

Table 60: PP Urban – two-year dropout rate

VARIABLES	(1) Basic	(2) Female=1	(3) Female=0	(4) Grade=5	(5) Grade=6	(6) Grade=7	(7) Grade=8	(8) Grade=9
ITT	-1.801***	-1.384***	-2.170***	-1.788***	-0.708***	-0.620***	-0.398*	-0.489**
	(0.111)	(0.116)	(0.144)	(0.193)	(0.158)	(0.200)	(0.209)	(0.221)
Observations	9,736,884	4,761,412	4,975,472	1,396,131	1,327,770	1,476,822	1,398,525	1,333,478
R-squared	0.145	0.151	0.159	0.147	0.168	0.177	0.15	0.128
N of Fixed Effects	88684	87198	86704	14807	14551	9771	9713	9624
Group Mean	9.559	8.892	10.19	9.143	7.824	10.55	11.2	11.33

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Standard errors are clustered at the school level.

Note: panel (1) shows the pooled regression which includes all the peruvian students registered on SIAGIE; panel (2) and (3) restricts the panel (1) regressions to girls and boys respectively; and panel (5) through 8 restricts the sample to only grades 5 through 9 respectively.

Rural Sample

The intervention in rural areas also reported significant treatment effects on the one-year and two-year dropout rates, as can be seen in Table 61. Results suggest that the delivery of useful information has short and long-lasting effects on a child's likelihood of staying in school.

When accounting for differences between groups, we see that the overall significant treatment effect on one-year dropout rates is entirely driven by boys. Meanwhile, in the case of two-year dropout rates, the effect becomes larger and more significant for both girls and boys.

When we consider the interaction effects between the Policy Pilot and Juntos on the one-year dropout rate, we see that treatment effects become weaker for Juntos-receiving households. This result is consistent when we do the regressions against the two-year dropout rate as well.

Table 61: PP - Intervention effectively reduces rural drop-out rates [one-year dropout]

	(1) Basic	(2) Female=1	(3) Female=0	(4) Juntos=1	(5) Juntos=0
ITT	-1.080**	-0.890	-1.231***	-0.877**	-1.578*
	(0.429)	(0.562)	(0.462)	(0.418)	(0.859)
Observations	1,447,700	707,132	740,568	689,995	757,707
R-squared	0.156	0.181	0.179	0.131	0.210
Group Mean	4.443	4.735	4.165	2.767	6.013

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: panel (1) are the pooled regressions for all the students registered in SIAGIE; panel (2) and (3) are the pooled regressions for the girls' and boys' sample respectively; panel (4) and (5) are the panel regressions for the juntos' and non-juntos sample respectively.

Table 62: PP Intervention effectively reduces rural drop-out rates [two-year dropout]

	(1) Basic	(2) Female=1	(3) Female=0	(4) Juntos=1	(5) Juntos=0
ITT	-7.174***	-6.864***	-7.496***	-6.220***	-8.128***
	(0.642)	(0.827)	(0.775)	(0.602)	(1.171)
Observations	1,447,700	707,132	740,568	690,005	757,697
R-squared	0.199	0.231	0.227	0.182	0.250
Group Mean	14.28	14.63	13.95	10.84	17.51

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: panel (1) are the pooled regressions for all the students registered in SIAGIE; panel (2) and (3) are the pooled regressions for the girls' and boys' sample respectively; panel (4) and (5) are the panel regressions for the juntos' and non-juntos sample respectively.

Testing scale up options

As mentioned before, in 2015, implementation challenges arose, caused by a lower video take-up than expected. As illustrated in the take-up regressions, the level of compliance was just 40% due to school attrition and insufficient supervision of the projection of the video. In order to show treatment effects as if the project were optimally implemented, we present the results of the TOT regressions.

As is evident from Table 63, ToT regressions results are consistent with the ITT regression results for 2015 implementation. Though the overall effect is insignificant, the effect on boys is significant and large when considered independently. The effect of the Policy Pilot, as if optimally-implemented,

would have been 0.06 and 0.05 percentage points greater for 5th and 6th graders respectively (i.e. an additional reduction in dropout rates of around 25% for both 5th and 6th grades)[44].

Table 63: PP - ToT one-year dropout regressions

VARIABLES	(1) Basic ToT	(2) Female=1	(3) Female=0	(4) Grade=5	(5) Grade=6
Sch. Projected Video	-0.306	0.158	-0.745**	-0.719***	-0.605*
	(0.258)	(0.279)	(0.338)	(0.225)	(0.309)
Observations	10,984,451	5,387,355	5,597,096	1,396,131	1,327,770
R-squared					
N of Fixed Effects	98140	98140	98140	98140	98140
N of FE_EscuelaXGrado2	98140	96462	95860	14807	14551

Robust standard errors in parentheses. Standard errors are clustered at the school level.

*** p<0.01, ** p<0.05, * p<0.1

Note: panel (1) are the pooled regressions for all the students registered in SIAGIE; panel (2) and (3) are the pooled regressions for the girls' and boys' sample respectively; panel (4) and (5) are the panel regressions for the sample of 5th and 6th graders respectively.

1.2.14. Qualitative Analysis

The introduction of qualitative analysis is aimed to supplement the insights from our survey data by allowing students to freely express their ideas about their future and the importance of education and school, the space where they spend most of their daily time. We want to see if the informative intervention can generate any change in children's mindsets and initial thoughts on how they see themselves in the present and future. The 3 open-ended questions we asked students were:

1) How do you see yourself in twenty years and what kind of things do you see yourself doing?
2) What do you think of the school in general?
3) What do you think about education?

Children's responses were recorded and transcribed virtually into Excel spreadsheets. For the analysis, we used a word cloud technique that allows us to visually present the gathered statements from treated and control students. We expect that the recurrences of greater frequency of certain words may be the result of the information intervention.

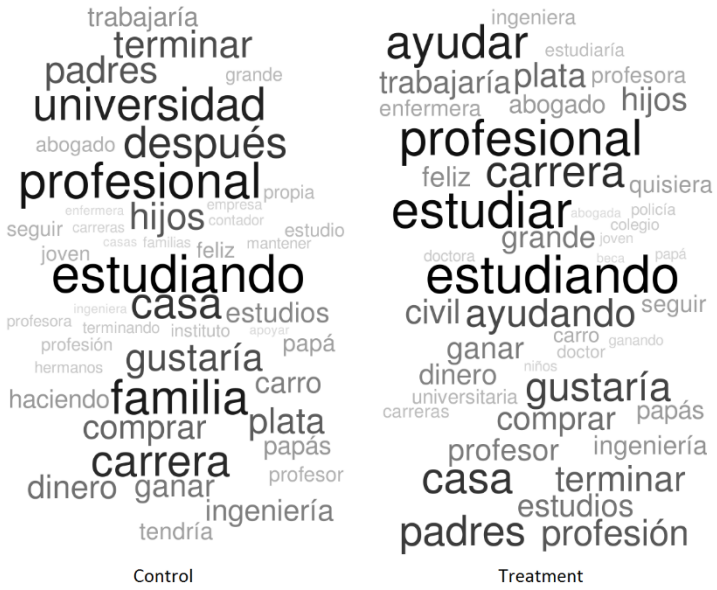
The methodology we followed consisted in counting words in Atlas-Ti 8, an interactive software that allowed us retrieve the relative importance and frequency of selected words from the whole database and then plots word clouds using a free online software named WordItOut. The procedure was divided into two steps: first, we counted all words included in the student response database so as to have a registry of the relative frequency of every single word dictated by students; then, we kept the 50 most frequent words used during each question (each of those words at least

[44] The value of 0.06 percentage point comes from the subtraction of the ToT coefficient (-0.719) multiplied by the level of compliance (0.4), and the ITT coefficient (0.231).

represented a 0.20% of the total words for each question) excluding connectors, pronouns and adverbs not related to the intended study; second, we introduced the words, along with their frequencies and relative importance, in the online software WordItOut to make the word clouds. The graphic representations show the more important words in different sizes and grayscale according to their relative weight for 50 most frequently used words.

Results for the rural sample[45] are shown below. The graphics are divided between control and treatment groups to see the differences one year after the treatment. Regarding the first question "How do you see yourself in twenty years and what kind of things do you see yourself doing?" treated students used the words "study" (8.75% vs 7.70%) and "career" (1.70% vs 1.45%) relatively more than control students. The word "study" was found in responses like "After I finish studying, I'll buy a house", "I'll be doing… I'll finish studying", "Earn another degree and a…" Those sentences suggest that students expect themselves to be have finished studying (could be either basic or higher education) in twenty years more often than control students. Moreover, the word "career" was found in sentences like "I think that when, after 20 years, I'll have earned a university degree and I'll be working in some professional field," and "I might go to low-income areas, I would have a technical or university degree, and help those most in needs," and "Earning a degree,"and "Earning a degree and then no longer being a student." This complements the word "studying" with achieving a "career" after finishing school.

Figure 10: How do you see yourself in twenty years and what kind of things do you see yourself doing?



In the case of the second question "What do you think of the school in general?" treated students were more likely to use the word "study" in their responses (2.56% vs 2.51%). Apparently, the app informational treatment slightly influences treated students' thoughts about school. Their responses

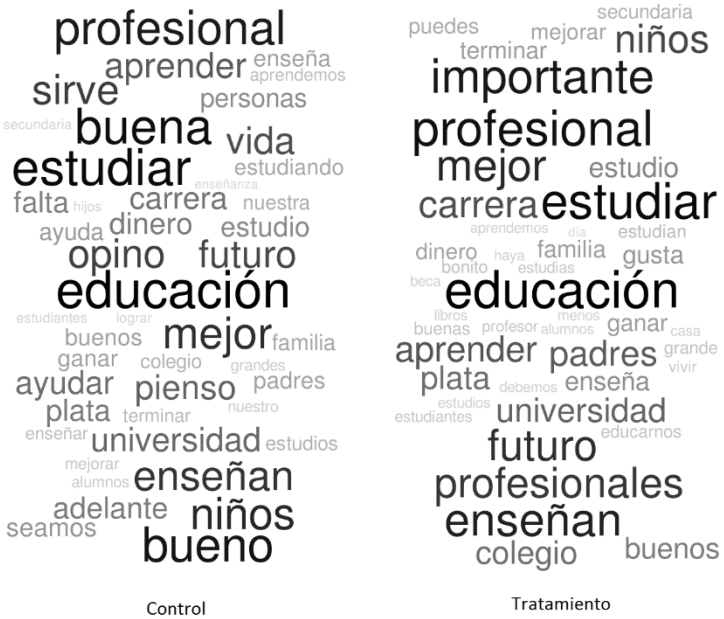
[45] We do not include the qualitative analysis for the urban sample because we do not see clear patterns that could be subject to analysis. The graphs for the urban sample are on the annex.

include phrases like the following: “School is for studying”, “For finishing my studies, to earn a degree …”, “It’s fun, I play with my friends, study...,” suggesting that they are aware of what they should be doing in school more often than control students. Moreover, they say “I like school …”, “I like school, I like the material that the teachers teach …” Apparently, treatment influences students to start liking their school more.

Figure 11: What do you think of the school in general?

In the case of the third question “What do you think about education?” we can see that treated students were more like to use the words “future” (0.98% vs 0.83%), professional (2.11% vs 1.65%),” “important,” (1.50% vs 1.44%) and “better” (1.24% vs 1.09%). The use of these words reveals that treated children value education more than control studnets because of its implications about being a professional in the future as can be seen from the following sentences stated by students: “To do something in the future, to be someone in the future,” “Education is good for the future,” “To make the future better,” “Because we have to study and be good people in the future,” “Because, with education, we learn a lot, and with that knowledge, we can study to become professionals.”

Figure 12: What do you think about education?



Concluding Remarks

The main objective of this investigation was to rigorously design and evaluate two interventions whose aim was to inform schoolchildren and their parents about the value of education. We did this in the hope that better informed students would be more likely to pursue higher levels of education and less likely to engage in child labor. The results from the analysis of our baseline survey data confirm that students in our sample are at a clear disadvantage with regard to their understanding of the returns to education in both urban and rural areas.

Students underestimate returns to all levels of education. They have biased perceptions about returns to different majors, they are pessimistic about the probability that they will complete secondary and tertiary schooling, and they know very little about opportunities to finance higher education. As we noted, the available information, beliefs, and perceptions are significantly correlated with, and work as triggers of, students' attitudes and choices regarding education including their study hours, effort in school, and crucially, their propensity to engage in child labor.

Specifically, we found that the Policy Pilot reduced the prevalence child labor in both urban and rural areas to different extents. In urban areas, girls engaged in child labor 3 percentage points less – a 15% reduction – after receiving information on the value of education. Though the fall in girls' child labor in urban areas seems to be predominantly due to decreases in household chores.

The effect on the prevalence of child labor was less evident in rural areas overall, 6th grade children were significantly less likely to be engaged in child labor as a result of the treatment.

The IDT intervention does, however, reduce worsts form of child labor in rural areas for 6th graders. Treatment effects reduced the probability of being involved in worst forms work, by 7.3 percentage points, i.e. a reduction of 8.2%.

Despite reduced urban take-up of the treatment in 2015, the mass intervention reduced the school one-year dropout rate by 0.2 percentage points in both 5th and 6th grades (i.e. an overall dropout reduction of 15% and 5.6% for 5th and 6th graders) and nearly 1.08 percentage points in rural areas (i.e. a dropout reduction of about 12%). Dropout reduction results of the Policy Pilot improved when several steps were taken to improve the implementation of the 2016 mass campaign. The Policy Pilot produced to reduction in the two-year dropout rate of about 1.8 percentage points, or 18.8%.

Finally, our results showed that providing accurate information clearly improved not only families' understanding of the returns to education, but also influenced the choices students and families make with regard to their educational pursuits. Our results suggest that information provided by the Policy Pilot in urban areas caused students to re-allocate time use towards subjects that are better aligned with their stated preferences and abilities (i.e. to build on their strengths). However, in rural areas we did not observe any significant change in students' time reallocation.

The reallocation of time to human capital accumulation apparently had major affects on cognitive test scores like the "Evaluacion Censal de Estudiantes" for urban students in 8th grade. There was an increase in Math and Verbal scores of about 4% and 3% of a standard deviation, respectively. These effects were mainly driven by girls. Results suggest that the pilot did not only increase average scores for both sexes, but also narrowed the sex gap in Math by about 35%.

The Policy Pilot was designed for implementation on a large scale and at a low cost. The marginal cost of the campaign was less than US$0.05 per student (not including the fixed costs of producing the video). Thus, at scale and with improved implementation the intervention could reduce the number of students that drop out of school by 25,000 in one year and by almost 70,000 students in two years at a relatively low cost.

For the 2018 school year, we recommend the continuation of the Policy Pilot campaign with improved implementation. Schools seem to value the intervention, with almost 96%[46] of head teachers reporting willingness to continue to participate in the campaign in future years. Implementation should improve with on-time delivery of the videos, didactic activities, such as thematic discussion about the importance of education, and access to updated information about scholarship opportunities. The videos should also be introduced during tutoring hours, so as to become a part of the school curriculum.

Improvements could also be achieved in the replication of the intensive information campaign at a much larger scale and in areas with less developed infrastructure.

[46] This came from the call center implemented by IPA to track the video deliverable in 2016. A sub sample of 281 head teachers were asked the following question: "Would you be interested in being part of the project the next year?".

References

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Appendix

Mapping the dispersion.

Figure 13: DFM Treatment and controls school dispersion in rural sample for follow-up (Cuzco and Arequipa)

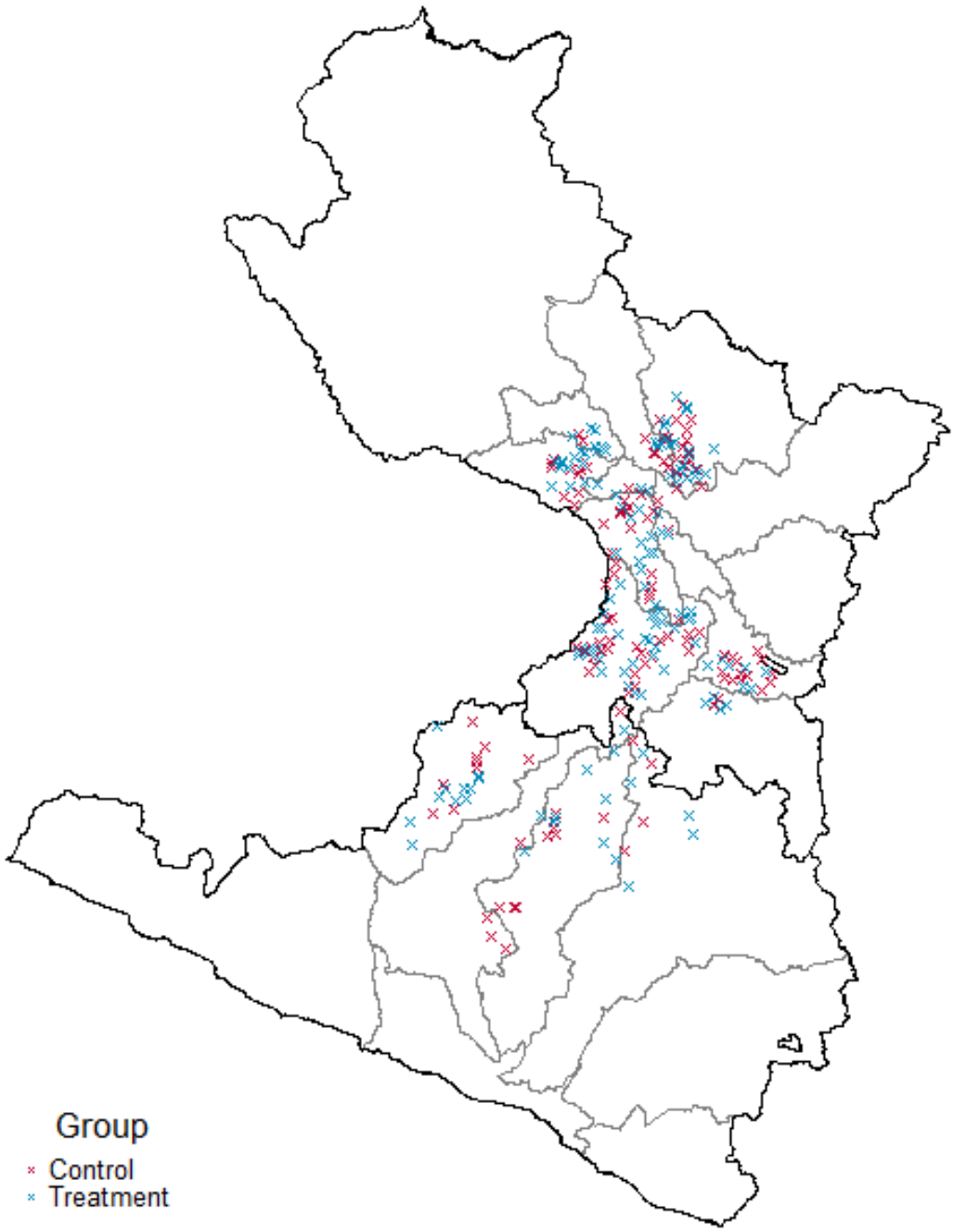


Figure 14: DFM Treatment and controls school dispersion in urban sample (Metropolitan Lima)

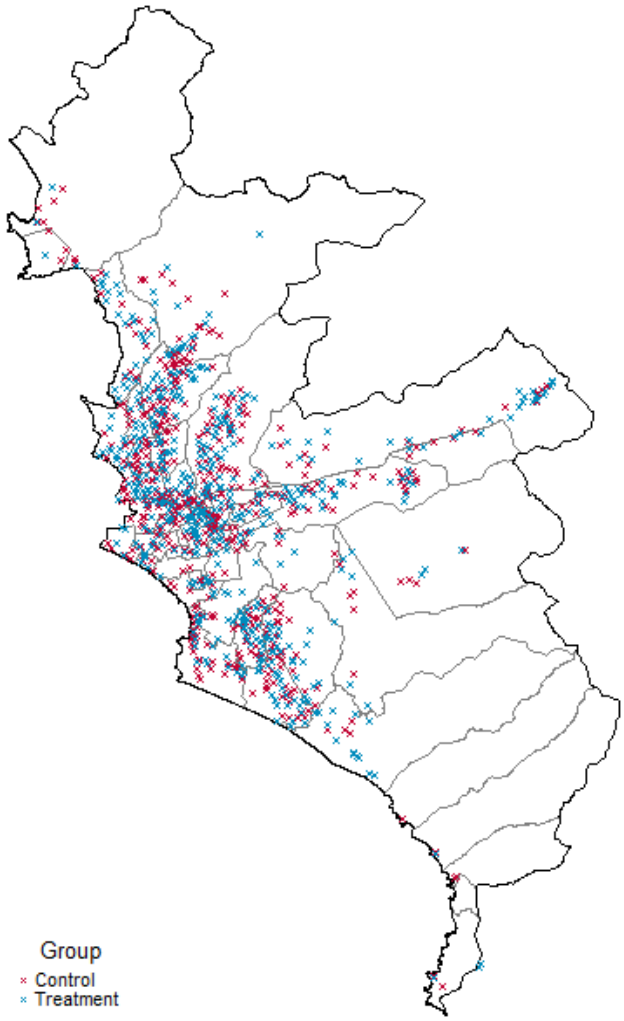


Table 64: Final tested hypothesis deviation from the initial pre-analysis hypothesis

The following table presents what was not included in the final analysis with respect the Pre-Analysis Plan originally proposed by IPA. The left column contains the original proposed Hypothesis that were not included in the final analysis and the right column contains the final studied outcomes that were not included at the beginning of the project. Below each hypothesis we present an explanation for why this hypothesis was not tested or why this hypothesis was added to the final report.

PRE-ANALYSIS PLAN	FINAL HYPOTHESIS ANALYSIS
H2: Treatment increases perceived feasibility of pursuing higher education	
Primary outcomes	
Students' perceived feasibility of their peers attending higher education increases (SAP-Surveys).	N/A
Although in the SAP survey we were asking students about what they believe their peers (Peruvian of their own sex) would earn at different education levels, we were no longer asking them for the perceived likelihood of their peers attending higher education. We dropped this question at baseline. These questions about probability proved to be very hard to fill out (and were mostly left blank during piloting) and thus we only left the question about the student's own perceived probability of attending higher education. We considered this outcome more relevant for the study.	
Perceived feasibility of getting Beca 18 scholarship increases for eligible students (SAP-Surveys with Admin Data).	N/A
Admin data was not available. The identification of eligible students for Beca 18 (the most widespread scholarship program in Peru) was not feasible.	
	The treatment effectively increases the probability of being aware of Beca 18.
We have added this hypothesis since Beca 18 is the most widespread scholarship in Peru.	
Secondary outcomes	
Students become better informed on the prerequisites for eligibility and paperwork needed to apply for a scholarship or an educational credit (SAP-Students, IDT-Students).	N/A
At the end line, due to MINEDU's limited resources, schools were surveyed (SAP survey) directly by MINEDU-hired staff, during low-intensity weeks in late November 2016, using a short version of the questionnaire. Given the application time constraint, other questions were prioritized in the SAP.	
Parents become better informed on the prerequisites for eligibility and paperwork needed to apply for a scholarship or an educational credit (IDT-Parents).	N/A
This question was removed from the questionnaire as (i) it was not evident what was an effective way to ask for knowledge on requisites (without asking for each of them), and (ii) requisites for major scholarships and credit programs have been changing substantially over time as Government changed.	
H3: Intervention effectively reduces child labor	

Secondary outcomes	
Parents state they would rather have their children in school and out of work until the end of basic education (IDT-Parents).	N/A
This hypothesis was answered with Hypothesis 2 (H2) that included information about parents' perceived feasibility of their own children accessing affordable higher education.	
N/A	Treatment reduces prevalence of child labor. SAP 2015, 2016 (Rural, Urban); IDT 2015 2016 Rural
Overall estimation of the prevalence of child labor was added since the initial indicators only referred to hours worked and other secondary indicators measuring parents' preferences.	
H4: Intervention effectively reduces drop-out rates	
Primary outcomes	
Student still in school system at Follow-up 2 of Admin. Data (October 2016).	N/A
Estimation was made using the latest updated data from 2015, 2016, 2017.	
Student still in school system at Follow-up 3 of Admin. Data (October 2017).	N/A
Estimation was made using the latest updated data from 2015, 2016, 2017.	
Student still in school system at Follow-up 3 of Admin. Data (October 2017).	N/A
Estimation was made using the latest updated data from 2015, 2016, 2017	
Secondary outcomes	
Reasons of absence	N/A
Few observations were collected (only a few students answered this question), which did not allow any comparison between T and C groups.	
Voluntary attendance	N/A
This information was captured only through the time-use module in IDT student survey, that was already estimated in the H5. It only applied for rural, since in urban some severe glitches did not allow the use of the IDT data. Researchers preferred to be cautious about establishing causality with IDT data.	
H5: Students allocate more resources to human capital accumulation	
Primary outcomes	
Students are less likely to drop out from school (IDT-Students, Admin. Data).	N/A
This hypothesis was answered in Hypothesis 4 (H4)	
Students dedicate more time to better-aligned types of study (IDT-Students).	N/A
This hypothesis was not added since it would not provide additional information to the one already observed in the panel (4) and (5) of Table 40 (PP - Students voluntarily dedicate more time to studying in rural areas) and Table 47. Also, for urban cases, IDT survey did not allow to test it.	
N/A	Treatment effects over nationwide standardized (Evaluación Censal de Estudiantes, ECE) tests is positive. Administrative Data – ECE (Evaluacion Censal de Estudiantes)

Initially, the sharing of the administrative data on the nationwide standardized test was not contemplated by the Ministry of Education.	
H6: Parents allocate more resources to human capital accumulation	
Primary outcomes	
Parents transfer their children to better schools (IDT-Students, IDT-Parents, Admin. Data.)	N/A
This hypothesis only applied for urban and was not included in the final analysis due to glitches in the IDT data in 2015.	
Secondary Outcomes	
Parents look for information on better schools (IDT-Parents).	N/A
In rural, this question was not added in the IDT survey since in those areas, school choice issues are not frequent. In urban areas, this hypothesis could not be tested because of the glitches with the App.	
Parents look for information on financing mechanisms for their children's higher education (IDT-Parents).	N/A
This information was only tested for rural areas, because of some severe glitches in the urban IDT.	
H7: Treated households change long-run educational plans	
Primary outcomes	
Old-enough treated students apply for higher education at their desired higher-education providers at Follow-ups 1 and 2 of IDT (IDT-Students, Admin. Data).	N/A
SRI (Sistema de Recojo de Información) administrative data was not fully updated by universities in each year. Therefore, this hypothesis could not be assessed.	
Old-enough treated students attend higher education institutions at Follow-ups 1 and 2 of IDT or 2 and 3 of Admin. Data (IDT-Students, Admin. Data).	N/A
SRI (Sistema de Recojo de Información) administrative data was not fully updated by universities in each year. Therefore, this hypothesis could not be assessed.	
H8: Treated households change short-run educational choices	
Primary outcomes	
Students are sent to better schools (IDT, Admin Data).	N/A
Data glitches in the urban sample did not allowed testing this hypothesis. In rural, this hypothesis was not included since there was high school migration due to transition from primary to secondary.	
H11: Providing information is complimentary to cash transfers from Juntos (Rural Sample only)	
Child-labor reduces for treated Juntos-receiving households more than what Juntos or the intervention would separately (IDT-Students).	Child-labor decreases for treated Juntos-receiving households more than it would due to Juntos or the intervention independently. SAP 2015, 2016 (Rural)
Only SAP results were shown since these are more robust. IDT results are in the Annex.	
Interaction of receiving Juntos at baseline and treatment is positive for child-labor outcomes (IDT-Students).	The interaction between receiving Juntos at baseline and receiving the treatment is positive for child labor outcomes. SAP 2015, 2016 (Rural)
Only SAP results were shown since these are more robust. IDT results are in the Annex.	

Plans of pursuing higher education increase for treated students living in Juntos-receiving households (IDT-Students).	Plans for pursuing higher education in the future increase for treated students living in Juntos-receiving households. SAP 2015, 2016 (Rural).
Only SAP results were shown since these are more robust. IDT results are in the Annex.	

Table 65: Operational definitions of Child Labor and Hazardous Work

Concept	Operational Definition
Children	Individuals under the age of 18
A Working Child	1. A child, between the ages of 5 to 17, who worked for 1 or more hours in the week before the survey in any kind of economic activity as defined by ISIC
Economic Activity	Activities defined by ISIC, International Standard Industrial Classification of All Economic Activities, Rev.4, and excluding categories 94, Activities of membership organizations, and 98, producing activities of private households for own use. We consider a child to be involved in an economic activity regardless of being paid.
Child Labor	1. Children 11 years of age and younger: 1.1 Work for 1 or more hours in the week before the survey in any kind of economic activity (as defined above, excluding regular household chores), 1.2 Work in any kind of activity considered as a hazardous activity (as defined below) 1.3 Any activity which is considered as a worst form of child labor (as defined by ILO Convention No. 182) 2. Children 12-17 years of age: 2.1 Work for 1 or more hours in the week before the survey in any kind of economic activity that is considered as a hazardous activity (as defined below), or 2.3 Any activity which is considered as a worst form of child labor (as defined by ILO Convention No. 182)
Hazardous Child Labor	1. Children 5-9 years of age and younger: 1.1 Child works more than 24 weekly hours on any economic activity, or 1.2 Child works in economic activities listed as hazardous, either by nature or conditions, by Peru's Ministry of Women and Vulnerable Populations 1.3 Child engages in household chores for more than 18 weekly hours. 2. Children 10-13 years of age: 2.1 Child works for more than 24 weekly hours on any economic activity, or 2.2 Child works more than 4 hours at any given day during the week, or 2.3 Child works in economic activities listed as hazardous, either by nature or conditions, by Peru's Ministry of Women and Vulnerable Populations 2.4 Child engages in household chores for more than 18 weekly hours. 3. Children 14 years of age and older: 3.1 Child works for more than 36 weekly hours on any economic activity, or 3.2 Child works more than 6 hours at any given day during the week, or

	3.3 Child works in economic activities listed as hazardous, either by nature or conditions, by Peru's Ministry of Women and Vulnerable Populations 3.4 Child engages in household chores for more than 22 weekly hours.
Worst forms of Child Labor	Activities defined by the ILO Convention No. 182, Article 3, that compromise 4 distinct types of worst forms of child labor.

Annex H: List of activities defined as hazardous by the Peruvian Ministry of Vulnerable Populations and Worst Form of Child Labor definition

1. Activities which by its nature are risky for the children's health and safety:

- Work in the extraction and processing of metallic and non-metallic minerals.
- Work that require the use of manual or mechanical tools and equipment which require training and experience for using, such us in agriculture, printing, metal-mechanical industry, construction, wood extraction and processing, food industry and kitchen work, vehicle transportation and heavy vehicles, handle of demolishing equipment, and work in industrial laundries.
- Work that imply contact or exposure to chemical products, toxic substances, caustic substances, toxic gases, corrosive substances and flammable materials.
- Work in artisanal production of bricks, adobe (mud-bricks) and stone for construction.
- Work at sea or underwater related to extraction or transportation for fishing or seafood extraction.
- Work in heights over 2 meters, related to cleaning of glasses, repairing of roofs or scaffolding.
- Work in generation or transmission of electric energy.
- Work with exposure to continuous loud noises superior to 60 decibels.
- Work with direct exposure to ionising and non-ionising radiation.
- Work which require contact with animal waste or contagious diseases-carrying animals.
- Work in production, sales or delivery of alcoholic beverages.
- Work in which graphical material is recorded, photographed, edited or printed.
- Work in attention and caring of elderly, children or ill people.
- Work in closed or narrow spaces, or spaces without ventilation.
- Work with continuous exposure to extreme temperatures.
- Work in manual lifting and carrying of loads which exceed the weight a child can carry.
- Work in collection and sorting of garbage and wastes.
- Work in transportation or manipulation of valuable consignments which are in charge of a child.
- Work in production or handling of explosive materials.

2. Activities which are risky to children by the way they are carried out:

- Work which imply activities exceeding four hours per day or 24 hours per week for children in ages 12 and 13, and six hours per day or 36 per week for children ages 14 and above.
- Work carried out in absence of health, safety or hygiene measures.
- Work in public, interurban or interprovincial transportation.
- Work which for their working hours, distance or duties; impede school attendance or communication amongst peers or with the family.
- Work in which the children are exposed to physical, psychological or sexual abuses.
- Domestic work in third party's households, being relatives or not.
- Work in shows or exhibitions that expose children to risks to their health, safety or moral.
- Work in hours between 19:00 and 7:00.
- Work carried out in the streets.

Worst Form of Child Labor

We consider as worst forms of child labor all the categories aforementioned in Hazardous Child Labor definition as well as the following operational definitions of worst form of child labor:

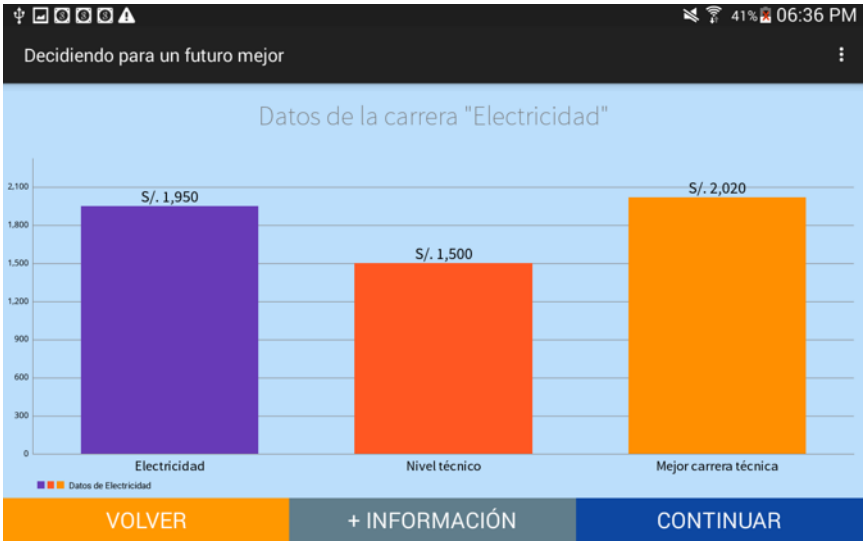
a) All forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labor, including forced or compulsory recruitment of children for use in armed conflict,
b) The use, procuring or offering of a child for prostitution, the production of pornography or for pornographic performances,
c) The use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties,
d) Work which, by its nature or circumstances in which it is carried out, is likely to harm the health, safety or morals of children.
e) Dedication to any activity which constitutes commercial sexual exploitation or use of children for illicit activities.

Annex S: Screenshots of the mass and intensive interventions:

Figure 15: Screenshots of the Policy Pilot video

Figure 16: Screenshots of the infographics in the APP

Figure 17: Screenshots of the interactive responses in the APP



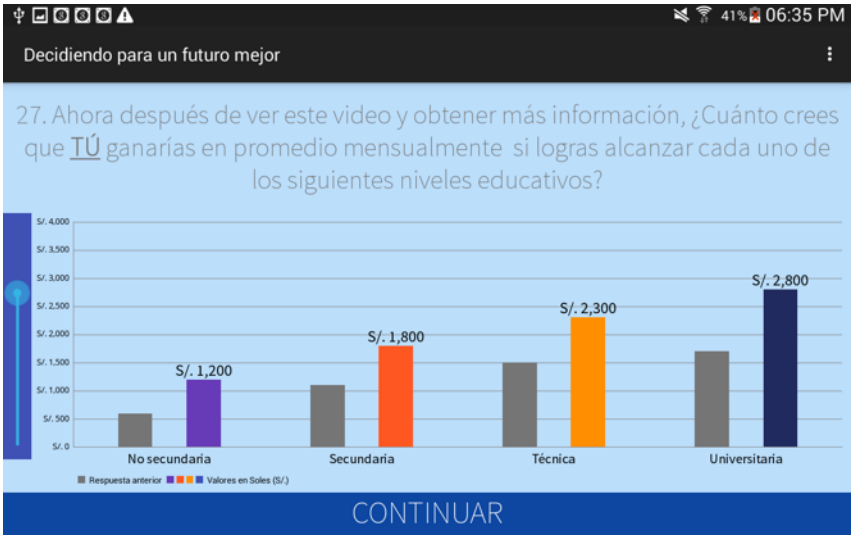


Table 66: Correlates of perceived marginal returns to effort in urban sample

	(1) Math - All	Lang - All	Math - Boys	Math - Girls	Lang - Boys	Lang - Girls
6th grade	-0.118*	-0.054	-0.103	-0.142	-0.098	-0.016
dummy	(0.053)	(0.052)	(0.073)	(0.078)	(0.073)	(0.074)
7th grade	-0.378***	-0.137	-0.394**	-0.361*	-0.068	-0.214
dummy	(0.097)	(0.094)	(0.126)	(0.150)	(0.123)	(0.144)
8th grade	-0.524***	-0.360***	-0.517***	-0.547***	-0.277*	-0.470***
dummy	(0.092)	(0.091)	(0.122)	(0.138)	(0.119)	(0.139)
9th grade	-0.500***	-0.084	-0.474***	-0.522***	0.021	-0.207
dummy	(0.097)	(0.095)	(0.132)	(0.143)	(0.132)	(0.137)
10th grade	-0.575***	-0.239**	-0.660***	-0.497***	-0.264*	-0.219*
dummy	(0.079)	(0.076)	(0.110)	(0.114)	(0.109)	(0.105)
11th grade	-0.371***	0.108	-0.188	-0.537***	0.250*	-0.034
dummy	(0.077)	(0.073)	(0.107)	(0.111)	(0.104)	(0.102)
Female	-0.269***	0.314***	0	0	0	0
student	(0.041)	(0.040)	(.)	(.)	(.)	(.)
Travel time to	-0.005***	-0.005***	-0.005**	-0.005*	-0.006**	-0.003
school	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Constant	6.550***	6.447***	6.529***	6.311***	6.584***	6.607***
	(0.084)	(0.082)	(0.111)	(0.120)	(0.111)	(0.116)
N	12284	12198	6185	6099	6119	6079

Marginal Returns to Effort are defined in the survey as the perceived probability of improving ability, conditional on effort. Robust standard errors. All regressions are linear models (OLS) and control for educational level of all household members, as a proxy for SES. * p<0.05, ** p<0.01, *** p<0.001.

Figure 18: Perceived marginal return to effort in Math, by Sex and ability quintile in Math in urban sample

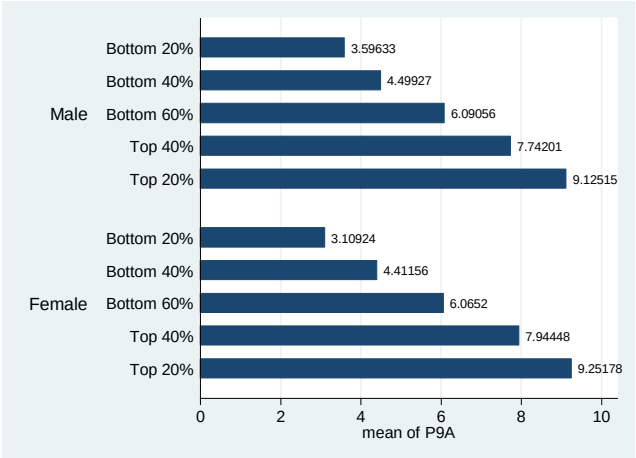


Figure 19: Perceived marginal return to effort in Language, by Sex and ability quintile in Language in urban sample

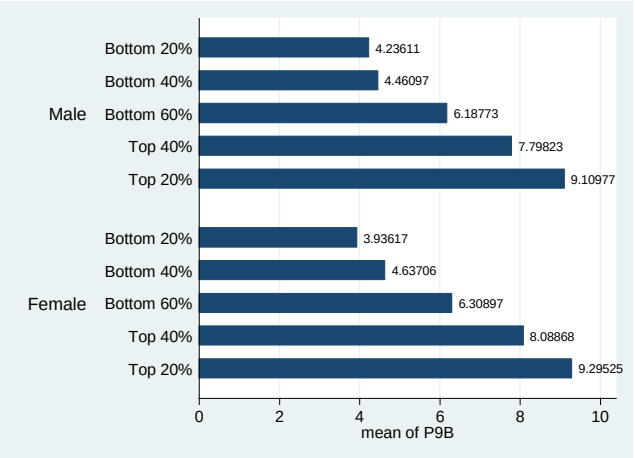


Figure 20: PP - Students' desired level of future education, by grade and sex

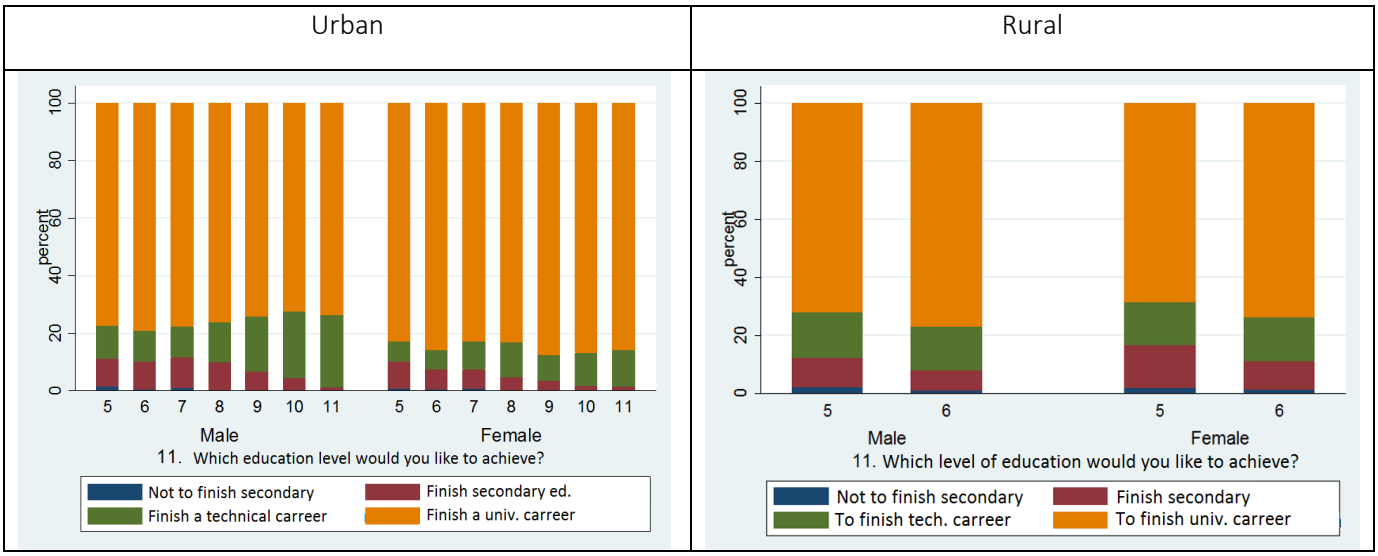
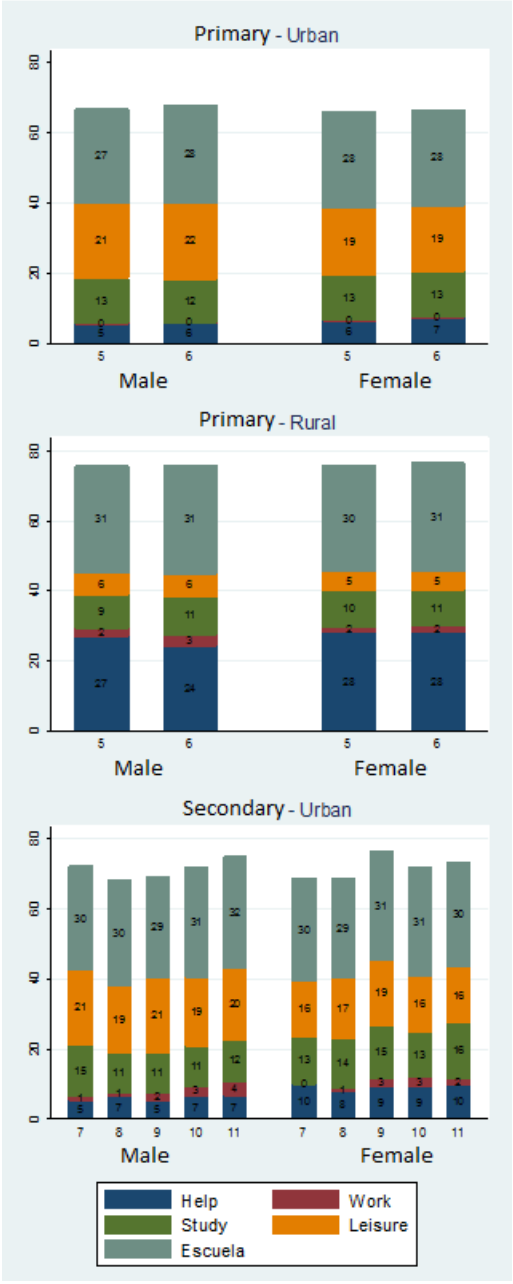


Table 67: PP - Correlates of perceived likelihood of achieving educational plans in urban sample

	(1) Prob. Technical HE	(2) Prob. University HE	(3) Prob. Scholarship	(4) Prob. Student Loan	(5) Prob. Technical HE with high effort	(6) Prob. University HE with high effort	(7) Increase for Prob. Technical HE	(8) Increase for Prob. University HE
6th grade dummy	-0.380***	-0.383***	-0.248***	-0.279***	-0.011	-0.062	0.222***	0.214***
	(0.056)	(0.058)	(0.057)	(0.057)	(0.057)	(0.055)	(0.047)	(0.041)
7th grade dummy	-0.695***	-0.812***	-0.211*	-0.680***	0.259*	-0.089	0.452***	0.607***
	(0.105)	(0.106)	(0.103)	(0.106)	(0.102)	(0.103)	(0.091)	(0.086)
8th grade dummy	-1.082***	-0.993***	-0.537***	-0.870***	-0.055	-0.306**	0.459***	0.556***
	(0.096)	(0.098)	(0.100)	(0.099)	(0.101)	(0.098)	(0.086)	(0.079)
9th grade dummy	-1.362***	-1.125***	-0.388***	-1.176***	0.14	-0.257**	0.526***	0.930***
	(0.100)	(0.098)	(0.106)	(0.102)	(0.104)	(0.098)	(0.085)	(0.084)
10th grade dummy	-1.544***	-1.169***	-0.338***	-1.344***	0.268***	-0.323***	0.589***	1.024***
	(0.080)	(0.081)	(0.081)	(0.081)	(0.079)	(0.080)	(0.068)	(0.066)
11th grade dummy	-1.742***	-1.274***	-0.077	-1.335***	0.538***	-0.210**	0.599***	1.131***
	(0.079)	(0.080)	(0.082)	(0.082)	(0.080)	(0.079)	(0.069)	(0.065)
Female student	0.076	-0.05	0.126**	0.181***	0.171***	0.214***	0.037	0.031
	(0.043)	(0.043)	(0.043)	(0.044)	(0.043)	(0.042)	(0.036)	(0.034)
Constant	6.017***	5.858***	6.155***	6.420***	6.539***	6.788***	0.397***	0.369***
	(0.089)	(0.090)	(0.091)	(0.092)	(0.091)	(0.089)	(0.074)	(0.067)
N	12033	11724	11679	11922	11595	11912	11494	11814

Robust standard errors. All regressions control for educational level of household members, as a proxy for SES, and physical access to schooling. * p<0.05, ** p<0.01, *** p<0.001

Figure 21: Students' average weekly time use, by level, area, sex, and grade



Hypothesis analysis

H1: Secondary outcomes

Urban results

H1.F: Treatment effects on students' perceived returns are not monotonically increasing across levels of education. Treatment effects are higher for perceptions about technical studies. This result holds across grades.

H1.G: Treatment effects on parents' perceived returns are monotonically increasing across levels of education. This result holds across grades.

Follow-up: Regarding follow-up effects, it seems that being in the follow-up sample increases the perceived returns to completing high school on average. This long-lasting effect is bigger for girls' parents and for students in middle and high school. Also, we can see long-lasting effects of the IDT intervention for follow-up students with regard to perceived returns to college education.

Rural results

H1.E: Students' perceived returns to different educational levels increase monotonically with education

App treatments effects on perceived returns to different educational levels increased monotonically with education.

H1.F: Students' perceived distribution of labor income among different educational levels becomes increases monotonically

App treatment effects on perceived distribution of labor income among different educational levels do not increase monotonically. These results seem to be driven by the fact that students seem to underestimate the returns to all levels of education.

H1.G: Parents' perceived returns to different educational levels increase monotonically

App treatments effects on parents' perceived returns to different educational levels increase monotically with education.

H1.H: Parents' perceived distribution of labor income among different educational increases monotonically

App treatment effects on perceived distribution of labor income among different educational levels do not increase monotonically. These results seem to be driven by the fact that parents seem to underestimate the returns to all levels of education.

H1.F: Urban

Table 68: IDT - Intra-school treatment effects on parents' and students' plans regarding education in the future in urban areas

	P: EW NHS	P: EW CHS	P: EW TEC	P: EW UNI	S: EW NHS	S: EW CHS	S: EW TEC	S: EW UNI
ALL SAMPLE								
Treat S	15.827	19.274	44.573**	29.184	175.808***	217.509***	238.215***	229.472***
	(11.557)	(11.989)	(17.543)	(25.126)	(10.500)	(13.624)	(17.131)	(19.671)
Treat P	44.970***	60.693***	92.432***	143.298***	-27.489**	-37.371**	-41.573**	-22.793
	(13.186)	(12.528)	(19.696)	(28.332)	(11.683)	(15.935)	(20.639)	(23.144)
Observations	1,890	1,890	1,890	1,890	3,291	3,291	3,291	3,291
R-squared	0.258	0.340	0.283	0.279	0.314	0.301	0.275	0.260
GIRLS SAMPLE								
Treat S	10.205**	8.850*	16.255	34.854**	161.769***	215.801***	236.257***	244.402***
	(4.439)	(4.568)	(10.652)	(17.384)	(16.592)	(23.265)	(29.139)	(33.334)
Treat P	30.419***	36.197***	91.196***	99.813***	-32.128*	-64.658***	-51.018	-33.863
	(10.880)	(9.143)	(19.735)	(25.460)	(17.748)	(24.040)	(32.252)	(37.464)
Observations	911	911	911	911	1,639	1,639	1,639	1,639
R-squared	0.563	0.609	0.578	0.544	0.497	0.416	0.427	0.408
BOYS SAMPLE								
Treat S	18.884	16.478	50.321	9.445	178.360***	221.998***	242.103***	205.221***
	(22.943)	(23.535)	(34.047)	(47.326)	(16.149)	(20.437)	(24.174)	(29.910)
Treat P	41.420*	76.500***	100.195***	166.244***	-16.534	-6.148	-34.065	-0.208
	(23.290)	(23.617)	(37.893)	(54.266)	(18.249)	(25.383)	(31.111)	(35.843)
Observations	979	979	979	979	1,652	1,652	1,652	1,652
R-squared	0.370	0.439	0.397	0.402	0.437	0.413	0.366	0.387
GRADE 1 SAMPLE								
Treat S	8.197	44.262	60.656	-3.279	179.588***	211.320***	242.119***	251.421***
	(32.304)	(36.239)	(49.904)	(68.282)	(19.579)	(25.093)	(32.574)	(35.423)
Treat P	73.866	49.908	42.483	168.750*	-29.380	-32.268	-45.264	-46.004
	(47.032)	(48.485)	(60.104)	(89.155)	(21.165)	(28.893)	(38.162)	(42.873)
Observations	396	396	396	396	1,513	1,513	1,513	1,513
R-squared	0.647	0.656	0.678	0.656	0.311	0.300	0.268	0.267
GRADE 2 SAMPLE								
Treat S	-4.902	18.529	62.319*	52.682	175.857***	223.227***	240.987***	211.437***
	(17.357)	(22.397)	(31.895)	(41.115)	(18.116)	(22.656)	(29.352)	(36.475)
Treat P	64.805**	77.852***	94.990**	141.594***	-38.406*	-68.414***	-61.410*	-19.798
	(25.240)	(25.005)	(38.219)	(49.599)	(20.628)	(26.410)	(34.847)	(42.981)
Observations	736	736	736	736	900	900	900	900
R-squared	0.400	0.409	0.374	0.392	0.516	0.493	0.515	0.408
GRADE 3 SAMPLE								
Treat S	40.948*	19.498	26.284	7.521	173.461***	225.525***	232.699***	214.499***
	(24.351)	(20.177)	(29.896)	(46.780)	(18.408)	(25.014)	(28.073)	(33.622)
Treat P	1.489	29.600	87.598***	125.798**	-28.093	-41.429	-22.603	23.468

	(21.741)	(19.285)	(33.363)	(49.576)	(20.638)	(27.488)	(32.187)	(38.369)
Observations	758	758	758	758	878	878	878	878
R-squared	0.349	0.504	0.447	0.402	0.445	0.440	0.435	0.388

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

H1.H: Urban

Table 69: PP - Treatment effects on finishing future education relative to not finishing high school in urban areas

	(1) RET UNI-NHS	(2) RET TEC-NHS	(3) RET CHS-NHS	(4) RET UNI-TEC	(5) BL NHS	(6) BL CHS	(7) BL TEC	(8) BL UNI
ALL SAMPLE								
Treatment	0.088**	0.042**	0.086***	0.033	-0.013	0.028**	-0.005	-0.033
	(0.044)	(0.018)	(0.024)	(0.032)	(0.019)	(0.014)	(0.016)	(0.022)
Observations	14,534	14,656	14,143	15,160	14,290	15,004	15,402	15,849
GIRLS SAMPLE								
Treatment	0.189***	0.117***	0.039*	0.066**	0.003	0.015	-0.009	0.034
	(0.049)	(0.038)	(0.022)	(0.027)	(0.041)	(0.027)	(0.016)	(0.033)
Observations	7,438	7,481	7,269	7,711	7,348	7,715	7,827	8,093
BOYS SAMPLE								
Treatment	-0.012	-0.032	0.130***	0.003	-0.029	0.040	-0.002	-0.105***
	(0.062)	(0.048)	(0.031)	(0.039)	(0.020)	(0.028)	(0.028)	(0.034)
Observations	7,096	7,175	6,874	7,449	6,942	7,289	7,575	7,756
GRADE 1 SAMPLE								
Treatment	0.100***	0.061***	0.086**	0.031	-0.023	0.023**	0.009	-0.072
	(0.029)	(0.014)	(0.040)	(0.032)	(0.032)	(0.012)	(0.011)	(0.051)
Observations	7,753	7,792	7,528	8,020	7,529	7,891	8,061	8,362
GRADE 2 SAMPLE								
Treatment	0.061	0.034	0.109***	0.090	0.065	0.078	0.021	-0.005
	(0.146)	(0.095)	(0.040)	(0.085)	(0.108)	(0.062)	(0.068)	(0.024)
Observations	3,219	3,247	3,151	3,388	3,222	3,348	3,453	3,537
GRADE 3 SAMPLE								
Treatment	0.094	-0.009	0.083	0.020	-0.041	-0.009	-0.088**	0.084***
	(0.085)	(0.027)	(0.057)	(0.051)	(0.068)	(0.039)	(0.045)	(0.033)
Observations	3,562	3,617	3,464	3,752	3,539	3,765	3,888	3,950

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

H2: Treatment increases perceived feasibility of pursuing higher education

H2.A: Students' perceived feasibility of completing higher education increases

Students' perceived feasibility of pursuing higher education seems to increase after the informational campaign. As shown in Table 70, students seem to be more likely to believe, or "think is possible," that they could go to college. This effect seems to be driven by boys' perceptions. When it comes to technical studies, students seem to be more optimistic about their chances of getting into a technical institute but the treatment effects are not significant.

Table 70: IDT - Students' perceived feasibility of completing higher education increases [considering obstacles] in urban areas

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pr. Inst 0% (Impossible)	Pr. Inst 10%	Pr. Inst 90%	Pr. Inst 100% (certanty)	Pr. Univ 0% (Impossible)	Pr. Univ 10%	Pr. Univ 90%	Pr. Univ 100% (certanty)
	Obs.	Obs.	Obs.	Obs.	Obs.	Obs.	Obs.	Obs.
ALL SAMPLE								
ITT2015	-0.002	0.005*	0.001	0.008	-0.003	0.002	0.021**	0.012
	(0.003)	(0.002)	(0.017)	(0.007)	(0.002)	(0.001)	(0.006)	(0.010)
Observations	3,404	3,404	3,404	3,404	3,404	3,404	3,404	3,404
R-squared	0.004	0.001	0.001	0.003	0.005	0.001	0.001	0.003
GIRLS SAMPLE								
ITT2015	-0.001	0.009	-0.001	0.009	0.000	0.003	0.009	0.019*
	(0.003)	(0.007)	(0.017)	(0.013)	(0.004)	(0.002)	(0.008)	(0.006)
Observations	1,643	1,643	1,643	1,643	1,643	1,643	1,643	1,643
R-squared	0.003	0.002	0.000	0.003	0.005	0.001	0.001	0.003
BOYS SAMPLE								
ITT2015	-0.002	0.001	0.004	0.006	-0.006	0.001	0.032**	0.005
	(0.006)	(0.007)	(0.018)	(0.008)	(0.006)	(0.002)	(0.006)	(0.014)
Observations	1,761	1,761	1,761	1,761	1,761	1,761	1,761	1,761
R-squared	0.006	0.001	0.003	0.003	0.006	0.001	0.002	0.003
GRADE 5 SAMPLE								
ITT2015	-0.006	0.003	0.014	0.018	-0.002	0.002**	0.013	0.025
	(0.006)	(0.003)	(0.013)	(0.027)	(0.006)	(0.000)	(0.009)	(0.037)
Observations	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728
R-squared	0.006	0.001	0.003	0.004	0.013	0.002	0.002	0.003
GRADE 6 SAMPLE								
ITT2015	0.002	0.007**	-0.012	-0.004	-0.004	0.002	0.028**	-0.005
	(0.002)	(0.002)	(0.023)	(0.020)	(0.007)	(0.002)	(0.009)	(0.017)
Observations	1,676	1,676	1,676	1,676	1,676	1,676	1,676	1,676
R-squared	0.004	0.002	0.000	0.004	0.002	0.001	0.003	0.004

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In the same survey, we collected information about students' perceived feasibility of pursuing higher education, under a scenario where they had put a lot of effort and therefore had developed a higher ability in all their classes. As shown in Table 71, the treatment made girls more optimistic about their chances of getting into college. In general, the informational campaign seemed to make students more optimistic about their future educational attainment, but these effects are not significant.

Table 71: IDT - Students' perceived feasibility of them attending higher education increases [Effort and higher ability] in urban areas

	(1) Pr. Inst 0% (Impossible)	(2) Pr. Inst 10%	(3) Pr. Inst 90%	(4) Pr. Inst 100% (certainty)	(5) Pr. Univ 0% (Impossible)	(6) Pr. Univ 10%	(7) Pr. Univ 90%	(8) Pr. Univ 100% (certanty)
ALL SAMPLE								
ITT2015	-0.000	0.001	-0.008	0.008	-0.004	0.003	-0.019*	0.020
	(0.002)	(0.001)	(0.012)	(0.004)	(0.002)	(0.002)	(0.007)	(0.009)
Observations	3,404	3,404	3,404	3,404	3,404	3,404	3,404	3,404
R-squared	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001
GIRLS SAMPLE								
ITT2015	0.003	0.004	-0.030*	0.008	-0.008	0.001	-0.034***	0.029**
	(0.002)	(0.002)	(0.013)	(0.004)	(0.004)	(0.001)	(0.002)	(0.005)
Observations	1,643	1,643	1,643	1,643	1,643	1,643	1,643	1,643
R-squared	0.001	0.001	0.002	0.002	0.006	0.002	0.002	0.001
BOYS SAMPLE								
ITT2015	-0.003	-0.002	0.014	0.005	0.001	0.005*	-0.006	0.011
	(0.003)	(0.002)	(0.011)	(0.005)	(0.001)	(0.002)	(0.012)	(0.012)
Observations	1,761	1,761	1,761	1,761	1,761	1,761	1,761	1,761
R-squared	0.001	0.001	0.001	0.003	0.001	0.002	0.001	0.003
GRADE 5 SAMPLE								
ITT2015	0.000	0.002	-0.017**	-0.005	-0.001	0.008	-0.026	0.033
	(0.004)	(0.001)	(0.004)	(0.022)	(0.003)	(0.004)	(0.012)	(0.041)
Observations	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728
R-squared	0.001	0.001	0.002	0.003	0.001	0.003	0.002	0.003
GRADE 6 SAMPLE								
ITT2015	-0.001	-0.000	0.002	0.018	-0.007**	-0.002	-0.011	0.004
	(0.001)	(0.002)	(0.022)	(0.027)	(0.001)	(0.002)	(0.012)	(0.024)
Observations	1,676	1,676	1,676	1,676	1,676	1,676	1,676	1,676
R-squared	0.001	0.001	0.002	0.002	0.004	0.002	0.003	0.001

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

H2.C: Parents' perceived feasibility of their own children accessing affordable higher education increases

IDT treatment effectively increases parents' perceived feasibility of their own children accessing affordable higher education. Parents' seem to update their beliefs about their education expectations for their children.

Table 72: IDT - Parents' perceived feasibility of their own children accessing affordable higher education increases in urban areas

	P: Update	P: Update Areg	P: Improve	P: Improve Areg	S: Update	S: Update Areg	S: Improve	S: Improve Areg
ALL SAMPLE								
Treat S	0.020	-0.249*	0.080*	0.096	0.116***	0.110***	0.069***	0.081***
	(0.048)	(0.128)	(0.041)	(0.110)	(0.010)	(0.029)	(0.008)	(0.023)
Treat P	0.091*	0.394***	0.000	0.013	-0.001	-0.004	0.005	0.004
	(0.048)	(0.124)	(0.041)	(0.106)	(0.013)	(0.014)	(0.010)	(0.011)
Observations	1,016	981	1,016	981	2,709	2,701	2,709	2,701
R-squared	0.058	0.476	0.044	0.455	0.061	0.237	0.037	0.221
GIRLS SAMPLE								
Treat S	0.002	-1.000***	0.055	0.000	0.118***	0.064	0.076***	0.037
	(0.058)	(0.240)	(0.047)	(0.164)	(0.014)	(0.048)	(0.012)	(0.040)
Treat P	0.083	1.000***	-0.000	0.000	-0.003	0.004	0.001	0.017
	(0.058)	(0.234)	(0.047)	(0.161)	(0.018)	(0.023)	(0.015)	(0.019)
Observations	496	479	496	479	1,319	1,316	1,319	1,316
R-squared	0.045	0.722	0.030	0.786	0.062	0.322	0.040	0.294
BOYS SAMPLE								
Treat S	0.035	-0.087	0.104	0.101	0.114***	0.120***	0.063***	0.101***
	(0.078)	(0.153)	(0.068)	(0.133)	(0.014)	(0.042)	(0.011)	(0.032)
Treat P	0.100	0.257*	-0.000	0.001	0.002	-0.002	0.009	-0.002
	(0.078)	(0.148)	(0.068)	(0.128)	(0.018)	(0.022)	(0.014)	(0.017)
Observations	520	502	520	502	1,390	1,385	1,390	1,385
R-squared	0.072	0.670	0.056	0.671	0.060	0.340	0.034	0.332

Note: Areg is the standard specification but absorbing by school fixed effects. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

H3: Intervention effectively reduces child labor

H3.A: Given that children worked outside of their household nonzero hours at baseline, children's work hours decrease at follow-up

Table 73: Children work hours decrease at follow-up

	(1) Weekly work hours ToT - IV	(2) Weekly help hours ToT - IV	(3) Weekly study hours ToT - IV
ALL SAMPLE			
Treat Kid	-1.637	-6.054	1.188
	(3.008)	(4.225)	(2.374)
Observations	2,541	2,617	2,617
R-squared			
GIRLS SAMPLE			
Treat Kid	-2.371	-6.077	1.497
	(4.679)	(6.128)	(3.536)
Observations	1,242	1,277	1,277
R-squared			
BOYS SAMPLE			
Treat Kid	0.293	-4.167	0.901
	(4.190)	(5.874)	(3.300)
Observations	1,299	1,340	1,340
R-squared			
GRADE 5 SAMPLE			
Treat Kid	0.709	-9.766	-0.564
	(3.930)	(6.586)	(3.466)
Observations	1,099	1,127	1,127
R-squared			
GRADE 6 SAMPLE			
Treat Kid	-3.782	-2.874	2.840
	(4.309)	(5.485)	(3.216)
Observations	1,442	1,490	1,490
R-squared			

H3.C: Children state they would rather not work if possible

Table 74: PP Intervention reduces voluntary hours of working in rural areas

	(1) Total VWH	(2) Total VWH (log)	(3) VWH | CW15=1	(4) VWH | CW15=1 (log)
ALL SAMPLE				
ITT2015	-1.707*	-0.981**	-0.111*	-0.070*
	(0.645)	(0.232)	(0.036)	(0.029)
Observations	3,404	3,404	3,404	3,404
R-squared	0.019	0.020	0.036	0.041
GIRLS SAMPLE				
ITT2015	-0.869	-0.327	-0.038	-0.033
	(0.683)	(0.450)	(0.035)	(0.050)
Observations	1,643	1,643	1,643	1,643
R-squared	0.016	0.017	0.030	0.038
BOYS SAMPLE				
ITT2015	-2.532**	-1.613**	-0.183**	-0.105**
	(0.526)	(0.288)	(0.040)	(0.021)
Observations	1,761	1,761	1,761	1,761
R-squared	0.025	0.024	0.044	0.047
GRADE 5 SAMPLE				
ITT2015	-1.808*	-2.039**	-0.134*	-0.155
	(0.613)	(0.551)	(0.045)	(0.071)
Observations	1,728	1,728	1,728	1,728
R-squared	0.026	0.025	0.049	0.050
GRADE 6 SAMPLE				
ITT2015	-1.812*	-0.066	-0.101**	0.002
	(0.745)	(0.073)	(0.030)	(0.023)
Observations	1,676	1,676	1,676	1,676
R-squared	0.017	0.019	0.027	0.037

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

H3.E: Treatment reduces prevalence of child labor

Table 75: PP Treatment reduces hours dedicated to household chores in urban areas

	(1) Chores 01_ALL	(2) Chores 01_ALL	(3) Chores 01_ALL	(4) Chores 01_ALL
ALL SAMPLE				
ITT2015	-0.293	-0.410		
	(0.338)	(0.347)		
Treatment			-0.703	-0.983
			(0.886)	(0.937)
Observations	28,736	28,736	28,736	28,736
GIRLS SAMPLE				
ITT2015	-0.650*	-0.771**		
	(0.300)	(0.331)		
Treatment			-1.620*	-1.921*
			(0.956)	(1.082)
Observations	14,494	14,494	14,494	14,494
BOYS SAMPLE				
ITT2015	0.046	-0.065		
	(0.377)	(0.363)		
Treatment			0.106	-0.151
			(0.860)	(0.847)
Observations	14,242	14,242	14,242	14,242
GRADE 1 SAMPLE				
ITT2015	-0.331	-0.412*		
	(0.193)	(0.209)		
Treatment			-0.630	-0.785*
			(0.432)	(0.460)
Observations	14,543	14,543	14,543	14,543
GRADE 2 SAMPLE				
ITT2015	0.046	-0.108		
	(0.509)	(0.508)		
Treatment			0.152	-0.359
			(1.691)	(1.721)
Observations	7,233	7,233	7,233	7,233
GRADE 3 SAMPLE				
ITT2015	-0.715	-0.816		
	(0.465)	(0.459)		

Treatment			-2.270	-2.595*
			(1.443)	(1.441)
Observations	6,960	6,960	6,960	6,960

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 76: PP Treatment reduces hours dedicated to household chores in rural areas

	(1) Household Chores 16 ITT - linear	(2) Household Chores 16 Control HC15 ITT - linear	(3) Household Chores 16 |HC15>0 ITT - linear
ALL SAMPLE			
ITT2015	0.016	-0.060	-0.653
	(1.110)	(0.969)	(1.444)
Observations	3,404	3,404	2,150
R-squared	0.002	0.006	0.005
GIRLS SAMPLE			
ITT2015	0.308	0.140	-1.298
	(2.530)	(2.265)	(2.995)
Observations	1,643	1,643	994
R-squared	0.002	0.009	0.007
BOYS SAMPLE			
ITT2015	-0.264	-0.280	0.057
	(0.850)	(0.910)	(0.753)
Observations	1,761	1,761	1,156
R-squared	0.004	0.006	0.006
GRADE 5 SAMPLE			
ITT2015	0.622	0.619	-0.812
	(0.808)	(0.781)	(0.975)
Observations	1,728	1,728	1,060
R-squared	0.002	0.002	0.003
GRADE 6 SAMPLE			
ITT2015	-0.763	-1.016	-0.685
	(1.593)	(1.200)	(2.019)
Observations	1,676	1,676	1,090
R-squared	0.005	0.017	0.014

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

H3: Hazardous work and dangerous activities

Table 77: IDT treatment effects on dangerous activities related to hazardous work in rural areas

	(1) Exposure to physical violence	(2) Exposure to Verbal violence	(3) Exposure to sexual violence	(4) Work/help under dangerous conditons	(5) Work/help using dangerous equipment	(6) Work/help in unhealthy environments	(7) Work/help long hours (more than 8h per day)
ALL SAMPLE							
Treat Kid	-0.087	-0.137	-0.188	-0.108	0.006	-0.038	-0.092
	(0.189)	(0.208)	(0.136)	(0.108)	(0.116)	(0.109)	(0.107)
Observations	1,635	1,637	1,635	2,567	2,567	2,567	2,567
R-squared							
GIRLS SAMPLE							
Treat Kid	-0.270	-0.268	-0.304	-0.161	-0.070	-0.171	-0.195
	(0.243)	(0.270)	(0.188)	(0.144)	(0.142)	(0.161)	(0.147)
Observations	808	809	808	1,262	1,262	1,262	1,262
R-squared							
BOYS SAMPLE							
Treat Kid	0.263	-0.109	-0.001	-0.161	0.037	0.145	-0.020
	(0.349)	(0.366)	(0.227)	(0.169)	(0.184)	(0.165)	(0.160)
Observations	827	828	827	1,305	1,305	1,305	1,305
R-squared							
GRADE 5 SAMPLE							
Treat Kid	-0.246	-0.341	-0.363	-0.088	-0.006	-0.086	-0.111
	(0.341)	(0.384)	(0.260)	(0.171)	(0.167)	(0.156)	(0.164)
Observations	677	677	677	1,117	1,117	1,117	1,117
R-squared							
GRADE 6 SAMPLE							
Treat Kid	0.016	-0.010	-0.074	-0.123	0.015	-0.002	-0.077
	(0.225)	(0.244)	(0.157)	(0.138)	(0.158)	(0.150)	(0.140)
Observations	958	960	958	1,450	1,450	1,450	1,450
R-squared							

H5: Students allocate more resources to human capital accumulation

H5.B: Students voluntarily dedicate less time to working

Using IDT information, we notice that the 2015 intervention reduces the number of hours dedicated to work activities by approximately 1 and a half hours, but this effect is not significant. When accounting for heterogeneities, we do not find significant effects across groups. However, the non-significant reducation of working hours for 6th graders is particularly important because child labor is highly associated with school dropout, specially for children transitioning from primary to secondary education. If students can spend more time in non-working activities, this would increase the likelihood that they spent their time at school.

Table 78: IDT treatment effects on students' voluntarily working hours in rural areas

	(1) Weekly WH ToT - IV	(2) Weekly WH ToT - IV	(3) Weekly WH ToT - IV	(4) Weekly WH ToT - IV	(4) Weekly WH ToT - IV
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
Treat Kid	-1.637	-2.371	0.293	0.709	-3.782
	(3.008)	(4.679)	(4.190)	(3.930)	(4.309)
Observations	2,541	1,242	1,299	1,099	1,442
R-squared					

H5.C: Students are less likely to voluntarily skip school

Table 79: Self-reported absent days in rural areas

	(1) Absent days ToT - IV	(2) Absent days ToT - IV	(3) Absent days ToT - IV	(4) Absent days ToT - IV	(5) Absent days ToT - IV
	ALL SAMPLE	GIRLS SAMPLE	BOYS SAMPLE	GRADE 5 SAMPLE	GRADE 6 SAMPLE
Treat Kid	-0.276	-0.303	-0.707	-0.631	-0.052
	(0.392)	(0.570)	(0.551)	(0.626)	(0.502)
Observations	2,307	1,131	1,176	993	1,314
R-squared					

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

H6: Parents allocate more resources to human capital accumulation

H6.F: Parents look for information on financing mechanisms for their children's higher education

Treatment has no significant effects on parents' willingness to look for information on financing mechanisms for their childrens' higher education.

Table 80: IDT - Parents look for information on financing mechanisms for their children's higher education in rural areas

	Parents Info Plans	Parents Info Plans Areg	Students Info Plans	Students Info Plans Areg
ALL SAMPLE				
Treat S	0.040	-0.350**	0.014	0.038
	(0.074)	(0.171)	(0.010)	(0.025)
Treat P	-0.046	0.183	-0.005	-0.014
	(0.074)	(0.159)	(0.012)	(0.014)
Observations	1,016	981	2,709	2,701
R-squared	0.001	0.414	0.001	0.206
GIRLS SAMPLE				
Treat S	-0.006	-0.257	0.017	0.031
	(0.082)	(0.169)	(0.014)	(0.030)
Treat P	0.001	-0.000	-0.001	-0.008
	(0.082)	(0.000)	(0.018)	(0.025)
Observations	496	479	1,319	1,316
R-squared	0.000	0.625	0.001	0.302
BOYS SAMPLE				
Treat S	0.096	-0.276	0.012	0.031
	(0.128)	(0.216)	(0.013)	(0.043)
Treat P	-0.103	0.212	-0.008	-0.018
	(0.128)	(0.218)	(0.018)	(0.021)
Observations	520	502	1,390	1,385
R-squared	0.002	0.614	0.001	0.333
GRADE 5 SAMPLE				
Treat S	-0.078***	-0.375	0.005	0.165
	(0.018)	(0.501)	(0.017)	(0.132)
Treat P	0.093***	0.333	0.005	0.001
	(0.019)	(0.444)	(0.021)	(0.027)
Observations	459	458	1,167	1,166
R-squared	0.001	0.637	0.000	0.312
GRADE 6 SAMPLE				
Treat S	-	-	0.021*	0.029
	-	-	(0.011)	(0.026)
Treat P	-0.026	-0.197*	-0.010	-0.021
	(0.026)	(0.101)	(0.015)	(0.016)
Observations	518	512	1,542	1,535
R-squared	0.002	0.526	0.002	0.236

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Areg is the standard specification but absorbing by school fixed effects. Treat S is an abbreviation for treatment applied to student, and Treat P is the abbreviation for parents.

Table 81: IDT: Child-labor decreases for treated Juntos-receiving households more than it would due to Juntos or the intervention independently[47].

	(1) Child labor ITT	(2) Child labor TOT-IV
JUNTOS SAMPLE		
ITT Student	-0.039	-0.198
	(0.024)	(0.135)
Observations	1,867	1,867
R-squared	0.262	
NON JUNTOS SAMPLE		
ITT Student	-0.007	-0.022
	(0.072)	(0.208)
Observations	728	728
R-squared	0.390	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 82: Plans for pursuing higher education in the future increase for treated students living in Juntos-receiving households.

	(1) Higher education ITT - linear	(2) Higher education TOT-IV
JUNTOS SAMPLE		
ITT2015	0.004	0.020
	(0.011)	(0.066)
Observations	1,875	1,875
R-squared	0.266	
NON JUNTOS SAMPLE		
ITT2015	0.037	0.128
	(0.036)	(0.088)
Observations	735	735
R-squared	0.513	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

[47] This estimation is also used to capture the effect of the hypothesis "The interaction between receiving Juntos at baseline and receiving the treatment is positive for child labor outcomes."

Figure 22: How do you see yourself in o twenty years and what kind of things do you see yourself doing? - Urban sample

Figure 23: What do you think of the school in general? – Urban Sample

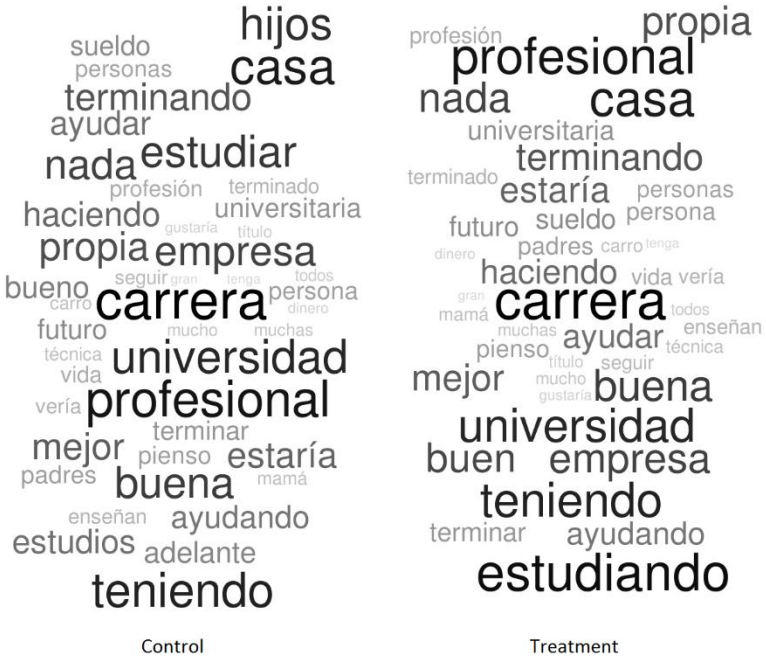


Figure 24: What do you think about education? – Urban Sample