

Conditional Cash Transfers Programs: Evidence from an Experiment in 2005, Bogota, Colombia

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“Despite the compelling evidence that primary education was a good social investment in most countries, social scientists observed that many families in developing countries choose not to send their children to school. This observation led researchers to [...] formulate possible explanations. One alternative was that families did not have access to primary schools—a supply problem. A second was that families were unaware of the payoffs to education—an information problem. A third was that families could not borrow the money at reasonable interest rates to pay the cost of schooling, costs that might include replacing the labor that the child provided at home—a problem of capital market failure.”

Richard Murnane & John Willett, *Methods Matter*

The problem

- School enrollment is increasing at rapid pace (Pritchett, 2013).
 - Governments in developing countries are implementing effective policies during the last three decades (J-PAL, 2017; World Bank, 2019).
 - However, several countries still have considerable proportions of school-age individuals not attending schools.
 - The heterogeneity of the student population is increasing
- Equally worrisome, levels of student achievement in many countries (as measured by standardized tests) are low (World Bank, 2017).

Policies aiming at reducing (direct and indirect) costs of education:
Conditional Cash Transfers and
Scholarships

Conditional Cash Transfers (CCT) programs

- Conditional Cash Transfers (CCT): a contract between society and (usually low-income) households. Society make a cash transfer; in exchange, the household invest in human capital (education and health)
 - CCT are one of the fastest growing social assistance programs in the developing world
- Large amount of research on the effects in the short run, mainly on outcomes such as enrollment, attendance and drop-out rates (Baird et al. 2013; Saavedra & Garcia 2012; Fiszbein & Schady 2009)
 - Strong evidence of positive effects on enrollment and schools progression
 - Mixed evidence on student achievement: Behrman, Sengupta, and Todd (2000) and Behrman, Parker, and Todd (2005)
- Limited evidence on the long-term educational effects of CCTs (Barham et al. 2013; Baez & Camacho 2011; Behrman et al. 2010)
 - However, some promising evidence of effects
 - Interesting, at the light of some nascent evidence of (lack) of effects of some initiatives/policies on test scores, but positive effects on long run outcomes

Insights on the Design of Conditional Cash Transfers

- A pilot program in Bogota in 2005, in which a team of researchers of Colombia and USA work with the local government on a CCT that varied conditionality and timing of the transfer.
- My paper (Barrera-Osorio et al. *American Economic Journal* 2011) presents short-run results between 2005 and 2006.
- We followed the experimental group in 2013 and 2016 (long-term results), using administrative data. (Barrera-Osorio et al. *American Economic Journal* 2019)
- My current work: sibling effects (in progress)

Bogota's CCT program

- The problem: large dropout rates in secondary education in 2004.
 - Enrollment at 17 years was 80 percent
 - Majority of dropouts (74 percent of them) were from low-income families
- Goal of the program:
 - Reduction in dropout rates among low-income families
 - Vary families' incentives for academic participation
 - Provide three treatments that incentivize different individual parts of the child's academic path
- A pilot was launched in 2005 using a Randomized-Control design with (Over) 13.000 students in two localities (Suba and San Cristobal)
 - The two experiments were based on an over-subscription model: the government secured resources for only 10.000 students
- Expansion in 2006 to the other localities of the city, covering more than 100.000 students.

Bogota's CCT program: three treatments

- **Basic Treatment**

- Students from low-income families received 30,000 pesos monthly (US\$ 15) for 80 percent attendance.
 - Over 3 times what students report earning on-average a month
 - Annual value of 300k is slightly more than the 250k families report spending on education
- Payment made bi-monthly through a debit card provided by a major national bank.

- **Savings Treatment: Varying timing of payments**

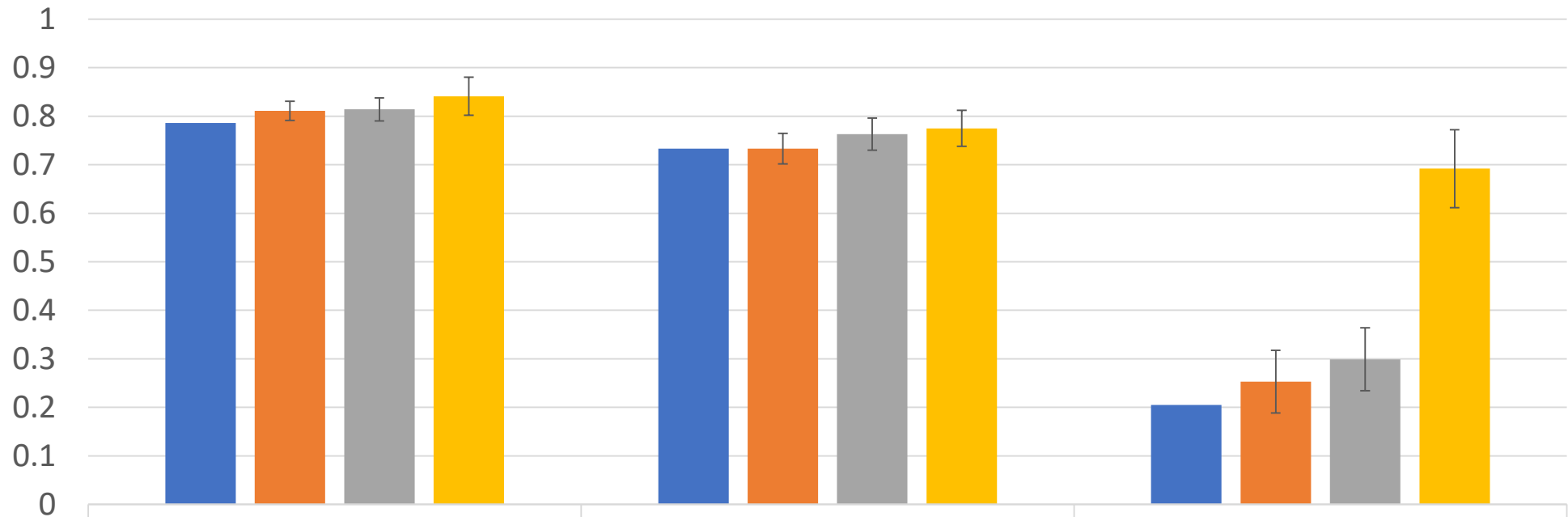
- Motivated by savings constraints that prevent paying enrollment costs
- Students receive 30,000 pesos a month for meeting the attendance target.
 - \$20,000 (US\$ 10) are paid on the bi-monthly basis.
 - \$10,000 are "banked".
 - \$10,000*10 (\$100,000) are paid in bulk in Jan.
- Hypothesized differences from Basic:
 - Lower attendance during year if short-term constraints bind
 - Expect higher rates of enrollment the following year if savings is a constraint

- **Tertiary Treatment: Varying incentive to graduate**

- Motivated by the relatively high cost of vocational enrollment
- Students receive \$20,000 (US\$ 10) a month.
- Upon graduation from secondary (grade 11) they become eligible for a \$600,000 pesos distribution.
 - Receive immediately if they document tertiary enrollment
 - Receive after 12 months without enrollment.
- Hypothesized differences from Basic:
 - Could see higher levels of participation prior to graduation
 - Higher levels of enrollment after graduation

Short-run effects

Bogota's CCT: Short-run effects



■ Control	0.786	0.733	0.205
■ Basic Treatment	0.811 **	0.733	0.253
■ Savings Treatment	0.814 **	0.763 *	0.299 ***
■ Tertiary Treatment	0.841 ***	0.775 **	0.692 ***

■ Control ■ Basic Treatment ■ Savings Treatment ■ Tertiary Treatment

Policy Implications

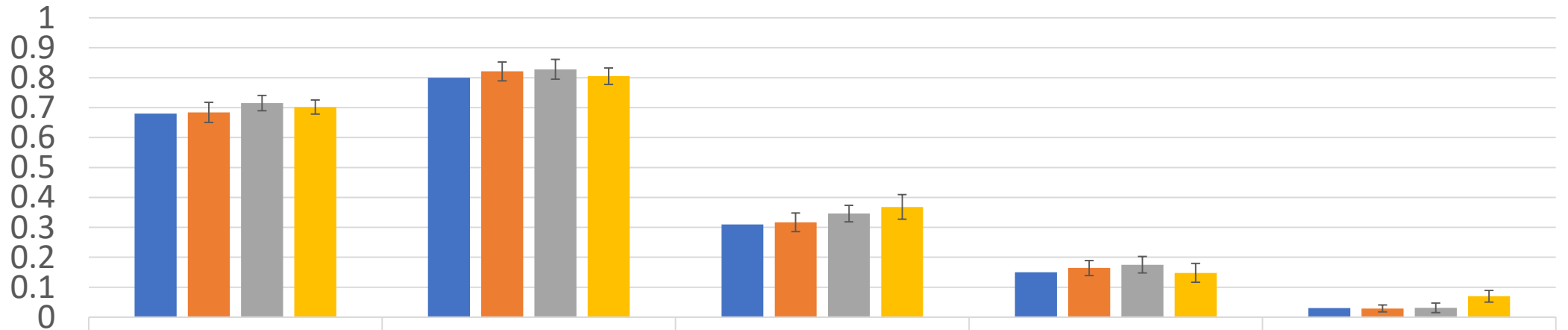
- All treatments increase attendance by 3 to 5 percentage points (base of 79)
 - Despite lower monthly transfers, the savings and tertiary treatments increase attendance similar as the basic treatment
- Postponing part of the transfer increases re-enrollment in grades 6-11 by 4 percentage points compared with no significant change for the basic treatment
 - The basic and the savings treatments are revenue neutral
- The savings treatment increases tertiary enrollment by 9.4 percentage points and the tertiary treatment increasing tertiary matriculation by 48.9 percentage points

Bogota's long-term effects

- Barrera-Osorio et al. (2019) follows the original experimental groups of 2005 and, by using various sources of administrative data, we conduct a medium-term assessment after eight years (medium-term) and after twelve years (long-term) of alternative payment structures on
 - students' continued secondary school enrollment,
 - completion of the high school exit exam,
 - tertiary education enrollment.
- We contribute to work on the effects of savings constraints on educational investments (Karlan and Linden 2014; Benhassine et al. 2013).
 - Mild savings commitments can improve educational outcomes.
- The effects of introducing revenue-neutral modification in the timing of transfers to a standard CCT design
 - Programs that could potentially provide a means of bypassing short-term liquidity constraints when paying enrollment expenses can be highly effective
- Thinking “conditionality” in a more dynamic way: “early conditionality” can induce later unconditional effects on desirable outcomes (more accumulation of human capital)

Long-term effects

Bogota's CCT: Long-run effects



	On-time secondary enrollment	Secondary graduation	Tertiary Enrollment	Enrollment University	Enrollment low-quality
Control	0.68	0.8	0.31	0.15	0.03
Basic Treatment	0.684	0.821	0.317	0.164	0.029
Savings Treatment	0.715 ***	0.828*	0.346 ***	0.175 **	0.031
Tertiary Treatment	0.702 **	0.805	0.368 ***	0.148	0.07***

■ Control
 ■ Basic Treatment
 ■ Savings Treatment
 ■ Tertiary Treatment

Policy Implications in the Long-run

- A revenue-neutral modification that commits families to save a portion of transfers induces students to enroll in tertiary education.
 - This contrasts with the standard CCT payment structure, which only seems to promote educational investments derived from compliance with transfer conditions.
- A third payment structure that heavily incentivizes tertiary enrollment is effective at encouraging students to enroll in tertiary institutions, but most of the increase is enrollment at lower quality schools.
- We strongly reject equality of the medium-term and long-term educational impacts of the basic and savings treatments.
 - This difference suggests that, at least among socioeconomically disadvantaged students in Bogota, savings constraints are a barrier to educational attainment.
- Since the savings treatment does not condition transfers on tertiary enrollment and students make tertiary enrollment decisions after they have stopped receiving transfers, impacts estimates on tertiary enrollment among this group cannot be explained by program's conditionalities.

My current work

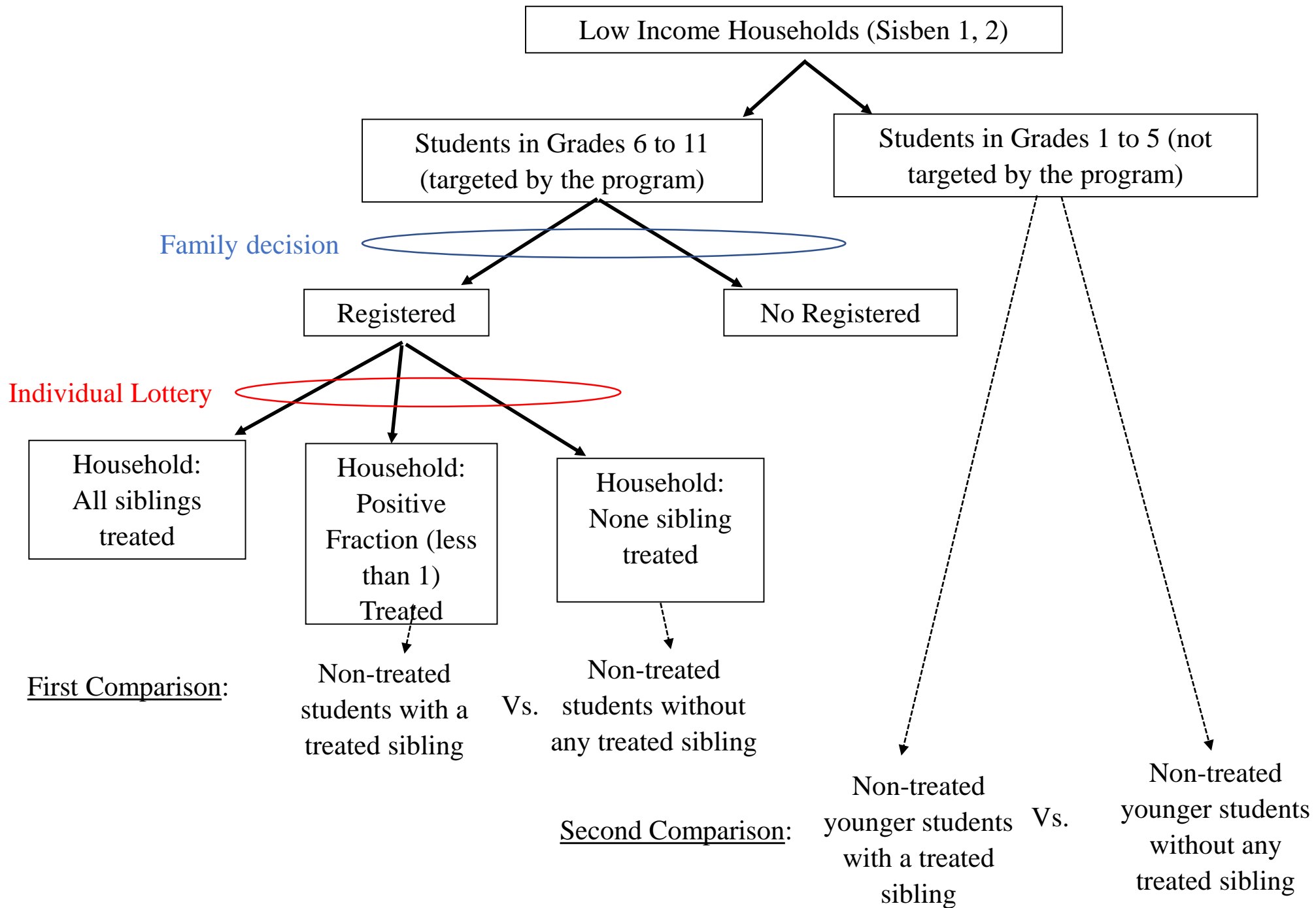
- To estimate the sibling effects (spillover effects in the household).
 - The experiment in Bogota randomized treatment *at the individual level* (in contrast to household level), creating exogenous variation on treatment status within households.
 - The main objective of this project is to estimate the effect on non-treated individuals of having a treated sibling in the household, in contrast to non-treated individuals without any treated member in the household.
 - We link the experimental sample (2005) to current and past administrative data (2005-2021) to study these effects in the long-term on education, labor, and asset/credit outcomes.
- Work with Leonardo Bonilla, Central Bank, Colombia; Matias Busso, IDB; Sebastian Galiani, U. of Maryland; Juan Muñoz, IESEG, France; Juan Pantano, Arizona U.

Spillover effects: potential mechanisms

- The accumulation of human capital of one sibling can trigger, in the short-run, accumulation of a non-beneficiary individual (Angelucci and DeGiorgi (2009) and Bobonis and Finan (2009)). Three main mechanisms
 1. The family as a whole is receiving more income and more consumption of all members of the household. → Pure income effect.
 - Prediction 1: non-treated individual with treated siblings will have better outcomes than non-treated individual without treated siblings
 - Prediction 2: the effects intensifies with number of treated individuals
 2. The conditionality may trigger a negative respond in accumulation of education from the non-beneficiary individual. It may be optimal for the household to increase labor duties (either remunerated or not) of the individual not receiving the transfer as a mechanism to protect the time of the beneficiary person → main mechanism: opportunity costs.
 - Prediction 1: non-treated individual with treated siblings will have worse outcomes than non-treated individual without treated siblings.
 - Prediction 2: this effect depends on the opportunity cost of the individual. As such, we predict differences by gender.

Research Questions

- (MAIN) What are the long-term effects of CCTs on non-beneficiary siblings with a family member receiving the transfer?
 - For siblings in the target age of the program (Grades 6-11): Are these sibling effects negative (labor effect dominating consumption and role-model effects) or positive (consumption plus role-model effects larger than labor effects)?
- Do these effects differ by gender of the student?



Main results: Targeted Sample (Grades 6-11 in 2005)

	SABER11	SPADIES	Graduated	PILA 2010
	(1)	(2)	(3)	(4)
Panel A: Sample 1				
T	-0.012 [0.016]	-0.029 [0.023]	-0.018 [0.013]	-0.034* [0.019]
Observations	2484	2484	2483	2473
Control mean	0.850	0.409	0.110	0.325
Control s.d.	0.357	0.492	0.313	0.469
Panel B: Sample 4				
T	-0.014* [0.008]	-0.042*** [0.010]	-0.002 [0.005]	-0.040*** [0.008]
Observations	13297	13297	13304	13274
Control mean	0.804	0.333	0.0840	0.285
Control s.d.	0.397	0.471	0.277	0.451

Thank you very much

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