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Building Dreams: the Impact of a Conditional  
Cash Transfer Program on Educational  
Aspirations in Colombia

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# Building Dreams: the Impact of a Conditional Cash Transfer Program on Educational Aspirations in Colombia<sup>Ψ</sup>

By Sandra García<sup>\*</sup>, Arturo Harker<sup>\*\*</sup>, Jorge Cuartas<sup>\*\*\*</sup>

## Abstract

*This paper analyzes the impact of a large scale conditional cash transfer (CCT) program on the educational aspirations of parents and children in poor households. The program, in addition to providing cash subsidies to the poorest households, delivered information about the returns to education and encouraged interaction between beneficiaries, social leaders, and professionals. Using data from the quasi-experimental impact evaluation of the program and a difference-in-differences strategy, we find a positive impact for the CCT on educational aspirations for both children and parents. Particularly, parents and children were 10.9 and 20.2 percentage points more likely to aspire to attain post-secondary education due to exposition to the program, respectively. Furthermore, we find that the effect was larger for the most vulnerable households: the poorest, least educated, and most pessimistic. Based on the results, we discuss policy implications that could boost long-term educational impacts of similar programs.*

**Key words:** Educational aspirations, Conditional Cash Transfer, Education

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## Resumen

Este artículo analiza el impacto de un programa de transferencias monetarias condicionadas (CCT, por sus siglas en inglés) en las aspiraciones educativas de padres y niños en hogares en situación de pobreza. El programa, además de otorgar una transferencia monetaria a los hogares más pobres, entregó información sobre los retornos de la educación y fomentó la interacción entre los beneficiarios con líderes sociales y profesionales. Utilizando información cuasi-experimental de la evaluación de impacto del programa y una estrategia de diferencias-en-diferencias, encontramos que el CCT tuvo un impacto positivo sobre las aspiraciones educativas de padres y niños. En particular, la exposición al programa incrementó la probabilidad de que padres y niños aspiraran alcanzar educación universitaria en 10.9 y 20.2 puntos porcentuales respectivamente. Sumado a esto, encontramos que el efecto fue mayor para los hogares más vulnerables: los más pobres, los menos educados y los más pesimistas. Con base en los resultados, discutimos implicaciones de política que pueden incrementar los impactos de largo plazo de programas similares.

**Palabras clave:** Aspiraciones educativas, transferencias monetarias condicionadas, educación

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## 1. Introduction

*By believing passionately in something that still does not exist, we create it. The nonexistent is whatever we have not sufficiently desired.*  
Franz Kafka

People living in poverty often underinvest in human capital, even when returns are high. For instance, poor households usually spend a small fraction of their incomes on their children's education (Banerjee & Duflo, 2007). Moreover, although the returns to early childhood education are exceptionally high (Heckman, 2006), weak parenting skills are common among the poorest households (Cuartas, Harker & Moya, 2016). Likewise, people living in poverty spend less on technologies for preventive health care for their children, such as vaccines, pesticide-treated bed nets, or chlorine to treat water, at the cost of millions of young lives (Liu et al., 2015).

Traditional explanations state that such behaviors are caused by systematic differences between poor and non-poor individuals (Lewis, 1966), or by the environment of poverty (Sachs, 2005). Nonetheless, recent evidence suggests that poverty leads to internal constraints that induce these behavioral patterns: people living in poverty are prone to stress and depression, pessimistic beliefs about the future, and low aspirations (Bernard et al., 2014; Haushofer & Fehr, 2014). This is especially relevant given that poverty might be both a cause and consequence of pessimistic expectations and low aspirations, which eventually constitute the root of a behavioral poverty trap (Cuartas & Moya, 2016; Dalton, Ghosal & Mani, 2014; Laajaj, 2013; Ray, 2006).

Particularly, in poor households, parents have low aspirations for their children's education<sup>1</sup>, and children aspire to low educational outcomes for themselves (Oketch, Mutisya & Sagwe, 2012; Sosu, 2014; Reed, 2012). Recent evidence suggests that three main channels can trigger low aspirations. First, psychological distress caused by liquidity constraints that are prominent among poor or low-income households. Second, a lack of information about the

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<sup>1</sup> Following Khattab (2015), we define educational aspirations as objectives or plans for the future, particularly the education level a person wishes to achieve.

returns to education and its positive social externalities, caused by low schooling. Poor and misinformed individuals could choose a lower level of education, given that they believe external constraints reduce the returns to their effort (Dalton et al., 2014; Guyon & Huillery, 2015). Third, exposure to disadvantaged environments, with few positive role models, can also be a source of low aspirations (Bernard et al., 2014; Duflo, 2012; Flouri, Tsivrikos, Akhtar & Midouhas, 2015; Jensen, 2010).

To the best of our knowledge, our study is the first to examine whether a large-scale Conditional Cash Transfer (CCT) program in a developing country increases both parents' and children's educational aspirations, using a quasi-experimental design. A CCT program can theoretically trigger higher aspirations through (i) relaxing budgetary constraints and psychological distress caused by material scarcity; (ii) delivering information about the returns to education and the pathways out of extreme poverty; and (iii) increasing the interaction of beneficiaries with local leaders and professionals.

The particular CCT we study –Colombian program *Familias en Acción* (FA)– was expected to increase education levels by conditioning cash transfers on children's school attendance. Previous impact evaluations have shown FA effectively increased the enrollment rate for children aged 14 to 17 by 5.6 percentage points (Attanasio et al., 2010). It also has been found that the program increased the probability of finishing high school in rural areas by 6 percentage points (Baez & Camacho, 2011), and had a positive effect on school achievement for children aged 7 to 12 living in rural areas (García & Hill, 2010). Nonetheless, it is not clear whether the program improved Colombia's educational outcomes via changing parent's and children's underlying preferences –particularly their educational aspirations– or via a direct channel of the conditions for receiving the cash subsidy.

Identifying whether the CCT increased educational aspirations is relevant for three reasons. First, educational aspirations are important, given their correlation with outcomes such as test scores, years of schooling, and the probability of applying to post-secondary education (Guyon & Huillery, 2015; Hoxby & Avery, 2013; Jencks *et al.*, 1983; Khattab, 2015). Second, if a CCT changes underlying preferences, we would expect education levels to

continue increasing, even if the program stops providing the cash subsidy. That is, if the program increases parents' and children's aspirations, it is likely that they would keep investing in human capital formation in the long run. Third, because aspirations are transmitted from generation to generation (Jodl et al., 2001), the CCT could help break behavioral poverty traps fueled by low aspirations.

Using a difference-in-differences methodology, we find that the FA program increased the likelihood that beneficiary parents and children in Colombia aspired to attain post-secondary education by 10.9 and 20.2 percentage points, respectively, at first follow-up. Additionally, we show that the impact was larger for the most vulnerable households: the poorest and least educated, and the most pessimistic children. The program also had larger effects on households with children in elementary school who had a sibling in secondary school, and on households with children aged seven or younger (who were eligible to be beneficiaries of a nutritional subsidy).

We contribute to the body of literature that aims to identify the determinants of aspirations, and whether the effects of social interventions on education outcomes are explained not only by relaxing external constraints, but also by fostering behavioral changes through affecting underlying preferences (i.e. internal constraints). Evidence from community-based interventions show that having role models in leadership positions at the local level, social interaction with successful leaders, or having information about stories of success from people from similar contexts have a direct impact on aspirations (Beaman et al., 2012; Bernard et al., 2014; Macours & Vakis, 2014). Furthermore, sponsorship programs that, in addition to the provision of a cash or in-kind transfer, foster communication between the sponsor and the beneficiaries have a positive effect on educational and labor market aspirations (Glewwe, Ross & Wydick, 2014).

We also contribute to a growing literature that focuses on other psychological and attitudinal changes triggered by CCT and Unconditional Cash Transfers (UCT). Related literature has studied, with quantitative and qualitative methods, the way in which UCT reduce psychological distress and depressive symptoms, and foster self-esteem, happiness, sense of



autonomy and control over life, hope, and general psychosocial well-being among adults and children (Attah et al., 2016; Baird, de Hoop, Özler, 2013; Kilburn et al., 2016; Haushofer & Shapiro, 2013; Samuels & Stavropoulou, 2016). To our knowledge, there are only two studies that examine directly the effects of CCT programs on aspirations. First, Chiapa, Garrido & Prina (2012) estimate the effect of Mexican CCT program, Progresá, on parental educational expectations of their children and find that the program increased aspirations by one third of a school year. Moreover, they find larger effects for households with young children, where visits to health clinics were mandatory. The authors claim that this heterogeneous effect is an indication of the positive effect of interaction with doctors and nurses. Second, Conteras (2014) estimates the effect of Colombian CCT, FA, in the long-run (10 years after the program started) and find no effect on parent's aspirations of their children's educational attainment. As we show later in the paper, some components of FA aimed at changing behavior, such as information and workshops, were changed or removed some years after the program started. Therefore, this paper contributes by estimating the effect of FA on both parents and children's educational aspirations in the short-run, where these components were still in place.

Finally, we contribute by analyzing, for the first time, the way the intensity or length of exposure to a CCT affects aspirations. Our findings show that once beneficiaries received the transfer, their aspirations started to increase, up to a point where the program impact fades. A possible explanation of this finding is that the intensity of the non-monetary component of the program (namely, detailed information about returns to schooling, workshops with the community to talk about schooling benefits and opportunities) also decreased over time. Qualitative information we collected through interviews with the program's implementation team suggests that it is the non-monetary component (and not the cash subsidy itself) that best explains increases in educational aspirations.

The remainder of the paper proceeds as follows: Section 2 describes the FA program and the theoretical mechanisms that explain the impact of a CCT on parents' and children's educational aspirations. Section 3 describes the data and summarizes the descriptive statistics. Section 4 describes the identification strategy and our econometric models. Section 5 presents the overall effect of the CCT on educational aspirations and explores the potential

heterogeneous treatment effects. The final section concludes and discusses policy implications.

## **2. *Familias en Acción* program**

FA is a CCT program aimed at promoting human capital accumulation and helping poor households escape extreme poverty in Colombia. FA's first phase began in 2000 and ended in 2006, when the original design changed in terms of the focus and content of the program. The original version of FA included a nutritional subsidy for households with children younger than seven years-old (conditioned on attendance to regular medical check-ups), and a monetary subsidy for households with children between 7 and 18 years-old (conditioned on regular school attendance). We focus our analysis on the latter group, given that the data regarding aspirations proceeds exclusively from beneficiaries of the conditional monetary subsidy.

The first phase of FA targeted municipalities with less than 100,000 inhabitants and with certain necessary conditions for program implementation: having updated databases to implement means testing to households, having a bank office to deliver the subsidies, and having appropriate health and educational infrastructure to be able to enforce the conditions. Within eligible municipalities, households were targeted based on family composition (having children younger than 18), and poverty status (belonging to the lowest level of SISBEN, the national socioeconomic targeting system).

Mothers selected as beneficiaries<sup>2</sup> for the monetary subsidy received bi-monthly transfers amounting to COP \$28.000 (approximately USD \$12.30<sup>3</sup>) per child enrolled in elementary education, and COP \$56.000 (approximately USD \$24.60) per child enrolled in secondary education<sup>4</sup>. The cash transfer represented 16% to 25% of households' monthly income, on

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<sup>2</sup> Mothers received the money, under the assumption that they are more prone than fathers to invest in food, health and education for their children (Acción Social & DNP, 2010).

<sup>3</sup> Amount in 2002: \$1 USD= \$2,275 COP.

<sup>4</sup> The Colombian school system is divided into five years of elementary education, followed by six years of secondary education.

average (Contreras, 2014). Beneficiaries received the monetary subsidy only if their child attended at least 80% of school classes.

In addition to the cash subsidy and attendance conditions, two particular features make the original version of the program important in terms of its potential impact on educational aspirations. First, in order to obtain the required physical proof of school attendance (in order to receive the payments), parents had to go to their children's school to get a certificate from the teachers. This meant that every two months parents met with their children's teachers and received information about their children's performance. Although it was not part of the design, in those meetings, parents received feedback from the teachers, related to children's performance and attitudes at school.

The second feature of FA's first phase that potentially affected educational aspirations were a series of strategies to promote investments in education among the poorest households. These strategies had a major component of delivering information to the beneficiaries, under the assumption that the poorest households were misinformed about the returns to education and educational opportunities –particularly to enroll in a post-secondary institution. One of the main components of FA was the *Encuentros de Cuidado* (Caregiving Meetings), whose main objective was to promote children's health and education by improving parents' investment choices. In those meetings, beneficiaries interacted with social leaders, and received printed materials containing information about the importance of education, health, and parenting. Among the materials provided, there were information booklets<sup>5</sup>, decks of informative cards, and a bi-monthly magazine with information about the program (Acción Social & DNP, 2010). Usually, a “lead mother”, elected by the beneficiaries, led the meetings and proposed a particular topic to discuss (e.g., the importance of playing, education, or health). Once the leader delivered the printed materials, the beneficiaries read them (or played

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<sup>5</sup> One of these booklets, called *Niños Vamos a Estudiar* (Children, let's study), discusses how education guarantees a better future (e.g., higher income) for children and parents, even in rural areas, where the knowledge children gain could serve to improve agricultural work.

with them) and discussed how to implement the lessons from these material in their own households.<sup>6</sup>

In addition, beneficiaries participated in the *Asambleas Municipales* (Municipal Assemblies), which were massive gatherings where beneficiaries joined in cultural, social, and recreational activities. Among these activities, mothers partook in *Espacios Familiares* (Family Spaces) and *Jornadas de Incentivos* (Incentive Activities), where they received training on dimensions related to their own and their offsprings' well-being. At these meetings, beneficiaries received talks from program staff and local leaders about the program, as well as the institutional health and education offerings, in order to foster the accumulation of human capital (Acción Social & DNP, 2010).

### **3. Theoretical mechanisms for the impact on educational aspirations**

At least three mechanisms explain how FA might have increased educational aspirations among beneficiaries in Colombia. First, the program delivered information about the returns to education, and the supply and cost of post-secondary educational opportunities. Providing information has been proven to be an important mechanism for promoting educational outcomes, as individuals often ignore the social and private returns to education, particularly for post-secondary education (Bonilla, Bottan & Ham, 2016; Jensen, 2010; Nguyen, 2008). Experimental evidence suggests that informing children and parents about the returns to education increases school attendance and performance on standardized tests, which potentially could be a cause and consequence of increased aspirations. Similarly, over-estimating the costs and sub-estimating the benefits of higher education may reduce the aspirations and incentives parents and children have for pursuing a professional career (Hastings, Neilson & Zimmerman, 2015). Additionally, a lack of information can narrow a household's choice set: the poor and misinformed may not even consider that it is possible to reach a better educational outcome. In particular, making the set of available options

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<sup>6</sup> Since a large proportion of beneficiaries were illiterate, a literate mother usually read the material for the entire group to discuss (Acción Social & DNP, 2010). In addition, beneficiaries and the lead mother discussed the mothers' doubts regarding their children education and other topics relevant to them (e.g., their own well-being, their children's health, parenting skills).

salient (i.e., delivering information about the possible pathways and returns to education) can be enough to close the aspiration gap between disadvantage and non-disadvantage students (Guyon & Huillery, 2015).

The second mechanism through which FA could potentially affect aspirations was the increased interaction with community leaders and teachers. People living in disadvantaged environments may have limited access to role models, fewer stories of success from peers, and a narrower set of options and opportunities to improve their socioeconomic situation (Ray, 2006). Households targeted by FA were living in extreme poverty, had low educational levels, and low access to health, educational, and cultural services.

Behavior and belief formation depend greatly on the behaviors and beliefs of others (Bandura, 1971). Particularly, aspirations develop in the social sphere, through the observation of similar or important others and the environment where the person lives (Ray, 2006). As mentioned above, the program increased beneficiaries' interaction with community leaders and professionals, and increased their exposure to positive role models and potentially expanded their information set. This is an important channel given that evidence from economics and cognitive sociology suggests that exposure to role models can increase aspirations (Beaman et al., 2012; Bernard, et al., 2014; Chiapa et al., 2012), and can augment the effects of social programs through behavioral changes in beneficiaries (Macours & Vakis, 2014).

Finally, the third mechanism is the relaxation of the household's liquidity constraints thanks to the monetary transfer the beneficiaries receive. Particularly, this income effect might reduce psychological distress or subjective feeling of scarcity. Recent evidence suggests humans have a limited set of mental resources (such as attention and motivation, among others), which are depleted easily by stressful situations such as living in poverty (Inzlicht & Schmeichel, 2012; Haushofer & Fehr, 2014). Besides, psychological distress or subjective feelings of scarcity change the allocation of those limited resources towards the source of scarcity (Schilbach, Schofield & Mullainathan, 2016). The consequence, then, is that people focus deeply where scarcity is salient, and in their immediate need, ignore other non-scarcity

related dimensions of their own lives, reducing their time-horizon, and even ignoring their future well-being (Laajaj, 2013; Schilbach et al., 2016). Given this, reducing liquidity constraints can set free mental resources that allow people to think about long term investments such as their children's education, and set higher goals for their own lives and their children's future.

## 4. Data

We use data collected specifically for the impact evaluation of FA, which used a quasi-experimental design. For political reasons, FA was not randomly assigned across municipalities. Therefore, the program evaluation team took a random sample of eligible municipalities and matched them to control municipalities based on characteristics such as population size and their score on a quality-of-life index (Gómez et al., 2004). Within each municipality, a random sample of eligible households was selected. Overall, evaluators selected 57 treatment and 65 control municipalities. Nonetheless, political pressures resulted in the program starting earlier in 26 municipalities, leaving just 31 treatment municipalities with uncontaminated baseline information. Given this, our sample considers 65 control municipalities and only 31 of the 57 treatment municipalities (those with baseline information).

We use the baseline (June 2002) and first follow-up (November 2003) surveys of the impact evaluation. The data includes socioeconomic and demographic characteristics of children, their households and the municipalities where they lived.<sup>7</sup> In particular, in both the baseline and first follow-up surveys children and parents were asked to state their educational aspirations, using the following question: *Which educational level would you like (or child's name) to attain?*<sup>8</sup> The respondents could answer (i) elementary education, (ii) secondary education, or (iii) post-secondary education. In total, 9,610 individuals who stated their

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<sup>7</sup> Some of the individual characteristics collected in the survey were children's age, gender, and education level; and household head's age, educational attainment, and income. The survey also has municipality characteristics, such as the number of financial, educational, and health institutions, and whether it is located in a rural or urban area.

<sup>8</sup> Note that this question inquires about aspirations (i.e., objectives and goals for the future), not for expectations (i.e., subjective assessment about the probability of future outcomes).

aspirations in both surveys compose our analytical sample: 8,656 parents, including 3,288 beneficiaries (treatment group) and 5,368 non-beneficiaries (control group); and 954 children, including 485 beneficiaries and 469 non-beneficiaries.

As mentioned earlier, for purposes of the impact evaluation, the treatment and control municipalities were purposely selected to be comparable. As Table 1 shows, there are consistently no significant differences between treatment and control municipalities, with the exception of the number of hospitals and public schools. Nonetheless, there are considerable differences in other individual –and household-level characteristics at baseline. On average, households in the treatment group have lower incomes and more children than those in the control group. Also, household heads are slightly older in the treatment group. Note that the households in our sample (for both treatment and control groups) are characterized by their low educational attainment: more than half of household heads had no education, and 43% had only reached primary education.

**Table 1.** Sample characteristics at baseline

Variable	Parents			Children		
	Treatment (T)	Control (C)	SE for difference (T-C)	Treatment (T)	Control (C)	SE for difference (T-C)
<b>A. Individual (N)</b>	3,288	5,368	8,656	485	469	954
Aspirations (elementary)	0.12	0.08	0.01***	0.11	0.10	0.02
Aspirations (secondary)	0.54	0.44	0.01***	0.49	0.37	0.03***
Aspirations (university)	0.33	0.47	0.01***	0.40	0.53	0.03***
Expectations (university)	0.14	0.11	0.01***	0.21	0.10	0.02***
Child age	10.84	10.99	0.06*	12.55	12.52	0.17
Child gender (=1 if male)	0.52	0.53	0.01	0.50	0.47	0.03
Household head age	43.77	44.84	0.31***	47.27	45.93	0.68*
Literate (=1)	0.93	0.91	0.01***	0.97	0.98	0.01
<b>B. Household (N)</b>	1,638	2,678	4,316	325	300	625
Income per capita (COP)	48,072	53,849	1,610***	49,411	53,160	3,204
Number of children	3.71	3.51	0.05***	3.81	3.96	0.14
Sex (female/total)	0.46	0.46	0.01	0.48	0.47	0.03
Household head education						
None	0.55	0.54	0.01	0.59	0.54	0.03

Elementary	0.43	0.43	0.01	0.39	0.44	0.03
Secondary	0.01	0.02	0.01**	0.01	0.02	0.01
<b>C. Municipality (N)</b>	31	65	96	30	47	77
Number of banks	1.74	1.09	0.47	1.73	1.19	0.49
Number of hospitals	0.94	0.66	0.10**	0.93	0.64	0.10**
Private education institutions						
Urban	3.84	3.28	1.74	3.73	4.4	2.03
Rural	0.13	1.03	0.56	0.07	1.06	0.62
Public education institutions						
Urban	6.94	6.78	1.69	7.03	8.04	1.95
Rural	38.29	25.53	5.80*	39.37	24.96	6.61*
Region						
Atlantic	0.32	0.28	0.10	0.33	0.34	0.11
Eastern	0.23	0.31	0.10	0.20	0.34	0.11
Central	0.32	0.30	0.10	0.33	0.28	0.11
Pacific	0.13	0.11	0.07	0.13	0.04	0.06

Notes:

1. Results reported: number of individuals, households and municipalities in treatment and control group; mean of treatment and control groups at baseline; and standard errors for difference between treatment and control group.

2. Results for analytical sample for estimation (excluding program dropouts at follow-up and missing values).

3. Monthly income per capita in 2002, with an average annual exchange rate of \$1 USD= \$2,275 COP.

4. \* Significant at 10%, \*\* Significant at 5%, \*\*\* Significant at 1%.

There are significant differences in our variable of interest: educational aspirations. Parents and children in the treatment group are less likely to aspire to enroll in higher education at baseline than those in the control group. This means that a raw comparison of aspiration between both groups will be biased (against FA) as it would be capturing differences before the implementation of the program. All this motivates the use of a methodology to isolate the effect of FA by controlling for pre-existing differences between treatment and control groups. Using a mean difference test, Table 2 shows that the proportion of parents and children who increased their aspirations between baseline and the first follow-up was actually larger in treatment municipalities<sup>9</sup>. On average, a larger proportion of parents and children experienced a gain in aspirations in the treatment group compared to the control group, suggesting a positive effect of the program, which we analyze further in detail.

<sup>9</sup> In the appendix, Tables A1 and A2 display the transition matrices for changes in aspirations before and after FA, for parents and children separately.



**Table 2.** Changes in aspirations between baseline and follow-up

	Parents			Children		
	Treatment	Control	SE for difference (T-C)	Treatment	Control	SE for difference (T-C)
Loss in aspirations <sup>a</sup>	0.16	0.22	0.01***	0.14	0.22	0.03***
No change in aspirations	0.64	0.61	0.01***	0.61	0.64	0.03
Gain in aspirations <sup>b</sup>	0.19	0.15	0.01***	0.24	0.13	0.03***
Observations	3,288	5,368	8,656	485	469	954

Notes:

1. Results reported: proportion of individuals in treatment and control groups whom: (i) decreased their aspirations (row 1); (ii) kept the same aspirations (row 2); and (iii) increased their aspirations (row 3); and difference between the two groups.

2. Results for analytical sample for estimation (excluding program dropouts at follow-up and missing values).

3. <sup>a</sup> Loss: aspirations changed from university at baseline to elementary or secondary at follow-up; <sup>b</sup> Gain: aspirations changed from elementary or secondary at baseline to university at follow-up.

4. \* Significant at 10%, \*\* Significant at 5%, \*\*\* Significant at 1%.

It is important to note that beneficiaries had different levels of exposure to the program. Table 3 presents a measure of program exposure using the number of cycles<sup>10</sup> that beneficiaries participated in before the follow-up survey. Evidently, there is important heterogeneity in the exposure to the program: while 5.3% of households were exposed to 2 or 3 cycles, 41.4% were exposed for 6 to 7 cycles. We exploit this variation to estimate the heterogeneous effects according to program exposure.

**Table 3.** FA exposure, first follow-up

Number of cycles	Number of beneficiaries	Percentage of beneficiaries
0 - 1	58	1.9%
2 - 3	158	5.2%
4 - 5	452	14.8%
6 - 7	1,282	42.0%
8 - 9	1,102	36.1%
Total	3,052	100%

Notes:

1. Results reported: Number of individuals per cycle and total.

2. Results for analytical sample for estimation (excluding program dropouts at follow-up and missing values).

<sup>10</sup> A cycle is the time elapsed between official verification of the conditionality and monetary subsidy payments. A cycle usually lasted 2 months.

## 5. Identification strategy

FA was not randomly assigned. Although considerable effort was made to select control municipalities as similar as possible to treatment municipalities, there are systematic differences between beneficiaries and non-beneficiaries, particularly in our variable of interest: educational aspirations. In addition, there may be differences in unobserved characteristics between treatment and control groups. Note that we have a classic omitted variable bias problem. Nonetheless, having baseline data allows us to identify FA effect on educational aspirations using a difference-in-differences (DD) methodology. DD controls for pre-existing differences that do not change over time, subtracting the average gain in the variable of interest (between baseline and follow-up) in the control group from the average gain in treated individuals (Imbens & Wooldridge, 2007).

Equation 1 presents our basic DD model to estimate the overall effect of FA on educational aspirations. In this equation, there are three key indicator variables:  $Aspiration_{i,t}$  equals one if individual  $i$  in period  $t$  aspires (or aspires his/her child) to attain post-secondary education;  $FA_i$  equals one if individual  $i$  was a beneficiary of FA; and  $T_t$  equals one when  $t$  is the follow-up period. This specification allows us to identify time-invariant characteristics of treated individuals ( $\alpha_1$ ) and time-series changes in educational aspirations ( $\alpha_2$ ). Our coefficient of interest is  $\alpha_3$ , which estimates the average impact of FA on an individual's (parent or child) educational aspirations.

$$Aspiration_{i,t} = \alpha_0 + \alpha_1 FA_i + \alpha_2 T_t + \alpha_3 FA_i * T_t + X_{i,t}\beta + H_{i,t}\gamma + C_{i,t}\theta + \varepsilon_i \quad (1)$$

A positive and statistically significant estimate of  $\alpha_3$  implies the program increased parents' and children's educational aspirations. To improve estimator efficiency, we include a vectors of individual ( $X_{i,t}$ ), household ( $H_{i,t}$ ), and municipality ( $C_{i,t}$ ) level control variables. Particularly, we include child age, sex, and birth order, household head age, education level, a binary variable that equals one if literate, and educational expectations at baseline. We also consider household monthly per capita income quintiles, number of children, the gender composition of children in the household (female/total), region fixed effects, urban-rural

indicator variables, number of banks in the municipality, and number of schools in urban and rural areas.

Additionally, to identify whether FA effects varied across sub-populations (i.e., heterogeneous treatment effects), we use a triple difference, or difference-in-difference-in-differences (DDD) estimation (Imbens & Wooldridge, 2007). Equation 2 presents the DDD basic model, where  $A_i$  is a generic variable that defines the sub-population to analyze (for example, rural vs. urban). Note that this estimation allows us to identify time-invariant characteristics of subjects in the sub-population of interest ( $\alpha_3$ ), the overall effect of the program on aspirations ( $\alpha_4$ ), time-invariant characteristics of the sub-population of interest ( $\alpha_5$ ), and changes over time for the sub-population of interest ( $\alpha_6$ ). In this model,  $\alpha_7$  captures heterogeneous treatment effects for the sub-population of interest. We use this model specification to test whether the FA impact was differentiated by (i) income, (ii) household composition (particularly if there were children in secondary school or children younger than five), (iii) household head's education, (iv), educational expectations at baseline and (v) geographic location (urban versus rural areas).

$$\begin{aligned} \text{Aspiration}_{i,t} = & \alpha_0 + \alpha_1 FA_i + \alpha_2 T_t + \alpha_3 A_i + \alpha_4 FA_i * T_t + \alpha_5 FA_i * A_i + \alpha_6 T_t \\ & * A_i + \alpha_7 FA_i * T_t * A_i + X_{i,t}\beta + H_{i,t}\gamma + C_{i,t}\theta + \varepsilon_i \end{aligned} \quad (2)$$

Lastly, in order to assess the existence of differential effects by level of exposure to the program, we estimate a system of five equations to identify the effect of the length of exposure to the program on educational aspirations. Particularly, we estimate Equation 3, where E1 is a binary variable that identifies treated individuals in the first category of cycles (i.e., those who have participated in 0 to 1 cycles at follow-up). We estimate four analogous equations, one for each of the categories of cycles: E2 (2 to 3 cycles), E3 (4 to 5 cycles), E4 (6 to 7 cycles), and E5 (8 to 10 cycles). This specification allows us to test whether parents who were exposed to more program cycles had a larger gain in aspirations than parents who were exposed to fewer cycles.

$$\text{Aspiration}_{i,t} = \alpha_0 + \alpha_1 E1_i + \alpha_2 T_t + \alpha_3 E1_i * T_t + X_{i,t}\beta + H_{i,t}\gamma + C_{i,t}\theta + \varepsilon_i \quad (3)$$

## 6. Results

Table 4 presents our main results. It is the only table where we report the coefficients for the control variables. Columns 1, 2, and 3 show results for parents and Columns 4, 5, and 6 for children. Columns 1 and 4 present results for the overall effect of the program, without including control variables. Columns 2 and 5 include individual-level control variables, and Columns 3 and 6 include municipality characteristics.

**Table 4.** Difference-in-difference regression on aspiration to attain post-secondary education: overall program effect

Variables	Parents			Children		
	(1)	(2)	(3)	(4)	(5)	(6)
FA (=1 if treated)	-0.136*** (0.011)	-0.144*** (0.010)	-0.112*** (0.010)	-0.135*** (0.032)	-0.187*** (0.029)	-0.154*** (0.031)
T (=1 if Follow-up)	-0.075*** (0.008)	-0.084*** (0.009)	-0.085*** (0.009)	-0.092*** (0.027)	-0.109*** (0.028)	-0.110*** (0.028)
FA * T	0.110*** (0.013)	0.109*** (0.013)	0.109*** (0.013)	0.201*** (0.039)	0.201*** (0.039)	0.202*** (0.039)
Child age		0.004*** (0.001)	0.005*** (0.001)		0.021*** (0.005)	0.019*** (0.005)
Child sex (=1 if male)		-0.070*** (0.008)	-0.072*** (0.008)		-0.082*** (0.024)	-0.089*** (0.023)
Child order		0.004 (0.003)	0.002 (0.003)		0.009 (0.011)	0.005 (0.011)
Household head age		-0.001** (0.000)	-0.001*** (0.000)		-0.001 (0.001)	-0.001 (0.001)
HH educ: at least elementary (=1)		0.090*** (0.012)	0.074*** (0.012)		0.205*** (0.055)	0.220*** (0.053)
HH literate (=1)		-0.010*** (0.004)	-0.012*** (0.004)		0.013 (0.011)	0.006 (0.011)
Expectations (Secondary educ)		0.209*** (0.008)	0.176*** (0.008)		0.301*** (0.026)	0.239*** (0.029)
Expectations (Superior educ)		0.444*** (0.012)	0.394*** (0.013)		0.525*** (0.036)	0.401*** (0.039)
Q1 - Income per capita		-0.108*** (0.012)	-0.084*** (0.012)		-0.055* (0.033)	-0.035 (0.033)
Q2 - Income per capita		-0.078*** (0.012)	-0.062*** (0.012)		-0.055* (0.033)	-0.041 (0.034)
Q3 - Income per capita		-0.066*** (0.012)	-0.056*** (0.012)		-0.034 (0.034)	-0.027 (0.034)
Q4 - Income per capita		-0.047*** (0.012)	-0.042*** (0.012)		-0.036 (0.033)	-0.030 (0.033)
Total children		-0.020*** (0.002)	-0.017*** (0.002)		-0.009 (0.008)	-0.009 (0.007)
Sex proportion (female/total)		-0.011 (0.010)	-0.013 (0.010)		0.059** (0.030)	0.032 (0.029)
Region: Atlántico (=1)			0.023** (0.011)			0.128*** (0.033)
Region: Pacífica (=1)			-0.046*** (0.012)			-0.054 (0.048)
Region: Oriental (=1)			0.089*** (0.011)			0.026 (0.034)
Urban			0.095***			0.082***

			(0.009)			(0.030)
Rural			-0.004			-0.059
			(0.013)			(0.044)
Number of banks			-0.009***			-0.006
			(0.003)			(0.010)
Urban educ. Institutions			0.001***			0.002*
			(0.000)			(0.001)
Rural educ. Institutions			-0.001***			-0.000
			(0.000)			(0.000)
Observations	17,312	17,312	17,312	1,908	1,908	1,908
Number of individuals	8,656	8,656	8,656	954	954	954
R-squared	0.01	0.13	0.15	0.01	0.17	0.19

Notes:

1. Results from Ordinary Least Squares (OLS) estimation. Columns 1, 2, and 3 for parents' aspirations, columns 4, 5, and 6 for children aspirations.

2. \* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.

3. Robust standard errors in parentheses.

Before analyzing the impact of FA on parents' and children's educational aspirations, we discuss some results related to the control variables, which are useful when analyzing heterogeneous treatment effects. First, when the household head has no education, parents and children are less likely to aspire to attain university education. Second, expectations correlate with aspirations: subjects with fewer prospects for reaching post-secondary education are less likely to aspire it. Third, as expected according to the theoretical framework, as household income decreases, the likelihood of aspiring to a post-secondary education is lower. Finally, aspirations are lower in rural areas.

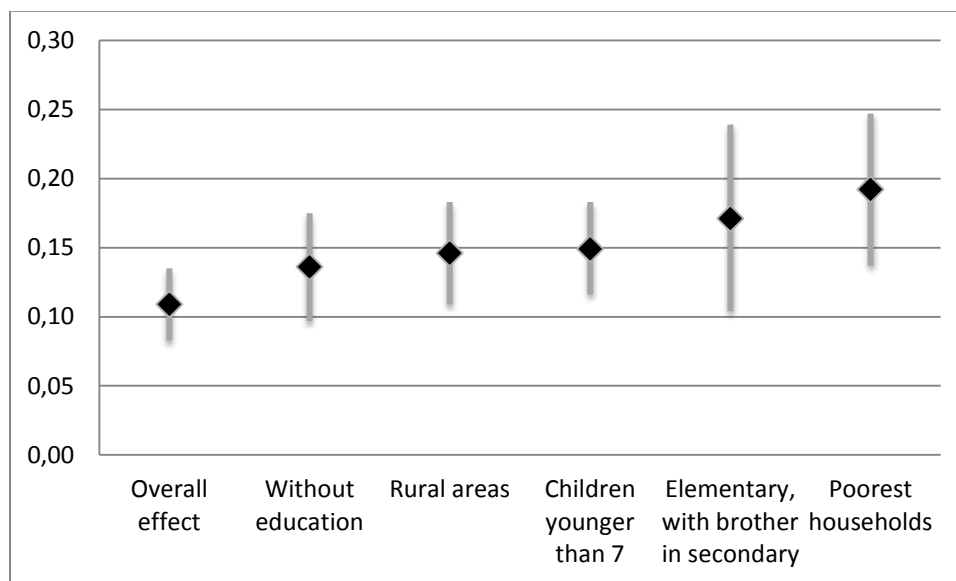
Turning to the effect of the program, we find that FA has a positive overall effect on educational aspirations, both for parents and children. Particularly, the program increased the likelihood that parents aspired for their children to attain post-secondary education by 10.9 percentage points, and increased by 20.2 percentage points the likelihood that children aspired to reach university. Note that these results are robust to the inclusion of individual- and municipal-level control variables.

### ***6.1 Heterogeneous treatment effects***

Given the program's objectives, it is desirable that the FA had a larger effect on the most vulnerable population in terms of income, education, and aspirations. We find evidence for the existence of several heterogeneous effects for parents, but not for children. Figure 1 summarizes the estimated impact of coefficients using different DDD model specifications,

only for the parents' sample.<sup>11</sup> We present the regressions' results for the variables of interest in the appendix (Table A3 to Table A8).

**Figure 1:** Overall and heterogeneous treatment effects for parents



Notes:

1. Estimated coefficients after Ordinary Least Squares (OLS) estimation. We present OLS results in the appendix.

As mentioned above, the program's overall effect on parents' aspirations for their children to obtain a post-secondary education was 10.9 percentage points. We find evidence suggesting the effect was 13.7 percentage points (2.8 percentage points larger) for parents without education (Table A3). In addition, the effect was larger in rural areas by almost three percentage points (Table A4). These results are important given that, as shown in Table 4, non-educated parents, and parents living in rural areas had lower aspirations at baseline.

In addition, the program effect was 3.9 percentage points larger for parents who had at least one child younger than seven (Table A5). One possible explanation is that households with children younger than seven were eligible for a nutritional subsidy, which was conditioned on the child's regular attendance to medical check-ups. In fact, parents in treated municipalities were 30 to 50 percentage points more likely to attend medical check-ups for their children (DNP, 2006). This result could suggest that the parents who received a cash

<sup>11</sup> In Figure 1, the coefficient is not statistically significant if the confidence interval includes the zero.

transfer and were exposed to health professionals (at the medical check-ups), may have benefitted from this regular contact with these particular role models who have high education levels. Our results are consistent with findings by Chiapa et al. (2012) for *Progresa* in Mexico, a CCT program similar to FA, which had a nutritional subsidy for households with children younger than five.

Moreover, the program increased the likelihood a parent aspired for his/her child in primary school to reach higher education by 17.1 percentage points (6.2 percentage points larger) if he/she had another child enrolled in secondary education (Table A6). This result has two possible explanations. First, as mentioned above, the cash subsidy was nearly twice as much for students in secondary school, compared to primary school. Thus, a household with one child in secondary and another in primary school could increase their aspirations for their youngest child because the parents are taking into account the fact that once the child reaches secondary school, they would receive a larger monetary transfer. Second, the mere fact of observing the older child reaching secondary education could fuel the parent's aspiration for their child in elementary school.

The program effect was also larger for the poorest households: FA increased the likelihood that parents aspired for their children to reach higher education by 18.9 percentage points, that is, the effect was eight percentage points larger than it was in less poor households (Table A7). This result is important when taking into account that the literature has identified that the poorest parents usually have low aspirations regarding their children's education. However, it is important to remember that FA beneficiaries are people living in extreme poverty. Hence, our result suggests that the effect on educational aspirations was larger for the poorest of the poor in Colombia.

We also estimated heterogeneous effects of FA on children's aspirations (see Tables A3-A8). We find that the program had a larger effect on the aspirations of the most pessimistic children, who believed at baseline that they could only reach elementary education (Table A8). In contrast to heterogeneous effects found on parental aspirations, we did not find

differential effects of FA on children’s aspirations by household socioeconomic characteristics.

## 6.2 Intensity of exposure

As mentioned earlier, exposure to the program varied across beneficiaries. Therefore, the impacts reported so far might mask differential effects depending on the intensity of treatment. This is important because longer-lasting effects on aspirations can improve the cost-effectiveness of the intervention. Table 5 and Figure 2 present results from the estimation of Equation 3 for five different levels of exposure, defined by the observed quintiles in the cycle count distribution. We find two main results. First, the effects of fa on aspirations do not disappear over time: beneficiaries who received the most number of transfers (top quintile) increased their aspirations for higher education by 12.5 percentage points, compared to 6.3 percentage points for those beneficiaries in the first quintile. Second, there is an increase in the impact for the second (15.7 percentage points ) and third quintiles (25.2 percentage points), and then the effect size decreases to 14.9 percentage points and 12.5 percentage points to fourth and fifth quintiles, respectively.

**Table 5:** FA and aspirations – length of exposure measured by number of cycles

Variables	(1)	(2)	(3)	(4)	(5)
E1 (between 0 and 1 cycles)	-0.154** (0.0769)				
T (=1 if Follow-up)	-0.0858*** (0.00843)	-0.0854*** (0.00843)	-0.0849*** (0.00842)	-0.0863*** (0.00839)	-0.0853*** (0.00840)
E1 * T	0.0632 (0.0959)				
E2 (between 2 and 3 cycles)		-0.0874* (0.0503)			
E2* T		0.157** (0.0719)			
E3 (between 4 and 5 cycles)			-0.229*** (0.0268)		
E3* T			0.252*** (0.0367)		
E4 (between 6 and 7 cycles)				-0.182*** (0.0170)	
E4* T				0.149*** (0.0221)	
E5 (between 8 and 10 cycles)					-0.106*** (0.0211)
E5* T					0.125*** (0.0271)

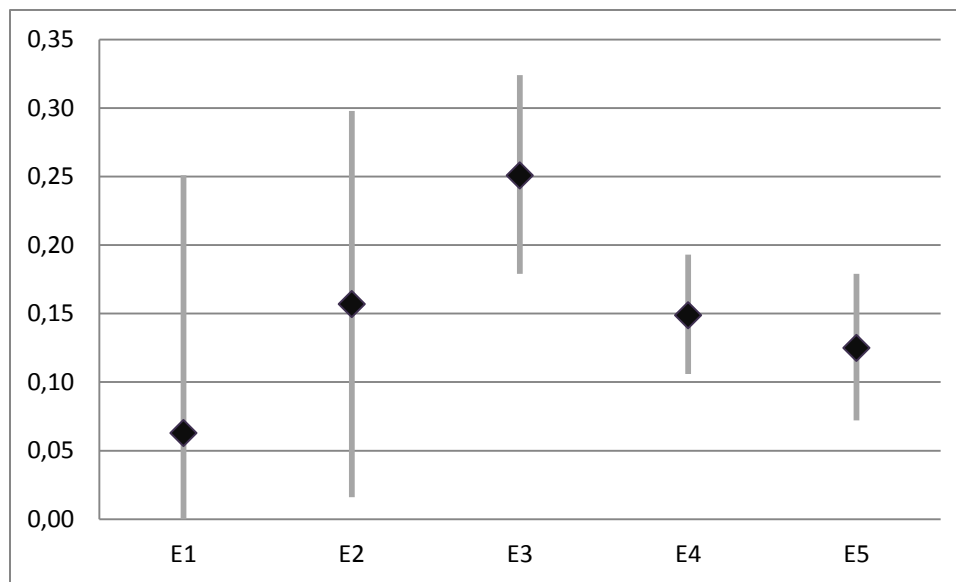


Individual characteristics <sup>a</sup>	Yes	Yes	Yes	Yes	Yes
Household characteristics <sup>b</sup>	Yes	Yes	Yes	Yes	Yes
Municipality characteristics <sup>c</sup>	Yes	Yes	Yes	Yes	Yes
Observations	11,732	11,832	12,126	12,956	12,776

Notes:

1. Results from Ordinary Least Squares (OLS) estimation.
2. \* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.
3. Robust standard errors in parentheses.
4. a, b, c: All the control variables in Table 4 are included but not reported.

**Figure 2:** Aspirations and length of exposure, measured by the number of cycles



Notes:

1. Estimated coefficients from Ordinary Least Squares (OLS) estimation. We present OLS results in Table 5.
2. E1 refers to exposition between 0 and 1 cycles, E2 between 2 and 3 cycles, E3 between 4 and 5 cycles, E4 between 6 and 7 cycles, and E5 between 8 and 10 cycles.

One possible explanation for the differentiated intensity of exposure results is that the effect of FA on aspirations may be happening through two main channels that have different effects over time. The first is the information and motivation channel, which included delivery of printed materials and workshops that explicitly aim at increasing parents' awareness about the relevance of education investments. Second, the interaction with professionals at schools and health institutions, as well as interactions with other parents who are investing more in education. Information provided by FA program staff indicates that the provision of printed materials and workshops had lower intensity in later stages of the program. This can explain the partial fading of the program's effect.

## **7. Conclusions and policy implications**

CCTs are one of the most common social assistance programs in developing countries. The large-scale implementation of this kind of intervention was aimed not only at short-term improvements in wellbeing of households living in extreme poverty, but also at breaking the intergenerational transmission of poverty by fostering human capital accumulation (Fiszbein et al., 2009). A relatively large body of evidence suggests that, while CCTs have achieved an increase in school enrollment and attendance, there is no evidence about the impact on student learning –which is a closer measure of human capital accumulation. One possible explanation for this bleak finding is that these programs are not having a permanent impact on parents and children’s preferences and beliefs towards education. Given that these structural factors are a key driver of choices and long-term investments, we can expect that, without any shift in preferences, in the absence of the CCT households would not continue on an optimal human capital accumulation trend.

Our study focuses on the effects of a large-scale CCT program that in its design and implementation had several features that aimed to change parental and student attitudes and beliefs towards education. In particular, we measure the average impact of the original version of FA on parents and children’s aspirations for attaining post-secondary education. Results show that the program had a positive impact on the aspirations of both parents and children. On average, parents increased their aspirations for their children to attend higher education by 10.9 percentage points, and increased students’ own aspirations by 20.2 percentage points. These effects amount to 27% and 61%, respectively, compared to baseline levels. We also find that the impact of this CCT was significantly larger among the most vulnerable households: those who are poorest, with children younger than seven, and with an uneducated head of household. In addition, effects were larger in households with children in both primary and secondary school.

These findings provide new and relevant evidence on the large potential impacts that innovative designs of CCTs could have. Specifically, the evidence provided suggests that it is worth exploring program designs that go beyond cash subsidies and traditional conditions by incorporating mechanisms to shift the preferences and beliefs of parents and children towards

education. The design of the first phase of FA included mechanisms explicitly aimed at increasing parental awareness on the importance of education. However, for logistical reasons, the information delivery components of the program (printed materials and workshops) were discontinued in subsequent phases. Thus, a recommendation that follows is that the effectiveness of CCTs can be magnified by adding to the cash subsidy activities aimed directly at modifying parental beliefs on the benefits of education.

Even if it is impossible for us to empirically disentangle the importance of the mechanisms behind the effects on aspirations (information delivery, frequent interaction with role models and monetary transfers), anecdotal evidence supports the importance of all of these mechanisms. One beneficiary made the following statement: *“Thanks to the subsidies my girls now have other opportunities. We have learned that, when they turn 18 there are ways to continue studying in a university and we now know how they can enroll there”* (Acción Social, 2010, p. 461); *“Subsidies by themselves won’t help us escape poverty, because most of us just spend them and then wait another two months for the next payment. If we don’t do things differently we won’t escape poverty, we have to help ourselves. But this [FA] does help our children have other opportunities, for instance one day getting enrolled in a university”* (Accion Social, 2010, p. 469). Similarly, an FA staff member explains *“the program helped families to move from worrying about having enough to eat today, to thinking about what they want their children to be in the future... the program encouraged families to believe and dream again”*.<sup>12</sup>

Notwithstanding the positive effects on aspirations, it is important to note that higher education systems in developing countries are still inaccessible to most low-income students. This is mainly due to two factors: low academic achievement (that prevents disadvantaged students from obtaining sufficient scores on standardized entry exams) and inability to pay (which reduces the accessible supply of universities to public institutions). Therefore, increasing aspirations is not enough to increase access to higher education. An integrated effort to invest in both supply- and demand-side factors is needed.

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<sup>12</sup> We gathered this statement at one of the several meetings we had with the government staff that operated the first phase of FA. The translation is ours.

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## 9. Appendix

**Table A1.** Markov transition matrix for changes in aspirations after FA (parents)

A. Treatment		After FA			
		Elementary	Secondary	University	N
Before FA	Elementary	38.06%	49.17%	12.78%	360
	Secondary	9.42%	56.76%	33.82%	1,730
	University	2.67%	45.13%	52.21%	1,088
B. Control		After FA			
		Elementary	Secondary	University	N
Before FA	Elementary	28.42%	57.63%	13.95%	380
	Secondary	7.24%	59.38%	33.38%	2,319
	University	2.97%	45.48%	51.55%	2,491

Notes:

1. Results reported in columns 3-5: percentage of parents who aspired elementary, secondary or superior education at baseline (rows) who then aspired to elementary, secondary or superior education in follow-up (columns).
2. Results reported in column 6: number of individuals who aspired to each educational level at baseline.
3. Results for analytical sample for estimation (excluding program dropouts at follow-up and missing values).
4. Panel A: Aspirations transition matrix for treated individuals. Panel B: Aspirations transition matrix for the control group.

**Table A2.** Markov transition matrix for changes in aspirations after FA (children)

A. Treatment		After FA			
		Elementary	Secondary	University	N
Before FA	Elementary	16.67%	62.50%	20.83%	48
	Secondary	4.00%	48.89%	47.11%	225
	University	2.65%	32.80%	64.55%	189
B. Control		After FA			
		Elementary	Secondary	University	N
Before FA	Elementary	23.40%	70.21%	6.38%	47
	Secondary	6.55%	58.33%	35.12%	168
	University	2.06%	39.92%	58.02%	243

Notes:

1. Results reported in Columns 3-5: percentage of children who aspired to elementary, secondary or higher education at baseline (rows) who then aspired to elementary, secondary or superior education in follow-up (columns).
2. Results reported in Column 6: number of individuals who aspired each educational level at baseline.
3. Results for analytical sample for estimation (excluding program dropouts at follow-up and missing values).
4. Panel A: Aspirations transition matrix for treated individuals. Panel B: Aspirations transition matrix for the control group.

**Table A3.** FA and educational aspirations - heterogeneous effects by household head education level

Variables	Parents	Children
FA (=1 if treated)	-0.101*** (0.016)	-0.114** (0.047)
T (1=Follow-up )	-0.097*** (0.012)	-0.097** (0.040)
FA * T	0.085*** (0.019)	0.166*** (0.056)
HH educ: without education	-0.039***	0.041



	(0.013)	(0.042)
FA* T * without education	0.052*	0.053
	(0.028)	(0.080)
Individual characteristics <sup>a</sup>	Yes	Yes
Household characteristics <sup>b</sup>	Yes	Yes
Municipality characteristics <sup>c</sup>	Yes	Yes
Observations	17,312	1,908

Notes:

1. Results from Ordinary Least Squares (OLS) estimation.
2. \* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.
3. Robust standard errors in parentheses.
4. All control variables from Table 4 are included but not reported.

**Table A4.** FA and educational aspirations - heterogeneous effects in rural areas

Variables	Parents	Children
FA (=1 if treated)	-0.123***	-0.069
	(0.015)	(0.047)
T (1=Follow-up )	-0.131***	-0.108**
	(0.013)	(0.043)
FA* T	0.078***	0.131**
	(0.018)	(0.057)
Rural (=1)	-0.064***	-0.010
	(0.018)	(0.058)
FA* T * rural	0.068**	0.123
	(0.027)	(0.078)
Individual characteristics <sup>a</sup>	Yes	Yes
Household characteristics <sup>b</sup>	Yes	Yes
Municipality characteristics <sup>c</sup>	Yes	Yes
Observations	17,312	1,908

Notes:

1. Results from Ordinary Least Squares (OLS) estimation.
2. \* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.
3. Robust standard errors in parentheses.
4. All control variables from Table 4 are included but not reported.

**Table A5.** FA and educational aspirations - heterogeneous effects by children younger than five in the household

Variables	Parents	Children
FA (=1 if treated)	-0.064***	-0.169***
	(0.016)	(0.042)
T (1=Follow-up )	-0.043***	-0.121***
	(0.013)	(0.039)
FA* T	0.055**	0.192***
	(0.022)	(0.055)
Child younger than 5	0.032**	-0.075*
	(0.013)	(0.042)
FA* T * child<5	0.093***	0.020
	(0.028)	(0.078)
Individual characteristics <sup>a</sup>	Yes	Yes
Household characteristics <sup>b</sup>	Yes	Yes
Municipality characteristics <sup>c</sup>	Yes	Yes
Observations	17,312	1,908

Notes:

1. Results from Ordinary Least Squares (OLS) estimation.
2. \* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.
3. Robust standard errors in parentheses.
4. All control variables from Table 4 are included but not reported.

**Table A6.** FA and educational aspirations - heterogeneous effects if child is in elementary school and has a sibling in secondary school

Variables	Parents	Children
FA (=1 if treated)	-0.109*** (0.015)	-0.142*** (0.055)
T (1=Follow-up )	-0.088*** (0.013)	-0.046 (0.053)
FA* T	0.097*** (0.019)	0.211*** (0.070)
Child in secondary	0.054*** (0.019)	0.108 (0.069)
FA* T *child in secondary	0.074* (0.039)	-0.082 (0.128)
Individual characteristics <sup>a</sup>	Yes	Yes
Household characteristics <sup>b</sup>	Yes	Yes
Municipality characteristics <sup>c</sup>	Yes	Yes
Observations	11,418	892

Notes:

1. Results from Ordinary Least Squares (OLS) estimation.
2. \* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.
3. Robust standard errors in parentheses.
4. All control variables from Table 4 are included but not reported.

**Table A7:** FA and educational aspirations - heterogeneous effects by income quintiles

Variables	Parents	Children
FA (=1 if treated)	-0.116*** (0.026)	-0.212*** (0.066)
T (1=Follow-up )	-0.070*** (0.019)	-0.072 (0.057)
FA* T	0.077** (0.034)	0.208** (0.091)
Q1 - Income per capita	-0.079*** (0.020)	-0.097 (0.064)
Q2 - Income per capita	-0.075*** (0.020)	0.019 (0.066)
Q3 - Income per capita	-0.025 (0.020)	-0.022 (0.069)
Q4 - Income per capita	-0.060*** (0.020)	-0.049 (0.060)
FA* T *Q1	0.112** (0.045)	0.095 (0.132)
FA* T *Q2	0.027 (0.046)	-0.015 (0.126)
FA* T *Q3	0.035 (0.046)	0.013 (0.133)
FA* T *Q4	-0.041 (0.047)	-0.122 (0.131)
Individual characteristics	Yes	Yes
Household characteristics	Yes	Yes
Municipality characteristics	Yes	Yes
Observations	17,312	1,908

Notes:

1. Results from Ordinary Least Squares (OLS) estimation.
2. \* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.
3. Robust standard errors in parentheses.
4. All control variables from Table 4 are included but not reported.

**Table A8: FA and educational aspirations - heterogeneous effects by expectations**

Variables	Parents	Children
FA (=1 if treated)	-0.100*** (0.016)	-0.051 (0.054)
T (1=Follow-up )	-0.092*** (0.014)	-0.103** (0.046)
FA* T	0.094*** (0.021)	0.167** (0.066)
Expectations_secondary (1= if Secondary) <sup>a</sup>	0.159*** (0.015)	0.293*** (0.048)
Expectations_university (1=if University) <sup>b</sup>	0.453*** (0.020)	0.435*** (0.068)
FA* T *Expectations_secondary	0.025 (0.028)	0.123 (0.085)
FA* T *Espectations_university	0.034 (0.043)	-0.227* (0.117)
Individual characteristics <sup>a</sup>	Yes	Yes
Household characteristics <sup>b</sup>	Yes	Yes
Municipality characteristics <sup>c</sup>	Yes	Yes
Observations	17,312	1,908

Notes:

1. Results from Ordinary Least Squares (OLS) estimation.
2. \* Significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.
3. Robust standard errors in parentheses.
4. All control variables from Table 4 are included but not reported.
  - a. Expected to reach secondary education
  - b. Expected to reach post-secondary education

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