# Parental aspirations for children's education: is there a "girl effect"? Experimental evidence from rural Ethiopia

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**Abstract**

We report on an experiment with poor rural households in Ethiopia, which aimed to boost aspirations for a better future through exposure to documentaries featuring local male and female role models. We explore effects on parents' educational aspirations and investment in children's education. At baseline, educational aspirations are high but biased against girls. At a six-month follow-up, the intervention increased parents' aspirations for their children's education and increased enrolment, time spent in school and schooling expenditures. There was no catching up of girls relative to boys. Results are consistent with broader local social norms that value education but disfavour women.

# I  Introduction

A key way for parents in poor communities to invest in the future trajectory of their children is through investment in their education. Such investment often embodies poor families' hopes and aspirations for the future: there is a long period before investment generates a return, and children play a vital role in the old-age security of parents. Investment typically also reflects the choices parents make between their children for their respective futures, not least between girls and boys.

Aspirations affect educational investment (Attanasio and Kaufmann, 2014). Role models appear to matter, especially for women: studies find substantial changes in aspirations for and investments in girls and women, including in education, following the election of female political leaders in Beaman et al. (2012), or the embedding of female role models in local entertainment (Chong and La Ferrara, 2009; Jensen and Oster, 2009; Banerjee, La Ferrara and Orozco, 2018).

We report on an experiment among poor households in Ethiopia. The intervention aimed to boost aspirations for a better future. We explore its effects on parents' aspirations and investment in education for boys and girls. We invited a random set of household heads and their spouses to watch documentaries about potential role models: four individuals from very similar settings in Ethiopia.[1] They recounted how they had improved their lives through their own efforts, including the various economic and personal decisions involved. Education was not the prime focus. The role of women and girls similarly was not an explicit feature. However, two documentaries featured a strong woman who displayed initiative and persistence as the protagonist. We compare those invited households to those selected to form a control and a placebo group.

We explore how the intervention affected respondents' aspirations for and investments in the future. We focus on educational aspirations and investments.[2] We report on overall educational aspirations, as well as differences in aspirations for boys and girls, both at baseline before the intervention and six months after the intervention.[3] We explore if boosting aspirations in general triggers attention to education as a key future-oriented investment. Further, the balanced featuring of women in the documentaries may imply proportionately larger, or at least equal, increases in aspirations for girls.

# II  Research design and data

We use data on close to 1,100 households, collected in 64 villages of Doba Woreda, a remote, poor district of rural Ethiopia. The data, including a detailed roster on all children's education, were collected in a baseline survey in September to December 2010, and a follow-up six months later. A few days after the baseline (at the beginning of the school year), we implemented a randomized control trial of an aspiration-related

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1. These are available at https://www.youtube.com/channel/UCqfoNjCzt8YPjTRWQaMQfAg.

2. Details on the experimental design, tests for experimental integrity and household-level impacts on other economic outcomes are in Bernard et al. (2014).

3. In the near future, data on a five-year follow-up will be available.

intervention. Six households per village were randomly selected to be invited to watch inspirational documentaries; six to watch a placebo movie and six simply to be surveyed.

Beyond detailed data on outcomes, we exploit two features of the study. First, the survey included a specific module to assess individuals' aspiration level along four dimensions, one of them being one's aspired level of education for one's eldest child. Second, the aspiration-related module was administered to both spouses within each household, in relation to the same eldest child. These two features enable us to examine how the gender of the eldest child affects parental aspirations for that child's education, and how that may vary according to the gender of the parent.

Below, $Y_t^{ih}$ measures the level of educational aspirations, reported by individual $i$ in household $h$ in survey round $t = 0, 1$. We first assess whether parents, irrespective of their gender, aspire to different levels of education for their eldest child depending on their gender. In Equation 1, $Girl^{ih}$ is equal to 1 if the eldest child is a girl, and 0 otherwise. The parameter $\delta_1$ is an estimate of the gender gap in aspirations for girls versus for boys: the "girl effect". A negative value for $\delta_1$ denotes aspirations that are, on average, lower for girls than boys. The variable $X_0^{ihv}$ is a set of household- and respondent-level characteristics and village fixed effects at baseline.

$$(1) \qquad Y_0^{ih} = \alpha_1 + \delta_1.Girl^{ih} + \theta_1.X_0^{ihv} + \epsilon_1^{ih}$$

In Equations 2 and 3, we use our post-treatment data to estimate whether assignment to treatment affected the identified gender gap. The variable $Treat^{ih}$ is equal to 1 if parents where invited to a documentary screening, and 0 otherwise.[4] Equation 2 offers an estimate of $\beta_2$: the (intention-to-)treat effect of how aspirations are affected by the intervention.[5]

$$(2) \qquad Y_1^{ih} = \alpha_2 + \beta_2.Treat^{ih} + \theta_2.X_0^{ihv} + \epsilon_2^{ih}$$

In Equations 2 and 3, we use our post-treatment data to estimate whether assignment to treatment affected the identified gender gap. The variable $Treat^{ih}$ is equal to 1 if parents where invited to a documentary screening, and 0 otherwise.[6] Equation 2 offers an estimate of $\beta_2$: the (intention-to-)treat effect of how aspirations are affected by the intervention.[7]

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4. In what follows, we regroup observations from placebo and control group under the value $Treat^{ih} = 0$. We include a dummy indicating whether the household was part of the placebo group in the controls. In all results, the estimated coefficients on the placebo group were not significantly different from zero.

5. Non-compliance with treatment assignment is 2 percent.

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(3)
$$Y_1^{ih} = \alpha_2 + \beta_2.Treat^{ih} + \theta_2.X_0^{ihv} + \epsilon_2^{ih}$$

In Equation (3), we explore whether the treatment effect is different when aspirations are reported for girls relative to boys. A positive estimated $\gamma_3$ shows that the treatment narrows the baseline gender gap, and vice versa.

(4)
$$Y_1^{ih} = \alpha_3 + \beta_3.Treat^{ih} + \delta_3.Girl^{ih} + \gamma_3.Treat^{ih} * Girl^{ih} + \theta_3.X_0^{ihv} + \epsilon_3^{ih}$$

We further explore two sources of heterogeneity based on respondents' characteristics. First, we examine the gender of the respondent: do mothers have different aspirations to fathers for their eldest child? This heterogeneity is assessed by interacting all terms in each regression with a dummy equal to 1 if the respondent is female and 0 otherwise, in addition to including the respondent's gender amongst the covariates. In the modified Equation 1, we test whether aspirations differ between mothers and fathers and if the "girl effect" differs for mothers and fathers. In modified Equations 2 and 3, we test whether treatment has differential effects on aspirations on average and for aspirations for girls specifically, depending on the respondent's gender.[8] Second, we assess the heterogeneity of results with respect to the respondent's initial education, based on a dummy equal to 1 if the respondent has no education, and 0 otherwise.

We also estimate $\delta_1$, $\beta_2$ and $\gamma_3$ with actual household-level educational outcomes as the dependent variable: the number of children enrolled in education, the time spent in school, the time spend studying outside school, and household expenditures on education. Outcomes $Y_t^h$ are now at household level, affecting how we can estimate (1) to (3). We use a variable denoting the share of girls in the overall number of children of the relevant age group in the household as the relevant interaction term. We estimate the impact of the share of girls in the household on educational outcomes and whether treatment effects differ in households with different shares of girls.

[TABLE 1 about here.]

## III   Is there a "girl effect" on parents' aspirations for children's education?

Table 1 presents the results from the above estimations, using data from parents' aspirations for their eldest child's educational attainment. Column 1, row 1 shows the baseline mean of aspirations. Despite this being a poor setting, the average educational

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8. As there is variation in aspirations for the eldest child within the household, the interacted model can also be estimated with household fixed effects, abstracting from all household level factors that may influence differences between mothers and fathers. Results from specifications with and without fixed effects are qualitatively similar and available on request.

aspirations are high, at well over completing secondary school. As the second row in Panel A shows, about 60 percent of respondents aspire to more than secondary school for their eldest child – a level that is comparable to Favara (2017) in an Ethiopia-wide survey of relatively poor households. Using Equation (1), we report $\delta_1$ in Column 2, rows 1 and 2. Overall, there is a significant gap in aspirations between girls and boys. Respondents who have a girl as their eldest child are 9 percentage points less likely to declare an aspiration for post-secondary education relative to those who have a boy.

Female respondents (mothers) have lower aspirations for their eldest child than men (Panel B, Column 1), by at least half a year, with 10 percentage points fewer female respondents aspiring for their child to go beyond secondary education. Mothers not only have lower educational aspirations for their child, they also have lower aspirations for girls than fathers have for girls, and significantly so for education beyond secondary education (in Panel B, Column 2). Finally, in Panel C, those respondents with no education to start with (more than half the sample) also had substantially lower educational aspirations for their children compared to educated respondents, and additionally significantly lower aspirations for girls. There are relatively high aspirations, but biased against girls. And parents who have had fewer opportunities, including for education, aspire to less for their children, particularly for their girls.

Did an intervention exposing parents to two men and two women who managed to progress in their lives make a difference? Column 3 in Panel A reports on $\beta_2$ from Equation (2), the treatment effect of the intervention. The treatment improves aspirations for children's education for boys and girls. The size of the treatment effect in Column 3 is relevant, about 10 percent of the standard deviation of mean aspirations at baseline. But Column 4 shows that there is no significant differential treatment effect for girls ($\gamma_3$ in Equation (3)). So the parents of girls, just like those of boys, had on average significantly higher aspirations post-intervention, compared to the control group. But the gap between girls and boys has also not been closed at all.

Panel B shows that there are no differential treatment effects for mothers versus fathers, neither in general (Column 3) or for girls specifically (Column 4). Interestingly, we find that the intervention erased more than two thirds of the overall educational aspiration gaps of non-educated versus educated respondents (Panel C, Column 3), although there was again no additional effect for girls (despite the initial large additional bias against girls of this group relative to those with education).

In sum, it appears that our intervention led to a significant boost in educational aspirations, despite giving little attention to education as a route out of poverty. Despite the strong female role models presented, there is no differential effect for boys and girls: even though aspirations for girls are significantly lower, they rise by similar magnitudes.

## IV  Differences in educational investment

To what extent do gender-based aspiration gaps and impacts on aspirations from our intervention translate into changes in educational investment? We restrict our analysis

to the outcomes of children between 7 to 15 years of age.[9] On average, households have about 2 children in this age group. Column 1 suggests that roughly half of them go to school, and they spend on average six hours in school and almost two hours studying. Households have spent about 9.4 USD on educational materials and fees in the last three months. The negative coefficients reported in Column 2 (based on equation (1)) indicate that households with a higher share of girls show lower investment in education, significantly so at 10 percent level for time spent in school or studying. In line with lower aspirations, investments are lower for households with more girls relative to boys.

[TABLE 2 about here.]

Column 3 shows the average treatment effect on investments in education. Treatment significantly increases investments in education across all measures reported. Enrolment is about 18 percent higher among households in the treated group. Across all their children, treated households spend about an hour a day more at school, and 15 percent more time studying. Schooling expenditure is also about 21 percent higher than in the control group. This short intervention increased both parents' aspirations for their children's education and actual educational investment after six months, when the next school year had started. Just as with aspirations, and despite the inclusion of female role models, the treatment is not favouring girls. Estimates in Column 4 are not significantly different from zero for girls, except for time spent in school: the negative coefficient, significant at 5 percent, would imply the entire treatment effect is driven by more time spent in school by boys.

## V   DISCUSSION

There is an increasing understanding that a weak capacity to aspire might reduce poor people's investments in the future, perpetuating poverty (Genicot and Ray, 2017). In our experiment, we exposed poor people to a possible alternative future, and role models to whom they could relate, through a one hour documentary, showing two men and two women who escaped poverty through their own efforts. This was not an information-based intervention – the stories delivered no new information on the returns to investing in education, as for example in Jensen (2010). Education also did not feature as the vehicle to get out of poverty. Nevertheless, treated households had significantly higher educational aspirations and made substantial additional investment in education. These changes are thus unlikely to be linked to updating of beliefs due to new information. Rather, a "vicarious experience" (Bandura, 1977) of how a similar individual improved their life through hard work and persistence seems to inspire higher aspirations for one's children.

At the same time, the intervention did not change gender-based aspirations gaps between girls and boys, or indeed, improve the lower aspirations held by female re-

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9. The age range is when schooling is compulsory: children are supposed to enrol in Grade 1 when they have turned 7 and stay until Grade 8, when they would be about 14 or 15.

spondents for their children and especially their girls. Gender-based gaps were at best unaffected by the intervention, even though present in aspirations, in spending and in time spent on education. Affecting future orientation through boosting aspirations will still lead to investments that are based on people's own understanding of what ought to be done, including understanding of financial and other returns to educating girls and broader social norms and biases against girls and women. More focused interventions may be required to unravel these gaps.

# REFERENCES

**Attanasio, Orazio, and Katja Kaufmann.** 2014. "Education Choices and Returns to Schooling: Mothers' and Youths' Subjective Expectations and their Role by Gender." *Journal of Development Economics*, 109: 203–216.

**Bandura, Albert.** 1977. *Social Learning Theory.* Englewood Cliffs, New Jersey:Prentice-Hall.

**Banerjee, Abhijit, Eliana La Ferrara, and Victor Orozco.** 2018. "The Entertaining Way to Behavioral Change: Fighting HIV with MTV." *Unpublished*, Available at: https://economics.mit.edu/files/15016, last accessed on the 15/02/2019.

**Beaman, Lori, Esther Duflo, Rohini Pande, and Petia Topalova.** 2012. "Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India." *Science*, 335(6068): 582–586.

**Bernard, Tanguy, Stefan Dercon, Kate Orkin, and Alemayehu Seyoum Taffesse.** 2014. "The Future in Mind: Aspirations and Forward-Looking Behaviour in Rural Ethiopia." *BREAD Working Paper*, 429: 1–42.

**Chong, Alberto, and Eliana La Ferrara.** 2009. "Television and Divorce: Evidence from Brazilian Novelas." *Journal of the European Economic Association*, 7(2-3): 458–468.

**Favara, Marta.** 2017. "Do Dreams Come True? Aspirations and Educational Attainments of Ethiopian Boys and Girls." *Journal of African Economies*, 26(5): 561–583.

**Genicot, Garance, and Debraj Ray.** 2017. "Aspirations and Inequality." *Econometrica*, 85(2): 489–519.

**Jensen, Robert.** 2010. "The (Perceived) Returns to Education and the Demand for Schooling." *Quarterly Journal of Economics*, 125(2): 515–548.

**Jensen, Robert, and Emily Oster.** 2009. "The Power of TV: Cable Television and Women's Status in India." *Quarterly Journal of Economics*, 124(3): 1057–1094.

TABLE 1: PARENTS' ASPIRATIONS FOR THE LEVEL OF EDUCATION THEY WANT
THEIR ELDEST CHILD TO ATTAIN

| | Baseline | | Treatment Effect | |
| | (1) | (2) | (3) | (4) |
| | Aspirations for child | Difference for girls | Aspirations for child | Difference for girls |
|---|---|---|---|---|
| *Panel A. Estimates for whole sample* | | | | |
| Aspirations for education (years) | 14.08 | -0.45*** | 0.25* | -0.12 |
| | (2.42) | (0.11) | (0.15) | (0.27) |
| [=1] if aspires beyond secondary ed. | 0.60 | -0.09*** | 0.05 | -0.03 |
| | (0.49) | (0.02) | (0.03) | (0.05) |
| *Panel B. Difference if respondent is mother?* | | | | |
| Aspirations for education (years) | -0.62*** | -0.23 | 0.12 | -0.23 |
| | (0.10) | (0.18) | (0.19) | (0.41) |
| [=1] if aspires beyond secondary ed. | -0.10*** | -0.06* | 0.04 | -0.06 |
| | (0.02) | (0.03) | (0.04) | (0.08) |
| *Panel C. Difference if respondent has no education?* | | | | |
| Aspirations for education (years) | -0.64*** | -0.42* | 0.45** | -0.02 |
| | (0.12) | (0.22) | (0.23) | (0.48) |
| [=1] if aspires beyond secondary ed. | -0.14*** | -0.09** | 0.09** | -0.01 |
| | (0.03) | (0.04) | (0.05) | (0.10) |
| Obs. | 1970 | | 1919 | |

Panel (A) Col. (1): the mean and standard deviation at baseline for all parents. Col. (2): the average difference in parents' aspirations for daughters relative to sons at baseline (Eq. 1). Col. (3): the average treatment effect on parents' aspirations (Eq. 2). Col. (4): the difference in treatment effect for parents with girls relative to those with boys (Eq. 3). Cols. (2)-(4) include village fixed effects, controls for the placebo group and individual and household controls and report household-level clustered standard errors in parentheses. Controls are for whether respondent is male, their age and education level, whether they are single, whether they have lived outside the village or the district, household size and the number of children aged 0-15 in the household. Panel (B) Col. (1): the average difference in educational aspirations between mothers and fathers. Col (2): the additional difference in aspirations for daughters relative to sons when the respondent is a mother relative to fathers. Col (3): the difference in the treatment effect between mothers and fathers. Col (4): the further differential effect of treatment for girls, relative to boys, when the respondent is a mother. Panel (C) shows similar estimates to Panel B, but this time comparing respondents without any education to those with any education. Stars on the coefficient estimates reflect unadjusted $p$-values. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

TABLE 2: Educational investment

|  | Baseline | | Treatment effect | |
|---|---|---|---|---|
|  | (1) | (2) | (3) | (4) |
|  | Baseline | Difference | Treatment | Difference |
|  | mean | for girls | effect | for girls |
| Children aged 7-15 in school | 0.95 | -0.12 | 0.18*** | -0.14 |
|  | (0.03) | (0.08) | (0.06) | (0.13) |
| Daily minutes in school for children aged 7-15 | 348.28 | -51.24* | 53.24** | -89.81** |
|  | (11.84) | (28.67) | (22.90) | (44.96) |
| Daily minutes studying for children aged 7-15 | 106.40 | -20.36* | 17.02** | -18.85 |
|  | (4.22) | (11.34) | (8.45) | (16.49) |
| Schooling expenditure (USD) | 9.44 | -0.52 | 2.01** | 0.22 |
|  | (0.41) | (1.11) | (1.01) | (2.26) |
| Obs. | 1097 | | 1095 | |

Col. (1): the mean and standard deviation at baseline for all households. Col. (2): the average difference in outcomes for households if they only had girls (coefficient is interaction between outcome and the share of girls aged 7-15 in the household out of all children aged 7-15). Col (3): the average treatment effect. Col (4): the difference in treatment effect for households if they only had girls (coefficient is interaction between treatment and the share of girls aged 7-15 in the household out of all children aged 7-15). Estimates in Cols. (2)-(4) include village fixed effects and controls for the placebo group, household head controls and household characteristics, as in Table 1. For Cols. (2) and (4) we recode the share of girls aged 7-15 as zero for households with no children aged 7-15 and we add as an additional control a dummy variable equal to one for households that had no children aged 7-15, for whom the share of girls would have been undefined. Cols. (2)-(4) report robust standard errors in parentheses. Stars on the coefficient estimates reflect unadjusted $p$-values. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.