

Parental aspirations for children’s education - is there a “girl effect”? Experimental evidence from rural Ethiopia

By TANGUY BERNARD, STEFAN DERCON, KATE ORKIN, AND ALEMAYEHU SEYOUM TAFFESSE*

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 the hopes and aspirations for the future of poor families: there is a long period before investment generates a return, and children play a vital role in the old-age security of parents. It typically also reflects the choices parents make between their children for their respective futures, not least between girls and boys.

Aspirations affect educational investment (Atanasio and Kaufmann, 2014). Role models appear to matter, especially for women: studies find substantial changes in aspirations and outcomes for girls and women, including for education, following the election of female political leaders as 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 women 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.

I. Research design and data

We use data on close to 1000 households, collected within 64 villages of Doba Woreda, a remote and 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 and beginning of school year, we implemented a randomized control trial of an aspiration-related 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 here 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

* Bernard: University of Bordeaux/International Food Policy Research Institute, tanguy.bernard@u-bordeaux.fr. Dercon: University of Oxford, stefan.dercon@economics.ox.ac.uk. Orkin: University of Oxford, kate.orkin@bsg.ox.ac.uk. Taffesse: International Food Policy Research Institute, a.seyoumtaffesse@cgiar.org.

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

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

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

aspiration-related module was administered to both spouses within each household, in relation to the same eldest child. These two features enable us to inspect how the gender of the eldest child affects parental aspiration for that child's education, and how that may vary according to the gender of the parent itself.

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 its gender. In Equation 1, $Girl$ is equal to 1 if the eldest child is a girl, and 0 otherwise. The parameter δ_1 is an estimate of the gender gap in aspirations for girls versus for boys: the ‘‘girl effect’’. A negative value for δ_1 denotes aspirations that are, on average, lower for girls than boys. The variable X_0^{ihv} is a set of household-level and respondent-level characteristics and village fixed effects at baseline.

$$(1) \quad Y_0^{ih} = \alpha_1 + \delta_1.Girl^{ih} + \theta_1.X_0^{ih} + \varepsilon_1^{ih}$$

In Equations 2 and 3, we use our second round (post-treatment) data, to estimate whether assignment to treatment affected the identified gender gap. The variable $Treatment$ is equal to 1 if parents were invited to a documentary screening, and 0 otherwise.⁴ Equation 2 offers an estimate of β_2 : the (intention-to) treat effect of how aspirations are affected by the intervention.⁵

$$(2) \quad Y_1^{ih} = \alpha_2 + \beta_2.Treat^{ih} + \theta_2.X_0^{ih} + \varepsilon_2^{ih}$$

In Equation (3), we explore whether the treatment effect is different when aspirations are reported for girls relative to boys. A positive estimated γ_3 shows that the treatment narrows the baseline gender gap, and vice versa.

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

⁵Non-compliance with assignment is only 2 percent.

$$(3) \quad Y_1^{ih} = \alpha_3 + \beta_3.Treat^{ih} + \delta_3.Girl + \gamma_3.Treatment * Girl + \theta_3.X_0^{ih} + \varepsilon_3^{ih}$$

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 as a whole and for aspirations for girls specifically depending on the respondent's gender.⁶ 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 δ_1 , β_2 and γ_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 spent studying outside school, and household expenditures on education. Data are at household level, affecting how we can estimate (1) to (3). Outcomes Y_t^h are at household level. 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.

II. 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

⁶As 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.

for their eldest child's educational attainment. The first column, first row shows the baseline mean of aspirations. Despite this being a poor setting, the average educational aspirations are high - at well over completing secondary school. As the second row shows in Panel A, about 60 per cent 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 δ_1 in Column (2), rows 1 and 2. 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 over 15 percent fewer female respondents aspiring for their child to go beyond secondary education. Mothers not only have lower educational aspirations for their child. They have also lower aspirations for girls than fathers have for girls, 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 β_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 per cent of the standard deviation of mean aspirations at baseline. But Column (4) shows that there is no significant differential treatment effect for girls (γ_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 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.

III. 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 those households with children between 6 to 20 years of age.⁷ On average, households have about 2.5 children in this age group. Column (1) suggests that roughly half of them go school, spend 6 hours in school and 2 hours studying. Households spent about 10.8 USD on educational materials and fees in the last three month. The negative coefficients reported in Column (2) (based on equation (1)) indicate that households with a higher share of girls show significantly lower investment in education. All coefficients are significant at 5 per cent level. In line with lower aspirations, investments are lower for households with more girls relative to boys.

Column (3) shows the average treatment effect on investments in education. Treatment significantly increases investments in education. Enrolment is about 20 per cent higher among households in the treated group. Across all their children, treated households spend about a hour a day more at school, and about 15 per cent

⁷The wide age range is justified given the high educational aspirations expressed by parents. Restricting analysis to those up to 15 years of age does not affect the interpretation of the results.

more time studying. Schooling expenditure is also about 20 per cent 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, the effect is similar for boys and girls: even though girls typically are less invested in, the intervention had an equal impact on both girls and boys.

IV. Discussion

There is an increasing understanding that a weak capacity to aspire might undermine 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 which 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, say agricultural techniques, or returns to investment including to 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 respondents for their children and especially their girls. Gaps did not become worse either: the gender-based gaps were unaffected, even though present in aspirations, and in spending or 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.

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

	Baseline		Treatment Effect	
	(1) Aspirations for child	(2) Difference for girls	(3) Aspirations for child	(4) Difference for girls
<i>Panel A. Estimates for whole sample</i>				
Aspirations for education (years)	14.08 (2.42)	-0.47 (0.11)	0.27 (0.15)	-0.10 (0.27)
[=1] if aspires beyond secondary ed.	0.60 (0.49)	-0.09 (0.02)	0.05 (0.03)	-0.03 (0.05)
<i>Panel B. Difference if respondent is mother?</i>				
Aspirations for education (years)	-0.60 (0.11)	-0.23 (0.18)	0.09 (0.19)	-0.21 (0.41)
[=1] if aspires beyond secondary ed.	-0.10 (0.02)	-0.06 (0.03)	0.03 (0.04)	-0.06 (0.08)
<i>Panel C. Difference if respondent has no education?</i>				
Aspirations for education (years)	-0.62 (0.12)	-0.44 (0.22)	0.44 (0.23)	-0.02 (0.48)
[=1] if aspires beyond secondary ed.	-0.13 (0.03)	-0.10 (0.04)	0.09 (0.05)	-0.01 (0.10)
Obs.	1970		1932	

Note: 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 kebele, household size and the number of children aged 6-20 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.

TABLE 2—EDUCATIONAL INVESTMENT

	Baseline		Treatment effect	
	(1) Baseline mean	(2) Difference for girls	(3) Treatment effect	(4) Difference for girls
Children aged 6-20 in school	1.42 (0.04)	-0.27 (0.09)	0.23 (0.11)	-0.02 (0.19)
Daily minutes in school	528.66 (16.14)	-113.10 (33.10)	61.58 (36.84)	-22.48 (66.11)
Daily minutes studying	173.30 (6.04)	-32.27 (12.18)	16.99 (14.33)	2.12 (26.89)
Schooling expenditure (USD)	10.76 (0.46)	-2.29 (0.98)	2.19 (1.21)	2.15 (2.30)
Obs.	908		924	

Note: Col. (1): the mean and standard deviation at baseline for all households with children aged 6-20. Col. (2): the average difference in outcomes for households that had more girls than boys (coefficient is interaction between outcome and a dummy equal to one if the share of girls aged 6-20 in the household out of all children aged 6-20 is above the median). Col (3): the average treatment effect. Col (4): the difference in treatment effect for households that had more girls than boys (coefficient is interaction between treatment and a dummy equal to one if the share of girls aged 6-20 in the household out of all children aged 6-20 is above the median). Estimates in Cols. (2)-(4) include village fixed effects and controls for the placebo group and household head controls, as in Table 1. In Cols. (2)-(4) we report robust standard errors in parentheses.