

Challenges in Changing Social Norms: Evidence from Interventions Targeting Child Marriage in Ethiopia

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Abstract

We study a set of interventions in Ethiopia geared towards eliminating child marriage. The interventions facilitate community discussion about child marriage and provide economic incentives for girls to stay in school and remain unmarried. Changing social norms is often thought of as very difficult, and it might be especially hard to change the typical age at first marriage given that marriage involves a matching problem. Regardless, we find that both interventions reduce the probability a girl 8 - 17 years old has been married by about 5 to 8 percentage points. We also observe some positive spillover effects: the program appears to have increased the intra-household decision-making power of women. However, we find some evidence of increased polarization in beliefs about child marriage, suggesting confirmation bias or a backlash effect. No effects were seen on education outcomes, suggesting that in contrast to other studies this was not the mechanism through which the intervention had an effect.

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1 Introduction

Globally, 26% of women aged 20-24 years were married when they were under 18 (UNICEF, 2013); approximately 39,000 girls currently under the age of 18 get married every day, a third of whom are under 15 (UNFPA, 2012). Child marriage disproportionately targets women and restricts the opportunities available to them. In Ethiopia, the setting of this paper, girls are routinely pulled out of school when they get married. Early marriage has also been linked to negative health consequences, such as fistula and other complications in pregnancy, and has been hypothesized to affect a range of issues relating to women’s empowerment, such as workforce participation, the balance of decision-making power within households, and time use more generally.

Despite the potential importance of early marriage for these economic and social outcomes, empirical evidence on the effects of child marriage and programs to prevent child marriage has been limited, as is illustrated in several reviews (*e.g.* Lee-Rife *et al.*, 2012; Malhotra *et al.*, 2011). Several papers examine the effects of cash transfers conditioned on staying in school or girls’ scholarship programs and find that these programs help decrease child marriage (Duflo *et al.*, 2015; Hahn *et al.*, 2015); Baird *et al.* (2011) find less promising effects for conditional cash transfers. Krishnan *et al.* (2014) examines the effect of cash transfers explicitly conditioned on remaining unmarried on age at first marriage, and finds a significant effect. Nanda *et al.* (2014) and Sinha and Yoong (2009) also consider cash transfers conditioned on remaining unmarried, though do not consider this outcome variable. There is also evidence that even unconditional cash transfers can decrease child marriage (Baird *et al.*, 2011), as can other income shocks (Hildebrandt, 2014; Rosenzweig and Stark, 1989). Finally, there is some notable work on women’s empowerment programs and vocational training that may be relevant: Bandiera *et al.* (2014) and Buchmann *et al.* (2017) find strong effects of the programs they consider, but Buehren *et al.* (2015) does not. The paper perhaps closest to ours looks at an earlier precursor to the program we study, a pilot in the same region of Ethiopia, the Amhara region (Erulkar and Muthengi, 2009). Though the sample was small, that paper finds strong effects. Our study differs in that the sample was much larger and in that the program they studied had different content, including a stronger economic incentives arm: if girls attended program meetings and remained unmarried, upon graduation girls and their families would jointly receive a goat, worth approximately \$20 U.S. at the time.

The program we study consisted of several different interventions falling under two broad categories: the facilitation of conversation and provision of information about child marriage, and the provision of economic incentives. The intervention was divided geographically into “intensive” and “expansion” treatment arms. The information interventions were provided in some form in both the “intensive” and “expansion” areas and consisted of facilitating or encouraging “community conversations”, in which trainers or community facilitators organized community meetings, presented material on the harmful effects of child marriage, and facilitated dialogue about child marriage; providing materials and training to peer educators that were involved in organizing school clubs; and providing materials and training to engage school children to campaign against child marriage, including megaphones, digital recorders and camera equipment. The economic incentives component was only provided to the “intensive” treatment arm and included entrepreneurship training for female parents or caregivers and school materials for girls staying in school.

Both treatments were effective at reducing child marriage, decreasing the probability that a girl aged 8-17 had ever been married by 5 to 8 percentage points. Interestingly, the program seems to have led to increasingly polarized views on early marriage, with more respondents in the treatment group at follow-up reporting that marriage before the age of 15 was looked on more favourably or unfavourably in their community than it previously had been and fewer reporting a more neutral trend. Women report having more decision-making power in the household, but the treatment had limited to no effect on education and attitudes towards rape and other violence against women. The null effects on education are particularly interesting as they suggest the economic incentives provided to girls who enrolled in school were unlikely to be the mechanism through which the intervention had an effect, as was the case in studies in other contexts (Duflo *et al.*, 2015); Hahn *et al.*, 2015).

The rest of the paper proceeds as follows. First, we provide more information about marriage in Ethiopia, describe the data and present some summary statistics. We then discuss the methods used and how the treatment effects are identified given the structure of the program. Results are presented on several different outcomes, including early marriage, intra-household decision-making, sex and violence, education, and social norms. Finally, we present robustness checks and discuss the results before concluding.

2 Early Marriage in Ethiopia

2.1 Background

According to the 2011 Demographic and Health Survey (DHS), the DHS closest to the study's baseline, the median age at first marriage, nation-wide, was 16.5 for women aged 25-49 and 23.2 for men. Girls who had no education had a median age at first marriage of 15.9, as opposed to 23.8 for those who had more than a secondary education. 63% of girls were married below the age of 18, and 62% were sexually active. The Amhara region, the focus of this study, is a rural area in the northern part of the country and has the worst rates of child marriage within Ethiopia.

Child marriage, defined as marriage below the age of 18, became illegal in Ethiopia in 2000.¹ However, enforcement has been poor. In the baseline survey, we will see that parents report an average age of first marriage for girls of 13-14 years.

Typically, marriages in this region are arranged by the parents. Elders from the groom's family will approach the bride's family and offer gifts as bride price, sometimes through village matchmakers. There is a lot of variation in the provision of bride price. Only about half the households in our sample reported receiving a bride price when a girl married. There is also a practice, very rare in the Amhara region, of abducting girls, raping them, and then sending an offer of marriage and a bride price back through village elders to the girl's family. At that point the family will usually accept the marriage and the offered bride price. This practice was made illegal in 2004 after much debate, but was always practiced more in the southern regions of Ethiopia than in the Amhara region (Osnes, 2013). In our sample, less than 1% of married girls report having been abducted.

Polygyny is occasionally practiced, but rare. The region is mostly Orthodox Christian, with a minority Muslim community. In our data, 99% of the respondents indicated that they were Orthodox Christians, with the remaining 1% being Muslim.

Fathers who had a married daughter under the age of 18 at baseline said that the main benefit they expected from the marriage was "community respect" (57%). The second most popular answer was that there were no important benefits (22%); 20% cited some form of financial rationale.² The main benefit they foresaw for the daughter was also "community respect" (38%); 35% reported

¹Proclamation No.213/2000: The Revised Family Code Proclamation of 2000.

²"Financial support", "social security", or to "get income".

their girls would receive some kind of financial benefit.³ Decisions were almost entirely made by the parents. Only 21% of daughters were informed about their upcoming marriages, and only 50% of these knew the person they were to marry before the marriage.

Finally, marriage seldom occurs across kebeles, and even more seldom across zones, which will aid our identification strategy as it means the risk of spillover effects is low.

2.2 Data

The data used in this paper come from two surveys - a baseline carried out in 2012 and a follow-up survey in 2014. The program began in 2012 after the baseline. The surveys were carried out in three zones in the Amhara Region: East Gojjam, West Gojjam, and South Gondar. Ethiopia is divided into ethnically based regions which are largely politically autonomous. The Amhara Region is one of these regions.

The baseline survey data comprise 2,591 households across 52 woredas and 171 kebeles. A kebele is the smallest administrative sub-district region (similar to a ward or neighborhood association) and may contain several villages with a total population of approximately 5,000; a woreda is a district within the zone that typically contains a couple dozen kebeles. All kebeles were selected from the Amhara Region, as is described in more detail in the methods section. Local authorities within each village were asked for a list of households within the village, and simple random sampling from this list was used to determine which households to visit, with the added constraint that each household surveyed had to have a girl under the age of 18 living at home.⁴ Within each household, all fathers, mothers, girls and boys were surveyed separately, and we will be able to examine heterogeneity in responses by the type of respondent for a subset of questions.

The follow-up survey covered a restricted subgroup of 36 kebeles. Approximately 20 households were surveyed within each kebele, for a total of 694 households; at baseline, 1,339 households were surveyed within these kebeles, as the baseline survey was much bigger. The 20 households per kebele surveyed in the follow-up were randomly drawn from the set surveyed at baseline, but where the baseline households could not be located, a new household would be drawn from the kebele. The potential for selection effects will be described later, but the main results will be presented

³“Financial support”, “social security”, “own income”.

⁴The next household on the list would be substituted if not.

using all data from these kebeles for the increased sample size.

Figure 1 shows a kernel density plot of age at first marriage at baseline for girls in this sample according to different respondents (fathers, mothers, and girls). The average age at first marriage for girls reported by each type of respondent is 13.6, 13.5 and 12.1, respectively. The only notable difference is between how the girls themselves respond and how their parents respond. It might seem that parents are exaggerating how old their daughters were when they got married, however, the girls in this sample are limited to those under the age of 18. If we imagine this distribution is censored, and similarly truncate the distribution of age at first marriage reported by fathers and mothers to be below 18, the gap is much reduced: fathers would then report an average age at first marriage of 12.4 and mothers of 12.5. Only seven boys below the age of 18, out of 547 who answered this question in the 36 selected kebeles, reported being married.

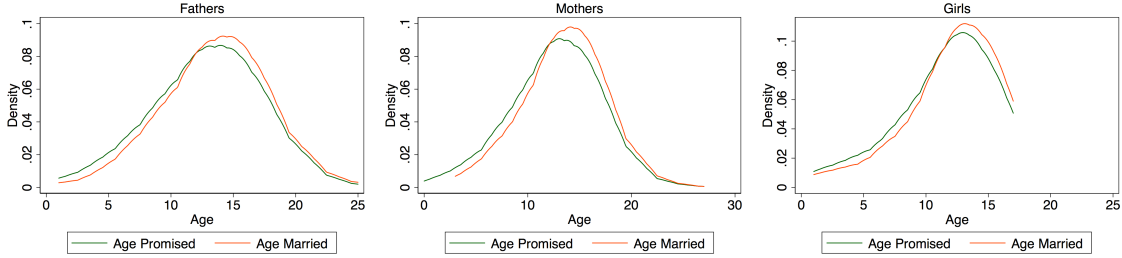
The girls then are typically marrying men a few years older than themselves. The baseline survey only collected data on when men who were married above the age of 18 got married if they were fathers at the time of the survey. The average father got married at 18.7; the average mother, at 12.4. The average age at first marriage seems to have shifted upwards over time, at least for the men.

Marriage can mean many things. The survey correspondingly distinguished between being promised but not married and being married with or without cohabitation. In most cases, the girl moved in with the boy's family after marriage, and marriage quickly followed being promised (Figure 1).

Respondents might have different preferences over when to get married and may have preferred to get married earlier or later than was reflected in baseline patterns. Thus, the baseline survey also asked for the "ideal" age at first marriage for girls and boys. Responses are occasionally different across different types of respondents, particularly between the older and younger generation, but these differences are very slight in magnitude, as illustrated in Table 1. Fathers and mothers desired earlier marriage for girls and later marriage for boys than the girls and boys themselves desired; the younger generation reported less of a difference in the ideal age of first marriage between the sexes.

The surveys targeted those households that had at least one girl under the age of 18 in the household. Therefore, the age of female respondents was bimodally distributed, with higher den-

Figure 1: Age at Being Promised and Married, By Respondent



Responses are taken from the father’s survey, the mother’s survey, and the girl’s survey, respectively. There is little difference between the age of first being promised and the age of first being married, and the different types of respondents report similar ages. Only girls under 18 were asked to answer this question, so their responses are censored.

sities amongst children and their mothers, one generation removed. As previously discussed, child marriage may have been decreasing over time, even in the absence of the intervention. Figure 2 shows the distribution of age at first marriage for the mothers and fathers in the data; almost all current mothers married below the age of 18 themselves.

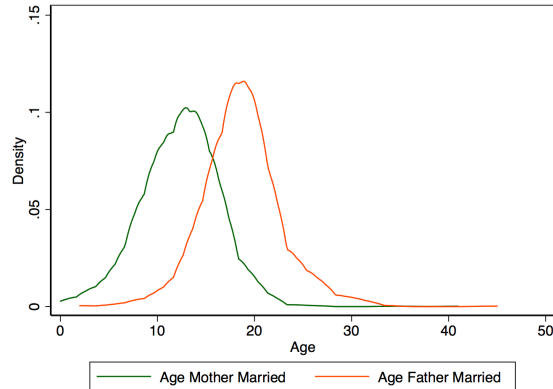
Table 1: Ideal Age at First Marriage for Girls and Boys, By Type of Respondent

	Age at which girls should marry (mean)	Age at which boys should marry (mean)
Boy	18.1	20.3
Girl	18.1	20.4
Father	17.9	20.6
Mother	17.8	20.7

3 Intervention Description

The program was implemented by the Ethiopian government, and early project documents specify a theory of change to be tested. In particular, the hypothesis was that social norms and economic factors (that may in part drive the social norms) lead to early marriage. The program attempted to change social norms through “community conversations”. In this program, a wide range of influential community stakeholders were provided information about child marriage and trained as community conversation facilitators to engage others in discussions about early mar-

Figure 2: Age at Which Parents Married



riage. The program was also designed to educate parents on the downsides of early marriage, so they would be more averse to choosing early marriage for their children, and to empower children, in the hopes that they would be more willing to vocally oppose early marriage. To address the economic drivers of social norms and child marriage, the program also provided economic incentives to avoid early marriage, under the hypothesis that some girls could be married earlier for their or their family’s financial benefit. Thus, there were two treatment arms in the study: one arm which focused on community dialogue and information alone (the “expansion” treatment), and another arm that added economic incentives (the “intensive” treatment).

In the community dialogue arm, a group of core trainers were used to train influential community members (ICMs) to lead “community conversations” as community conversation facilitators. These facilitators would then work in pairs to hold these conversations at the village level, often with other local organizations. For example, when religious leaders were trained as community conversation facilitators, they might hold an event at their church or mosque.

The goal of these conversations was to encourage reflection on the hardships faced by young girls entering marriage, eliciting empathy, and for the ICMs to discuss and dispel myths surrounding early marriage. After training, ICMs were then asked to lead smaller community conversations with at least 10 households. The approach of asking community members to deliberately reflect has similarities to Brockman and Kalla’s work on “deep canvassing”, in which activists are trained to go into a community door-to-door and engage others in lengthy and in-depth discussions face-

to-face (2016). The ICMs consist of community leaders, elders, religious leaders, parent teacher association members, and gender activists and Women’s Association members.

Apart from community conversations, girls’ and boys’ clubs were also formed at schools. The girls’ clubs had an activity-based curriculum that was delivered by trained local female facilitators. It was designed to help improve girls’ confidence and thereby potentially increase their ability to exercise agency. It was hoped that the threat of a backlash effect would be mitigated by the community conversations led by community leaders. The clubs also gave girls access to information on family planning and reproductive health and helped build their social networks. The boys’ clubs also facilitated discussions on family planning and reproductive health. In addition to the girls’ and boys’ clubs, the program supported mini media school clubs that provided girls and boys with an opportunity to voice their support of the campaign to end child marriage. For example, cassette-based resources were distributed so as to generate recordings that could be broadcast on the school public address system, and materials were provided to make posters to hang on the school walls. The program leveraged existing clubs where possible, but otherwise supported the establishment of new clubs and trained teachers to select and train peer educators within the schools who, with the support of the teachers, would organize meetings within these clubs.

The economic incentives treatment arm was designed to provide a combination of short-run benefits in the form of school materials provided to the girls and long-run, potentially more sustainable, benefits in the form of access to a revolving loan fund and financial literacy training to the parents (Table 2). The program team was aware that the literature on microfinance is not encouraging (*e.g.* Banerjee *et al.*, 2015) but was in search of a sustainable solution.

The school materials that were provided consisted of a school bag, exercise book, pen, pencil, pencil sharpener, eraser, ruler, soap and sanitary towels. These were generally provided at the beginning of each academic semester, *i.e.* twice a year, following the schedule in Appendix Table 15. The transfer was dependent not just on school enrollment but also upon remaining unmarried.

The purpose of the revolving loan fund was to encourage income-generating activities (IGAs) to enable families/caregivers to delay their daughters’ marriage. The IGAs were selected by the individual beneficiaries themselves, but each individual had to fulfill the requirements of their local Savings and Credit Cooperative (SACCO) in addition to the program’s requirements. The SACCOs assessed each proposed IGA and made their own determination on whether to allow it based

Table 2: Types of Economic Incentives and Beneficiaries

Type of Benefit	Beneficiaries
Material transfer	School girls and re-enrolled out-of-school girls aged 9-16
Revolving loan fund	Female caregivers of school and re-enrolled out-of-school girls, or male caregivers in households with no female caregivers
Financial literacy training	Female caregivers of school and re-enrolled out-of-school girls, or male caregivers in households with no female caregivers

on various factors like its feasibility, the experience of the beneficiary, and working capital. Once a household joined a SACCO, the SACCO could request funds from the program. The maximum loan available was ETB 3,500 over the life of the loan, and loans had to be paid back within 2 years. The maximum interest rate was 7.25%.

The revolving loan fund targeted female caregivers. If there was no female caregiver in a household to receive the loan, a male could receive the loan upon verification by the kebele administrator. In practice, typically less than 5% of participants were male.

The primary types of business activities targeted by the loan were petty trading and agriculture. Beneficiaries were not allowed to use the loan for any purpose other than the IGA that had been approved by the SACCO.

The economic incentives treatment arm could only be offered in areas that had a SACCO and a bank. Specifically, in order to be eligible for the economic incentives arm, a kebele had to be in a woreda with year-round road accessibility; have bank accessibility; have a SACCO; and have average poverty levels. It also had to have a cooperative administrator at the kebele level. Due to these criteria and funding constraints, sixteen kebeles in four woredas were chosen to receive the economic incentives treatment arm, of which ten were part of the follow-up survey.

Further, not everyone in the kebeles could obtain the incentives. For the sake of cost-effectiveness, the program used community-based targeting. In particular, each kebele receiving the economic incentives was required to form a selection committee of seven members representing different stakeholders with the technical assistance of woreda-level program officers. This committee was supposed to follow a set of criteria in selecting beneficiaries: the girls must be aged 9-16; they must be unmarried; they had to have lived in the kebele for at least three months prior to selection; they had to be from poor households; their enrolment and attendance records had to be

available; they had to be willing to participate in school clubs; they had to be willing to participate in financial literacy training; and, for out-of-school girls, they had to be willing to return to school. The kebele selection committees were allowed to set other criteria. After the first list of beneficiaries was determined, it also had to be made publicly available for four days to get feedback from the community.

Once the girls were selected, their families were automatically eligible for the revolving loan fund, pending SACCO approval. They were also encouraged to participate in the community conversations.

Finally, SACCO officials and other personnel were trained to provide a course on entrepreneurship, financial management, IGAs and basic business skills, and this course was then delivered to caregivers participating in the economic incentives arm. Each course lasted for 3 days.

Notably, while many of the components included in both treatment arms benefited in-school or out-of-school girls willing and able to return to school, the “community conversations” component of the treatment arms had the theoretical potential to benefit even those girls who were not in school and unable to participate in either the school clubs or the economic incentives tied to school participation.

4 Method

East and West Gojjam received the program and South Gondar did not; it was not possible to allocate the program on a more local level, such as by kebele, but South Gondar was chosen as the area from which control kebeles would be selected due to the geographical proximity and similarity in its demographics and cultural practices to East and West Gojjam, just across the Abay River. The follow-up survey targeted those kebeles identified as the closest match with baseline kebeles. To balance baseline covariates between the treatment and control group, we use inverse probability weighting and then leverage a differences-in-differences approach. We also use augmented inverse probability weighting for robustness. Augmented inverse probability weighting has the advantage that it is “doubly-robust” to misspecification.

The kebele was chosen as the appropriate level for matching and weighting because it is a natural cluster: children may not have a school in their village and might share one within the

kebele, and part of the intervention is school-based.

As discussed, 16 kebeles were selected for the intensive treatment (economic incentives and information) while the rest in the treatment group were provided with the lower-cost expansion treatment arm (information only). While 52 woredas and 171 kebeles were part of the baseline survey, the follow-up only reached 36 kebeles; 18 from the treatment group and 18 from the matched control kebeles. Of these, 10 were from the intensive treatment arm and 8 from the expansion treatment arm. This substantial reduction in kebeles was due to the project having a limited amount of funding at the time of the follow-up survey. The 36 kebeles were selected *a priori* as those which were the most closely matched, given baseline data; subsequent revisions to the data lead us to re-weight in this paper for a better fit.

We model the probability of treatment with a logistic regression at the kebele level and generate weights in two ways.

First, we use a parsimonious set of variables we believe are likely to be correlated with marriage. In particular, we considered the age of the girls in each district, to guard against demographic differences; the percent under the age of 18 who were currently married or promised; the average number of girls in each household, which could be related to both the household size and preferences over the sex of children; the average total household consumption; and how positively or negatively respondents in that district say their communities view early marriage.

Second, for robustness, instead of manually selecting which variables to use in the regression, we adopt the statistical learning technique of L1-regularization, or lasso regression, to select the variables. We have more than 500 potential variables in the baseline survey that could help to predict treatment and are not missing data, and an automated procedure could help select an optimal set on which to focus. Specifically, the estimator minimizes the following cost function:

$$\min_{\alpha, \beta} \left\{ \|\beta\|_1 + C \sum_{i=1}^n \log(\exp(-y_i(\alpha + X_i^T \beta)) + 1) \right\} \quad (1)$$

where C is the inverse strength of regularization, y_i is the treatment assignment, and X_i^T are the potential covariates. One can interpret the lasso as minimizing the logistic regression's error function within the boundaries of the constraint $\|\beta\|_1 \leq h(C)$, where h is a strictly-increasing function of C . This constraint forces the estimator to set some coefficients to zero. As the strength of regu-

larization increases (smaller C), the constraint becomes more binding, resulting in fewer variables being selected on average.

The actual weights are then calculated from the fitted probability of group assignment, normalized within each group. If g represents the group assignment of region i , $\hat{p}_{i,g}$ the fitted probability of i being assigned to g and J_g the set of all regions assigned to group g , region i 's weight w_i is:

$$w_i = \frac{\hat{p}_{i,g}}{\sum_{j \in J_g} \hat{p}_{j,g}} \quad (2)$$

Lasso-estimated coefficients are biased, however, an unbiased estimate can be obtained through first running a regularized regression to select variables, followed by running an unregularized regression with the variables selected. This is the approach we use in this paper, although we observe that the single-stage process gives essentially identical results.⁵

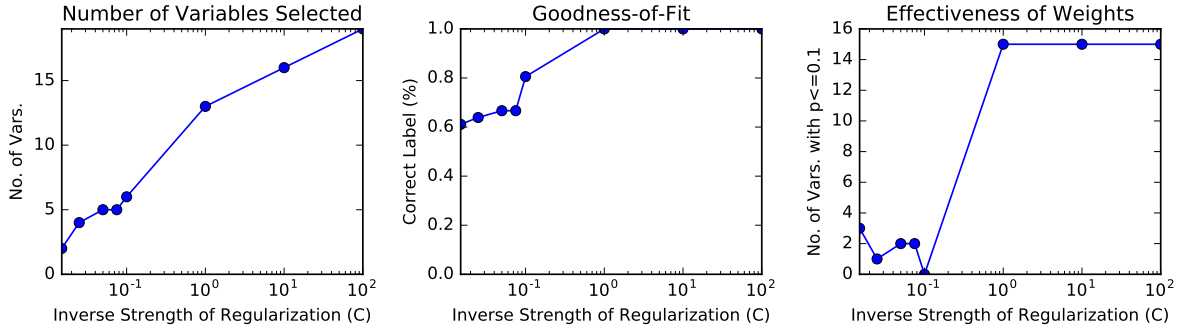
We still need a way to pick C . We estimate the model for a wide range of C ,⁶ restricting attention to those values that minimize the number of variables that have statistically significant differences between the treatment and control group after weighting, while at the same time avoiding models in which so many variables are included that we are able to perfectly predict treatment assignment. If this yields multiple values of C with the same in-sample performance, we choose the value that has the best out-of-sample performance to calculate the weights for subsequent analysis. Specifically, we separate our data into two parts: a *training set* with 80 percent of the villages from each kebele, randomly sampled, and a *test set* with the remaining 20 percent. The estimation of the model is conducted with the training set at the kebele level and validated with the test set. Figure 3 shows the model's performance over different choices of C , with the data plotted on a logarithmic scale. Our optimal choice of C is 0.1. The six variables selected by this approach all seem relevant: whether a bride price was paid for the girl; the reported age at which boys should marry and, separately, at which girls should marry; whether respondents know of any marriages below age 15 in their area; whether respondents know of any marriages below age 18 in their area; and how positively influential community members perceive early marriage.

When restricting the sample to the set of households that were selected for both the baseline and the smaller follow-up survey, we get similar results for $C=0.1$: five of the six variables selected

⁵Results available upon request.

⁶Specifically, we try: 0.015, 0.016, 0.017, 0.018, 0.02, 0.05, 0.075, 0.1, 1, 10, 100, 1000.

Figure 3: Calculation of Weights



Left: The number of variables with non-zero coefficients. Middle: The proportion of observations correctly labeled by the estimator as treatment or control. Right: The number of weighted variables that are significantly different between treatment and control.

in the unrestricted case are selected by this approach.⁷ However, $C=0.05$ performs slightly better, selecting just three variables: the reported age at which boys should marry and, separately, at which girls should marry, and whether respondents know of any marriages below age 15 in their area. We use these variables for weighting when restricting attention to this set of households.

Table 3 shows summary statistics for several key variables pre- and post-weighting using the first set of weights⁸ on the unrestricted sample; results from the lasso regression approach to variable selection are presented in Table 16 in the Appendix. Results using the first set of weights and unrestricted sample will be presented as the main specification throughout, with results using the alternative weights or restricted sample provided as robustness checks. Alternative results using augmented inverse probability weighting are included in the Appendix.

⁷The one variables not selected is whether a bride price was paid for the girl.

⁸The weights derived from the hand-selected variables.

Table 3: Sample Characteristics, Pre- and Post-Weighting, Main Weights

	Pre-Weighting				Post-Weighting			
	Control	Treatment	Difference	p-value	Control	Treatment	Difference	p-value
Age of marriage and perception of marriage								
Age married (F)	13.58	13.62	-0.04	0.93	13.76	13.75	0.02	0.97
Age married (M)	14.03	13.24	0.79	0.04	14.12	13.45	0.68	0.20
Age married (G)	12.95	11.66	1.28	0.06	13.07	11.74	1.33	0.02
Marriage below age 15 exists (F) (2 = No, 1 = Yes)	1.70	1.72	-0.02	0.58	1.72	1.72	0.00	1.00
Marriage below age 15 exists (M) (2 = No, 1 = Yes)	1.73	1.70	0.03	0.32	1.74	1.70	0.04	0.63
Marriage below age 15 common (F) (3 = Very common, 2 = common, 1 = rare)	1.26	1.32	-0.05	0.40	1.24	1.30	-0.07	0.47
Marriage below age 15 common (M) (3 = Very common, 2 = common, 1 = rare)	1.24	1.30	-0.06	0.32	1.23	1.26	-0.03	0.75
Marriage below age 18 exists (F) (2 = No, 1 = Yes)	1.33	1.50	-0.17	0.00	1.36	1.50	-0.15	0.05
Marriage below age 18 exists (M) (2 = No, 1 = Yes)	1.43	1.49	-0.06	0.06	1.45	1.50	-0.05	0.61
Marriage below age 18 common (F) (3 = Very common, 2 = common, 1 = rare)	1.42	1.35	0.07	0.18	1.40	1.33	0.07	0.48
Marriage below age 18 common (M) (3 = Very common, 2 = common, 1 = rare)	1.30	1.36	-0.06	0.23	1.30	1.35	-0.05	0.64
Age girls should marry (F)	17.75	17.98	-0.24	0.16	17.88	18.13	-0.25	0.45
Age girls should marry (M)	17.70	17.80	-0.10	0.56	17.80	17.98	-0.19	0.59
Age girls should marry (B)	17.92	18.14	-0.23	0.33	18.22	18.24	-0.02	0.97
Age girls should marry (G)	17.89	18.20	-0.30	0.01	17.99	18.27	-0.28	0.36
Age boys should marry (F)	21.14	20.36	0.78	0.00	21.19	20.39	0.80	0.04
Age boys should marry (M)	21.02	20.57	0.46	0.04	20.92	20.63	0.29	0.51
Age boys should marry (B)	20.61	20.15	0.45	0.16	20.90	20.37	0.53	0.47
Age boys should marry (G)	20.52	20.39	0.13	0.43	20.55	20.43	0.12	0.69
How is marriage below age 15 perceived (F) (2 = Negatively, 1 = positively)	1.88	1.90	-0.02	0.44	1.88	1.91	-0.03	0.52
How is marriage below age 15 perceived (M) (2 = Negatively, 1 = positively)	1.87	1.85	0.02	0.42	1.87	1.87	0.00	1.00
How do religious leaders perceive it (F) (2 = Do not support, 1 = support)	1.94	1.89	0.05	0.02	1.93	1.91	0.02	0.61
How do religious leaders perceive it (M) (2 = Do not support, 1 = support)	1.88	1.86	0.02	0.41	1.89	1.88	0.01	0.87
How do influential community members view early marriage? (F) (3 = Bad practice, 2 = normal practice, 1 = good practice)	2.74	2.77	-0.03	0.46	2.73	2.81	-0.07	0.39
How do influential community members view early marriage? (M) (3 = Bad practice, 2 = normal practice, 1 = good practice)	2.58	2.68	-0.11	0.02	2.58	2.71	-0.14	0.23
Other characteristics and norms								
Attends school (G) (2 = No, 1 = Yes)	1.28	1.16	0.13	0.00	1.28	1.16	0.12	0.03
What is the highest grade completed? (H)	5.23	5.14	0.10	0.67	5.45	5.03	0.42	0.29
At what age did [Name] discontinue schooling? (H)	14.58	15.90	-1.32	0.00	14.70	15.85	-1.15	0.03
How old were you when you stopped school? (G)	12.32	12.91	-0.59	0.11	12.39	12.99	-0.60	0.17
Share of time spent on work (H)	0.43	0.38	0.05	0.00	0.41	0.39	0.02	0.56
Share of time spent on school (H)	0.34	0.40	-0.05	0.00	0.36	0.40	-0.03	0.43
Share of time spent on leisure (H)	0.23	0.22	0.00	0.73	0.23	0.22	0.01	0.55
Was there a bride price for the girl? (F) (2 = No, 1 = Yes)	1.47	1.33	0.14	0.01	1.48	1.35	0.13	0.28
Was there a bride price for the girl? (M) (2 = No, 1 = Yes)	1.47	1.37	0.10	0.04	1.50	1.37	0.13	0.27
Was there a bride price for the girl? (G) (2 = No, 1 = Yes)	1.40	1.54	-0.14	0.06	1.40	1.55	-0.15	0.28
Total consumption (H)	24835.23	31852.31	-7017.08	0.05	26555.11	29226.05	-2670.94	0.59
Decision-making index (F)	0.82	0.70	0.12	0.00	0.83	0.72	0.12	0.05
Decision-making index (M)	0.19	0.24	-0.05	0.30	0.18	0.25	-0.07	0.40
Sex coercion index (F)	0.86	0.81	0.06	0.00	0.86	0.81	0.05	0.28
Sex coercion index (M)	0.62	0.63	-0.01	0.60	0.58	0.64	-0.06	0.30
Violence index (M)	0.43	0.47	-0.04	0.07	0.40	0.47	-0.06	0.29
Voice index (M)	1.37	1.60	-0.23	0.00	1.40	1.60	-0.20	0.03
Have you heard of the new criminal code (F) (2 = No, 1 = Yes)	1.68	1.70	-0.01	0.71	1.65	1.73	-0.08	0.41
Age law states for girls to marry (F)	17.73	17.98	-0.25	0.34	17.67	18.16	-0.48	0.22

*(F) indicates a response from the father's survey; (M) a response from the mother's survey; (G) a response from the girl's survey; (B) a response from the boy's survey; (H) a response from the household survey. Total consumption is obtained from summing all food and non-food consumption. For the father's decision-making index, the father was asked whether he or his wife had more say in making several kinds of decisions (large household purchases; small household purchases; deciding when to visit family, friends, or relatives; deciding what to do with the money she earns; deciding to marry off the daughter; deciding to marry the son); the index is the share of the time the father answered that his wife had more say than he did. For the mother's decision-making index, the mother was asked whether she had more say in making several kinds of decisions (childrens education; childrens marriage plans; use of family planning methods; deciding when to visit family, friends, or relatives; deciding on the household budget; lending or borrowing; consulting with someone (doctor, nurse, traditional healer, etc.) if a child is sick; paying for medicine or treatment for a sick child); the index is the share of the time the mother answered that she had more say than her husband did. For the sex coercion index, both the father and the mother were (separately) asked whether, if a woman refused sex with her husband, he had the right to: get angry and warn her; refuse to give her money or other means of financial support; use force and have sex with her even if she doesnt want to have it; go and have sex with another woman. The index is the share of the time that the father and mother respectively answered that the man did not have the right. For the violence index, the mother was asked whether a man is justified in beating his wife if: she goes out without telling him; she neglects the children; she argues with him; she refuses to have sex with him; she burns the food. The index is the share of the time that the mother answers that the man is not justified.

5 Results

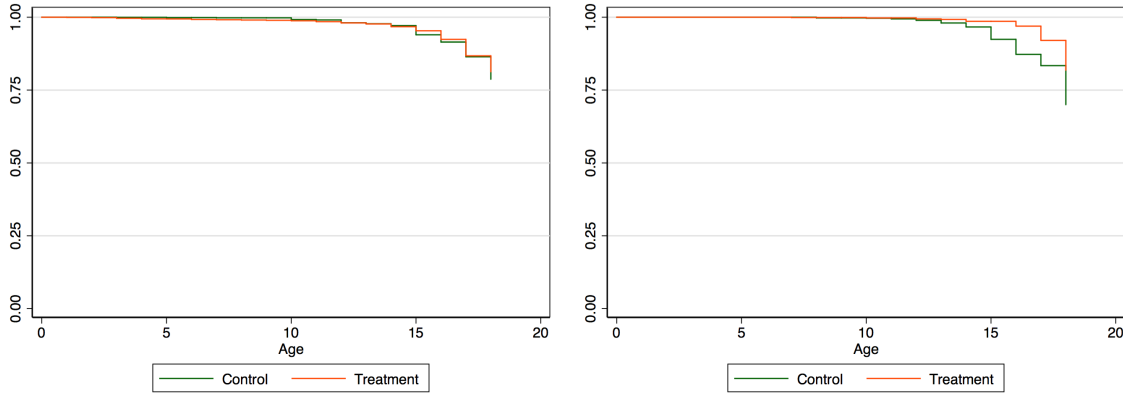
5.1 Early Marriage

Both treatment arms appear to reduce child marriage, with the intensive treatment arm reducing the likelihood a girl aged 7-18 was ever married by 6 percentage points and the expansion treatment arm reducing the likelihood by 5 percentage points. Figure 4 shows the hazard plot for being unmarried at baseline and follow-up for girls under 18, and Table 4 reports results from regressions on whether a girl is currently married or promised or was ever married, for those aged between 8 and 17, inclusive. The effect appears stronger for having ever been married rather than for being currently married or promised. This difference might be explained by the larger numbers of those who had ever been married. Divorce or separation is quite common in the sample, with 32% of girls at baseline who had ever been married reporting divorce or separation, and 39% reporting divorce or separation at follow-up.

Table 5 reports results restricting attention to the much smaller set of households surveyed at both baseline and follow-up. The Appendix contains additional figures (Figures 5 - 9) supplying the results without weighting, weighting on lasso-selected variables, and with further disaggregation in the treatment. Table 17 shows results using augmented inverse probability weighting, which is doubly-robust to misspecification, and Table 18 shows results using the alternative, lasso regression-selected variables for weighting. The results for reducing early marriage are robust to these different specifications.

Differences between the intensive and expansion treatment arms depend on the specification, thus, we do not want to lean too heavily on any apparent differences in these tables alone. However, we will later see null effects on education outcomes, and this provides suggestive evidence that the main mechanism through which the treatment worked was not the economic incentives. Nonetheless, it is theoretically possible for the economic incentives that were conditioned on girls going to school and staying unmarried to affect marriage without affecting education (as in the case in which they were not pivotal to education decisions), so this evidence is not conclusive.

Figure 4: Hazard Plots for Being Unmarried at Baseline and Follow-Up, Weighted



The figure on the left shows the hazard plot at baseline; the figure on the right, at follow-up.

Table 4: Regressions of Treatment on Marriage Outcomes Using Weighting

	(1) Currently married or promised	(2) Currently married or promised	(3) Ever married	(4) Ever married
Follow-Up	0.021 (0.01)	0.021 (0.01)	0.015 (0.02)	0.015 (0.02)
Treatment	-0.012 (0.02)		0.014 (0.03)	
Treatment *	-0.033 (0.02)		-0.054*** (0.02)	
Age in Years	0.010*** (0.00)	0.010*** (0.00)	0.019*** (0.00)	0.018*** (0.00)
Intensive Treatment		0.002 (0.02)		0.022 (0.03)
Expansion Treatment		-0.030* (0.02)		0.002 (0.03)
Intensive Treatment *		-0.050** (0.02)		-0.062*** (0.02)
Expansion Treatment *		-0.009 (0.02)		-0.045** (0.02)
Constant	-0.083*** (0.02)	-0.081*** (0.02)	-0.172*** (0.04)	-0.171*** (0.04)
Observations	4254	4254	4254	4254
R^2	0.02	0.03	0.04	0.04

This table shows results for two outcomes: whether or not girls aged 8 to 18 are currently married or promised, and whether or not they were ever married. The number of observations here reflects the total responses across baseline and follow-up among girls in the 36 kebeles, not restricting attention to those households that completed both the baseline and follow-up survey. Table 5 shows results restricting attention to this group.

Table 5: Regressions of Treatment on Marriage Outcomes Using Weighting, Restricted Sample

	(1) Currently married or promised	(2) Currently married or promised	(3) Ever married	(4) Ever married
Follow-Up	0.029* (0.02)	0.029* (0.02)	0.030 (0.02)	0.030 (0.02)
Treatment	-0.018 (0.02)		0.011 (0.03)	
Treatment *	-0.032 (0.02)		-0.057** (0.02)	
Age in Years	0.011*** (0.00)	0.011*** (0.00)	0.018*** (0.00)	0.018*** (0.00)
Intensive Treatment		-0.012 (0.02)		-0.001 (0.03)
Expansion Treatment		-0.028 (0.02)		0.028 (0.03)
Intensive Treatment *		-0.039 (0.02)		-0.039 (0.03)
Expansion Treatment *		-0.021 (0.02)		-0.084*** (0.03)
Constant	-0.087*** (0.02)	-0.087*** (0.02)	-0.166*** (0.04)	-0.166*** (0.04)
Observations	2891	2891	2891	2891
R^2	0.03	0.03	0.04	0.04

This table restricts attention to those households that completed both the baseline and follow-up survey.

5.2 Intra-Household Decision-Making

Fathers and mothers were separately asked a series of questions about attitudes regarding who should make certain household decisions. While the treatment did not target these outcomes, it is possible that it had spillover effects on these outcomes through empowering women. Tables 6 and 7 present results from ordered logistic regressions regarding who should make particular decisions, with “1” indicating that husbands should make that decision, “2” indicating the decision should be a joint one, and “3” indicating that the wives should make that decision. Tables 27-28 in the Appendix present the marginal effects.

According to the fathers, wives may have gained more decision-making power over small household purchases and over their children’s marriages, however, the relationships are often statistically insignificant. The mothers were asked somewhat different questions, but their responses indicate much stronger effects. They report increased decision-making power in all questions asked, including over their children’s marriages, the household budget, and in other financial matters like lending and borrowing decisions (Table 7). They do not appear more likely to earn their own money but they do report having more say in deciding how to spend the money they have earned, with less being decided by the husband or through joint decisions (Table 8; Table 29 in the Appendix presents marginal effects).

Results are largely comparable using alternative weights (Tables 19 - 21 in the Appendix).

Table 6: Ordered Logit, Fathers’ Survey: Who Do You Think Should Have a Greater Say in Each of the Following Decisions? (1 = Husband, 2 = Both Jointly, 3 = Wife)

	(1) Large HH purchases	(2) Small HH purchases	(3) When to visit family/friends	(4) Use of wife’s earnings	(5) Daughter’s marriage	(6) Son’s marriage
Follow-Up	1.514 (0.56)	0.324*** (0.12)	0.572 (0.24)	0.325*** (0.10)	0.317** (0.16)	0.316** (0.15)
Treatment	1.283 (0.59)	0.888 (0.26)	0.872 (0.47)	1.143 (0.35)	0.700 (0.48)	0.701 (0.47)
Treatment * Follow-Up	0.729 (0.45)	1.908* (0.68)	2.204 (1.53)	1.186 (0.50)	5.155* (4.30)	5.498** (4.41)
Observations	1480	1479	1479	1471	1477	1471

Exponentiated coefficients

Table 7: Ordered Logit, Mothers' Survey: Who Do You Think Should Have a Greater Say in Each of the Following Decisions? (1 = Husband, 2 = Both Jointly, 3 = Wife)

	(1) Children's education	(2) Children's marriage	(3) Use of family planning	(4) When to visit family/friends	(5) HH budget	(6) Lending/ borrowing
Follow-Up	0.955 (0.19)	0.826 (0.14)	0.841 (0.18)	0.840 (0.16)	0.858 (0.15)	0.828 (0.15)
Treatment	0.576** (0.12)	0.551*** (0.12)	0.630* (0.16)	0.597** (0.14)	0.626** (0.13)	0.586** (0.13)
Treatment * Follow-Up	3.646*** (1.70)	5.989*** (2.79)	3.177** (1.47)	3.680*** (1.63)	7.399*** (3.15)	7.192*** (3.33)
Observations	1836	1831	1833	1836	1836	1836

Exponentiated coefficients

Table 8: Mothers' Survey: Logistic Regressions on Earning and Spending

	(1) Earns money	(2) Wife decides how money is spent	(3) Wife and husband jointly decide how money is spent
Follow-Up	3.212*** (1.16)	0.938 (0.40)	1.329 (0.62)
Treatment	2.641** (1.18)	1.016 (0.41)	1.135 (0.47)
Treatment * Follow-Up	0.773 (0.40)	6.709** (4.96)	0.091*** (0.08)
Observations	1889	507	507

Exponentiated coefficients. All questions refer to money the wife has earned, with the questions answered in columns 2 and 3 asked only of those wives who earned money.

5.3 Sex and Violence

Results relating to sex and violence against women appear more mixed. First, both fathers and mothers were asked a set of attitudinal questions relating to sex. In particular, they were separately asked whether, if a woman refuses to have sex with her husband when he wants to, he has the right to get angry and reprimand her; refuse to give her money or other financial support; use force to have sex; or have sex with another woman.

Results are provided in Tables 9 and 10. Fathers appear more permissive towards husbands in the treatment group at follow-up, though mothers are not. Mothers were also asked about whether husbands were ever justified in using violence against their wives. Here, there is some suggestive, though generally not significant, evidence for women’s empowerment decreasing the acceptability of violence (Table 11). However, the treatment group often reported significantly different attitudes at baseline, so caution must be taken in interpreting these results. Results using the alternative weighting scheme are reported in Appendix Tables 22-24, and marginal effects in Appendix Tables 30-32.

Table 9: Logit, Fathers’ Survey: Do You Think That if a Woman Refuses to Have Sex with Her Husband When He Wants Her to, He Has the Right to...? (0 = Yes, 1 = No)

	(1)	(2)	(3)	(4)
	Get angry and reprimand her	Refuse to give her money	Use force to have sex	Have sex with another woman
Follow-Up	1.642 (0.63)	2.261** (0.84)	1.054 (0.46)	1.886* (0.65)
Treatment	0.994 (0.43)	0.988 (0.43)	0.986 (0.35)	0.662 (0.31)
Treatment * Follow-Up	0.326** (0.18)	0.252*** (0.12)	0.592 (0.34)	0.325** (0.18)
Observations	1472	1470	1474	1468

Exponentiated coefficients

Table 10: Logit, Mothers' Survey: Do You Think That if a Woman Refuses to Have Sex with Her Husband When He Wants Her to, He Has the Right to...? (0 = Yes, 1 = No)

	(1) Get angry and reprimand her	(2) Refuse to give her money	(3) Use force to have sex	(4) Have sex with another woman
Follow-Up	1.484 (0.40)	1.636* (0.45)	1.489* (0.34)	2.274*** (0.66)
Treatment	0.739 (0.19)	0.575* (0.17)	0.686 (0.20)	0.712 (0.20)
Treatment *	0.993 (0.39)	0.791 (0.30)	1.504 (0.63)	0.680 (0.29)
Observations	1781	1787	1785	1754

Exponentiated coefficients

Table 11: Logit, Mothers' Survey: Sometimes a Husband is Annoyed and Angry by Things that his Wife Does. In Your Opinion, is a Husband Justified in Hitting and Beating his Wife in the Following Situation? (0 = Yes, 1 = No)

	(1) She goes out without telling him	(2) She neglects the children	(3) She argues with him	(4) She refuses to have sex	(5) She burns the food
Follow-Up	2.002** (0.61)	1.877** (0.53)	1.906** (0.52)	1.544** (0.31)	1.943** (0.56)
Treatment	0.535** (0.13)	0.732 (0.24)	0.558** (0.15)	0.493** (0.13)	0.683 (0.23)
Treatment *	1.989* (0.73)	1.130 (0.40)	1.147 (0.44)	1.461 (0.52)	1.243 (0.42)
Observations	1805	1797	1802	1799	1786

Exponentiated coefficients

5.4 Education

Despite the promising results on early marriage, there were no significant changes in education (Table 12 and Table 25 in the Appendix). This highlights a difference between this and earlier studies that considered child marriage in the context of interventions that encouraged girls to stay in school. In our case, the intervention does not appear to encourage school participation, despite the incentives provided to girls enrolled in school, so the mechanism through which early marriage decreases appears different.

Table 12: Regression of Treatment on Education Outcomes Using Weighting

	(1) School enrollment	(2) School enrollment	(3) Highest grade completed	(4) Highest grade completed
Follow-Up	3.592*** (1.08)	3.598*** (1.08)	1.277*** (0.27)	1.277*** (0.27)
Treatment	2.303** (0.77)		-0.187 (0.32)	
Treatment * Follow-Up	0.805 (0.29)		-0.098 (0.31)	
Age in Years	0.743*** (0.02)	0.742*** (0.02)	0.600*** (0.04)	0.600*** (0.04)
Intensive Treatment		2.502** (0.99)		-0.168 (0.35)
Expansion Treatment		2.033* (0.75)		-0.214 (0.41)
Intensive Treatment * Follow-Up		0.658 (0.26)		-0.205 (0.31)
Expansion Treatment * Follow-Up		1.221 (0.52)		0.115 (0.35)
Observations	2810	2810	2641	2641

The first two columns report results of logistic regressions and thus report exponentiated coefficients.

5.5 Stated Norms

Mothers and fathers were also asked to report on how marriage below the age of 15 was perceived in their community and whether their religion supported it. The interventions appeared to dramatically reduce the percent of people who stated their religion supported early marriage, but

curiously may have had a reinforcing effect on how such a marriage was perceived in the community (Table 13). The coefficients are fairly large and indicate that early marriage is more positively perceived by the community; the relationship is even stronger using the alternative weights (Table 26 in the Appendix). Marginal effects are reported in Appendix Table 33.

These results warrant further explanation. Table 14 suggests that rather than flatly reducing the support for child marriage across the board, the intervention may have led to polarization of beliefs about child marriage, increasing the share of respondents supporting or opposing it while reducing the number who felt neutral towards it. Those who report at follow-up that perceptions of early marriage have stayed roughly the same since five years ago is significantly different at the 0.001 level between the treatment and control groups, though it should be noted that very few respondents gave this answer. Further, more religious leaders appear to have spoken out against child marriage in the treatment groups. These results could perhaps be explained by the literature on confirmation bias (*e.g.* Rabin and Schrag, 1999), in which any new information can magnify existing biases.

Table 13: Logit of Treatment on Perceptions of Early Marriage Using Weighting

	(1) Positively perceived by community	(2) Positively perceived by community	(3) Positively perceived by religion	(4) Positively perceived by religion
Follow-Up	0.432** (0.16)	0.432** (0.16)	1.874 (0.79)	1.874 (0.79)
Treatment	0.883 (0.32)		1.173 (0.47)	
Treatment * Follow-Up	5.273*** (2.59)		0.231** (0.14)	
Intensive Treatment		0.852 (0.35)		0.772 (0.31)
Expansion Treatment		0.921 (0.46)		1.736 (0.94)
Intensive Treatment * Follow-Up		5.046*** (2.78)		0.440 (0.26)
Expansion Treatment * Follow-Up		5.702*** (3.53)		0.093*** (0.07)
Observations	3393	3393	3184	3184

Exponentiated coefficients. This table includes responses from both mothers and fathers, without restricting attention to those households that completed both the baseline and follow-up survey.

Table 14: Polarization in Norms at Follow-Up

How does this [perceptions of marriage below 15] compare with 5 years ago?			
	Control	Treatment	Total
It is seen more positively than 5 years ago	247	267	514
It is seen more negatively than 5 years ago	343	372	715
Same as 5 years ago	38	4	42
Total	628	643	1,271
From what you know, how does your religion view early marriage?			
	Control	Treatment	Total
It supports early marriage	523	595	1,118
It is against early marriage	9	17	26
Does not address it	98	29	127
Total	630	641	1,271

This table includes responses from both mothers and fathers, however, many did not answer either question.

5.6 Robustness Checks and Limitations

It is important to consider whether the sample was selected in any way that could yield misleading results. Households were only surveyed if they had a girl under the age of 18 living at home; otherwise, enumerators proceeded to the next household on the list, continuing until they reached the target number of households in that enumeration area. Usually, married girls would go live with their husbands, so we may be concerned we are selecting households with either particularly young children or those households less likely, based on unobservables, to be involved in child marriage irrespective of the intervention. Both the baseline and follow-up survey restricted the sample in this way across both the treatment and control groups.

We might think that if enumerators had to try more households in the control group before finding ones with girls still living at home, the households most against early marriage might be more selected in this group. In this case, our results might be biased downwards, as we would be comparing the outcomes of those who *ceteris paribus* would be more opposed to child marriage (control) with the outcomes of those who without the intervention might be less opposed to child marriage (treatment); in other words, we might be missing more marriages in the control group. In this case, our estimates would represent a lower bound.

Further, as discussed, our main results are based on all who took the baseline survey and all who took the follow-up, without restricting attention to only those baseline households targeted for the smaller follow-up survey. Robustness checks restricting attention to those who were in both surveys were presented for the outcome of early marriage in Table 5. Unfortunately, the survey firm did not correctly attach household identifiers to some of the survey components at follow-up, but for those other outcomes for which it is possible to restrict the sample in this way, further robustness checks are included in the appendix (Tables 27-29), with results consistent with the results from the full sample.

We also saw that even after weighting, statistically significant differences were occasionally reported between the treatment and control group at baseline. With data on many variables having been collected, some differences are likely to be significant by chance; we focused on attaining balance for those variables we believe have the strongest potential to affect results. The issue of comparability of treatment and control areas is particularly important given the different ge-

ographic zones of these groups. We note that in many cases the treatment and control were just across a river from each other, but unobserved differences remain possible. With the magnitude of the changes we see for our main results on child marriage and their robustness across many specifications, it is difficult to think that the reductions we observe could be entirely due to baseline differences. Still, as a further robustness check, regressions for the main results are included without weights in the Appendix (Table 37).

Finally, while the marriage market has both a supply and demand side, this paper has focused primarily on the supply of brides. The interventions mostly targeted the supply side (though they could have affected awareness in grooms' families as well), so this is a natural focus. Still, it is also important to know whether the treatment and control areas were comparable at baseline with respect to factors that might influence demand. The most directly relevant variables with which we can investigate this issue are whether a bride price was paid and whether the husbands were of a similar "quality" in the treatment and control areas. Given a comparable "supply" of brides at baseline, the demand should also be comparable if the payment of bride prices and if husband quality are similar. In the data, we have a binary indicator of whether a bride price was paid, which exhibited a large degree of variation. For husband "quality", we have two variables: whether the husband's family had more land, less land, or the same amount of land as the wife's family, and whether the husband was more educated, less educated, or equally educated as the wife. We focus attention on the husbands of girls under 18 at baseline, and since this is a relatively small group, we combine the two quality measures into an index, taking the mean; in an alternative specification, we construct an indicator equal to 1 if husbands have either more land or more education. None of these baseline measures is significantly different between the treatment and control group, pre- or post-weighting.

6 Conclusions

Early marriage is a significant and under-appreciated problem affecting the lives of millions of women in developing countries. Since marriage involves a matching problem, the best age for an individual to get married depends on the age others get married. Child marriage thus might appear to be a problem that is particularly resistant to change through mechanisms that only affect a small

share of the population. Instead, the larger the share of girls who may be affected by the program, the potentially larger the effects. This paper provides some interesting insights on the effects of a program that directly seeks to change social norms by facilitating community conversations about child marriage in a way that has the potential to affect both in-school and out-of-school girls. More traditional economic incentives were also provided in another treatment arm. Ultimately, both treatment arms appeared to help reduce child marriage, by 5 to 8 percentage points, and we cannot unambiguously distinguish them from one another.

We also observed spillover effects to measures relating to women's empowerment. Women and men both reported that women contributed more to intra-household decisions at follow-up in the treatment group, and women reported more control over their earnings. Educational outcomes were not affected by the program, consistent with the story that financial incentives for girls who stayed in school and remained unmarried were not driving our results. Perhaps most interestingly, the changes precipitated by the intervention were accompanied by seeming increased factionalism in how respondents viewed child marriage. While these results remain tentative, future studies should carefully consider how to convey messages intended to shift social norms in a way that avoids incurring a potential backlash effect.

Appendix

Table 15: Schedule of Material Transfers to School Girls and Re-Enrolled Out-of-School Girls

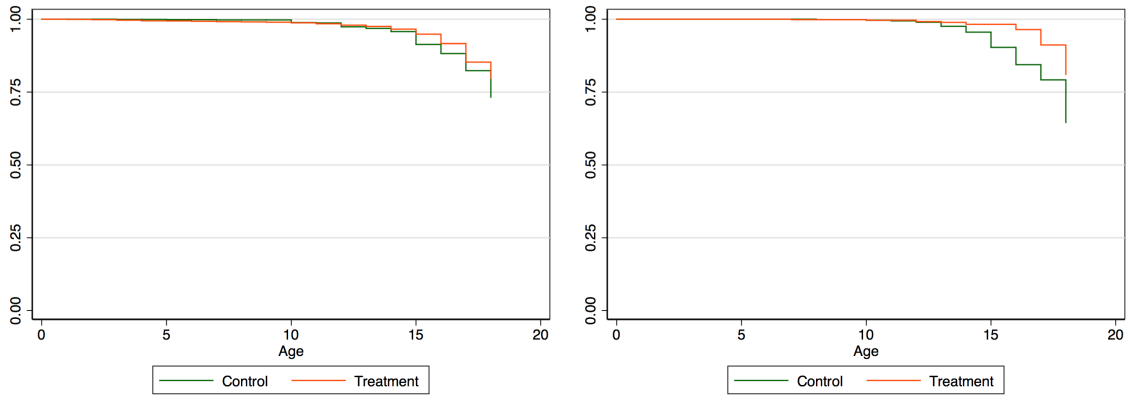
Item	Max per Beneficiary	Frequency of Provision
Exercise Books	16	Once per semester
Pen	10	Once per semester
Pencil	4	Once per semester
Eraser	2	Once per semester
Ruler	2	Once per semester
School Bag	1	Once per year
Sanitary Towels	12	Once per semester
Soap	12	Once per semester
Pencil sharpener	2	Once per semester

Table 16: Sample Characteristics, Pre- and Post-Weighting Using Variables Selected by Lasso Regression

	Pre-Weighting				Post-Weighting			
	Control	Treatment	Difference	p-value	Control	Treatment	Difference	p-value
Age of marriage and perception of marriage								
Age married (F)	13.58	13.62	-0.04	0.93	13.49	13.81	-0.32	0.53
Age married (M)	14.03	13.24	0.79	0.04	13.93	13.49	0.44	0.43
Age married (G)	12.95	11.66	1.28	0.06	13.44	11.45	1.99	0.00
Marriage below age 15 exists (F) (2 = No, 1 = Yes)	1.70	1.72	-0.02	0.58	1.74	1.69	0.04	0.52
Marriage below age 15 exists (M) (2 = No, 1 = Yes)	1.73	1.70	0.03	0.32	1.72	1.68	0.04	0.66
Marriage below age 15 common (F) (3 = Very common, 2 = common, 1 = rare)	1.26	1.32	-0.05	0.40	1.24	1.41	-0.17	0.15
Marriage below age 15 common (M) (3 = Very common, 2 = common, 1 = rare)	1.24	1.30	-0.06	0.32	1.25	1.31	-0.06	0.46
Marriage below age 18 exists (F) (2 = No, 1 = Yes)	1.33	1.50	-0.17	0.00	1.31	1.44	-0.14	0.08
Marriage below age 18 exists (M) (2 = No, 1 = Yes)	1.43	1.49	-0.06	0.06	1.43	1.41	0.02	0.82
Marriage below age 18 common (F) (3 = Very common, 2 = common, 1 = rare)	1.42	1.35	0.07	0.18	1.34	1.35	-0.01	0.91
Marriage below age 18 common (M) (3 = Very common, 2 = common, 1 = rare)	1.30	1.36	-0.06	0.23	1.23	1.37	-0.14	0.15
Age girls should marry (F)	17.75	17.98	-0.24	0.16	17.97	17.95	0.02	0.94
Age girls should marry (M)	17.70	17.80	-0.10	0.56	17.50	17.82	-0.31	0.43
Age girls should marry (B)	17.92	18.14	-0.23	0.33	17.97	18.15	-0.19	0.69
Age girls should marry (G)	17.89	18.20	-0.30	0.01	17.85	18.04	-0.19	0.59
Age boys should marry (F)	21.14	20.36	0.78	0.00	21.32	20.42	0.90	0.08
Age boys should marry (M)	21.02	20.57	0.46	0.04	21.01	20.49	0.52	0.14
Age boys should marry (B)	20.61	20.15	0.45	0.16	20.16	20.39	-0.22	0.81
Age boys should marry (G)	20.52	20.39	0.13	0.43	20.35	20.29	0.06	0.85
How is marriage below age 15 perceived (F) (2 = Negatively, 1 = positively)	1.88	1.90	-0.02	0.44	1.90	1.87	0.03	0.65
How is marriage below age 15 perceived (M) (2 = Negatively, 1 = positively)	1.87	1.85	0.02	0.42	1.81	1.85	-0.04	0.67
How do religious leaders perceive it (F) (2 = Do not support, 1 = support)	1.94	1.89	0.05	0.02	1.95	1.87	0.09	0.17
How do religious leaders perceive it (M) (2 = Do not support, 1 = support)	1.88	1.86	0.02	0.41	1.92	1.83	0.09	0.25
How do influential community members view early marriage? (F) (3 = Bad practice, 2 = normal practice, 1 = good practice)	2.74	2.77	-0.03	0.46	2.77	2.73	0.04	0.75
How do influential community members view early marriage? (M) (3 = Bad practice, 2 = normal practice, 1 = good practice)	2.58	2.68	-0.11	0.02	2.57	2.70	-0.13	0.23
Other characteristics and norms								
Attends school (G) (2 = No, 1 = Yes)	1.28	1.16	0.13	0.00	1.33	1.18	0.14	0.07
What is the highest grade completed? (H)	5.23	5.14	0.10	0.67	5.20	4.97	0.24	0.66
At what age did [Name] discontinue schooling? (H)	14.58	15.90	-1.32	0.00	14.22	15.55	-1.33	0.06
How old were you when you stopped school? (G)	12.32	12.91	-0.59	0.11	12.33	12.92	-0.59	0.24
Share of time spent on work (H)	0.43	0.38	0.05	0.00	0.43	0.38	0.05	0.29
Share of time spent on school (H)	0.34	0.40	-0.05	0.00	0.35	0.39	-0.04	0.44
Share of time spent on leisure (H)	0.23	0.22	0.00	0.73	0.22	0.24	-0.01	0.54
Was there a bride price for the girl? (F) (2 = No, 1 = Yes)	1.47	1.33	0.14	0.01	1.54	1.31	0.23	0.06
Was there a bride price for the girl? (M) (2 = No, 1 = Yes)	1.47	1.37	0.10	0.04	1.56	1.35	0.21	0.09
Was there a bride price for the girl? (G) (2 = No, 1 = Yes)	1.40	1.54	-0.14	0.06	1.50	1.47	0.03	0.86
Total consumption (H)	24835.23	31852.31	-7017.08	0.05	27492.11	28317.31	-825.20	0.84
Decision-making index (F)	0.82	0.70	0.12	0.00	0.85	0.72	0.13	0.04
Decision-making index (M)	0.19	0.24	-0.05	0.30	0.23	0.20	0.03	0.76
Sex coercion index (F)	0.86	0.81	0.06	0.00	0.87	0.83	0.04	0.38
Sex coercion index (M)	0.62	0.63	-0.01	0.60	0.54	0.62	-0.08	0.26
Violence index (M)	0.43	0.47	-0.04	0.07	0.34	0.47	-0.13	0.08
Voice index (M)	1.37	1.60	-0.23	0.00	1.29	1.59	-0.29	0.01
Have you heard of the new criminal code (F) (2 = No, 1 = Yes)	1.68	1.70	-0.01	0.71	1.51	1.76	-0.25	0.08
Age law states for girls to marry (F)	17.73	17.98	-0.25	0.34	17.64	17.98	-0.34	0.16

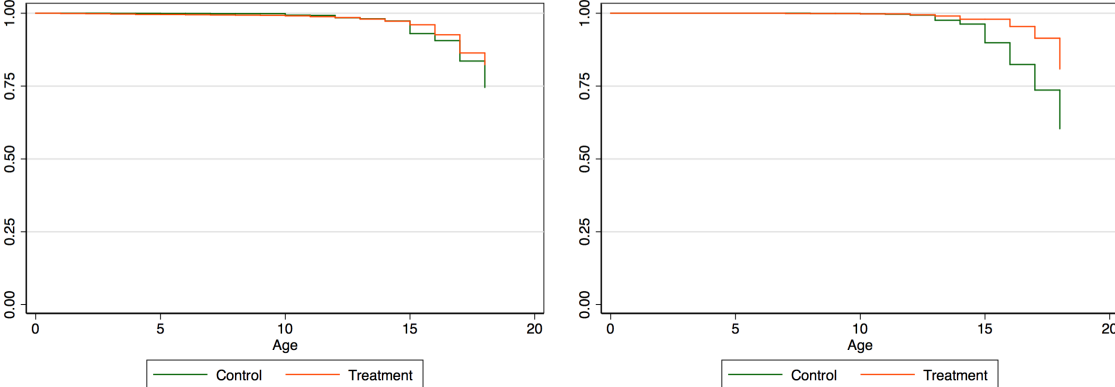
*(F) indicates a response from the father's survey; (M) a response from the mother's survey; (G) a response from the girl's survey; (B) a response from the boy's survey; (H) a response from the household survey. Total consumption is obtained from summing all food and non-food consumption. For the father's decision-making index, the father was asked whether he or his wife had more say in making several kinds of decisions (large household purchases; small household purchases; deciding when to visit family, friends, or relatives; deciding what to do with the money she earns; deciding to marry off the daughter; deciding to marry the son); the index is the share of the time the father answered that his wife had more say than he did. For the mother's decision-making index, the mother was asked whether she had more say in making several kinds of decisions (childrens education; childrens marriage plans; use of family planning methods; deciding when to visit family, friends, or relatives; deciding on the household budget; lending or borrowing; consulting with someone (doctor, nurse, traditional healer, etc.) if a child is sick; paying for medicine or treatment for a sick child); the index is the share of the time the mother answered that she had more say than her husband did. For the sex coercion index, both the father and the mother were (separately) asked whether, if a woman refused sex with her husband, he had the right to: get angry and warn her; refuse to give her money or other means of financial support; use force and have sex with her even if she doesn't want to have it; go and have sex with another woman. The index is the share of the time that the father and mother respectively answered that the man did not have the right. For the violence index, the mother was asked whether a man is justified in beating his wife if: she goes out without telling him; she neglects the children; she argues with him; she refuses to have sex with him; she burns the food. The index is the share of the time that the mother answers that the man is not justified.

Figure 5: Hazard Rate for Being Unmarried at Baseline and Follow-Up, Unweighted



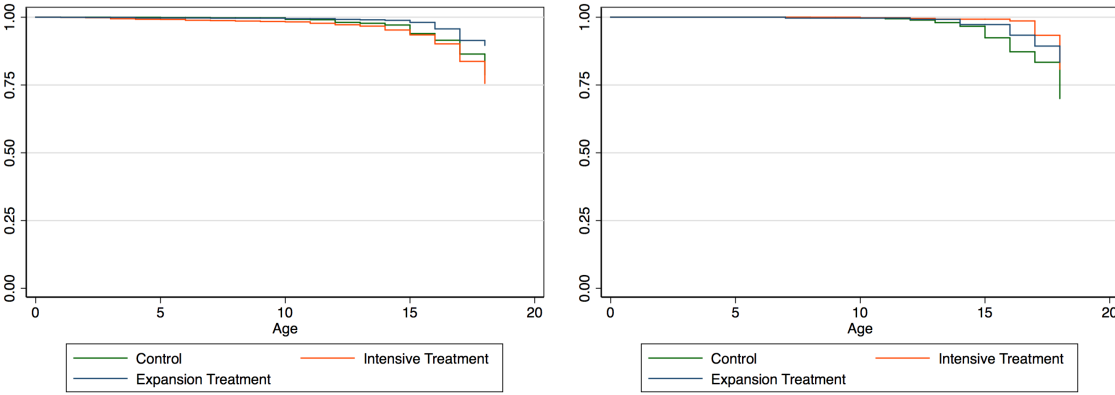
The figure on the left shows the hazard plot at baseline; the figure on the right, at follow-up.

Figure 6: Hazard Rate for Being Unmarried at Baseline and Follow-Up, Weighting on Lasso-Selected Variables



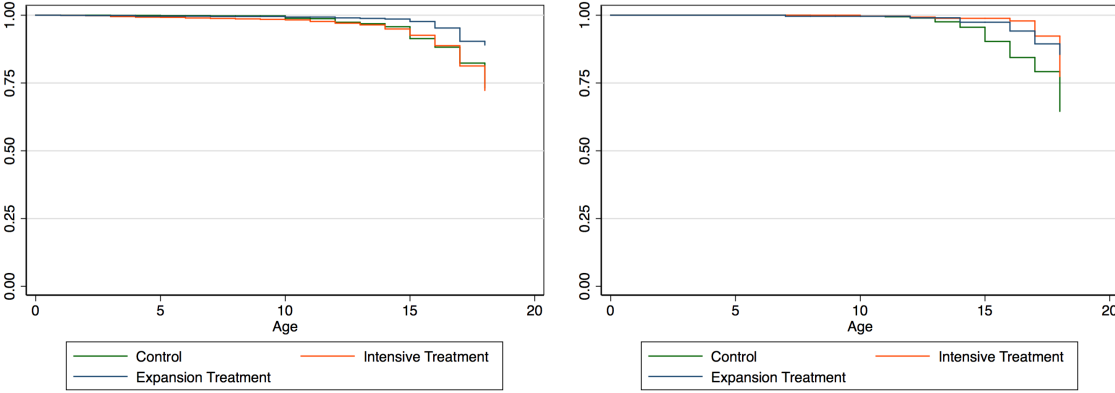
The figure on the left shows the hazard plot at baseline; the figure on the right, at follow-up.

Figure 7: Hazard Plots for Being Unmarried at Baseline and Follow-Up by Different Treatments, Weighted Using Main Weights



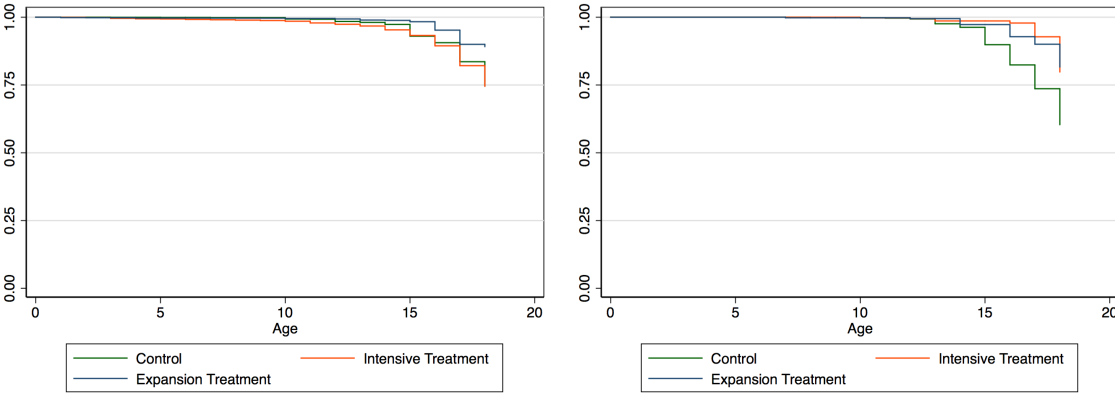
The figure on the left shows the hazard plot at baseline; the figure on the right, at follow-up.

Figure 8: Hazard Plots for Being Unmarried at Baseline and Follow-Up by Different Treatments, Unweighted



The figure on the left shows the hazard plot at baseline; the figure on the right, at follow-up.

Figure 9: Hazard Plots for Being Unmarried at Baseline and Follow-Up by Different Treatments, Weighted Using Lasso-Selected Variables



The figure on the left shows the hazard plot at baseline; the figure on the right, at follow-up.

Table 17: Main Regressions Using Augmented Inverse Probability Weighting

	(1)	(2)
	Currently Married	Ever Married
	b/se	b/se
Treatment	-0.019 (0.01)	-0.028* (0.01)
Observations	1177	1177

These regressions use augmented inverse probability weighting. As in the main regressions, the following variables were selected for use in weighting at the kebele level: the age of the girls in each district, to guard against demographic differences; the percent under the age of 18 who were currently married or promised; the average number of girls in each household, which could be related to both the household size and preferences over the sex of children; the average total household consumption; and how positively or negatively respondents in that district say their communities view early marriage.

Table 18: Regressions of Treatment on Marriage Outcomes Using Weighting on Lasso-Selected Variables

	(1) Currently married or promised	(2) Currently married or promised	(3) Ever married	(4) Ever married
Follow-Up	0.038 (0.03)	0.038 (0.03)	0.035 (0.03)	0.035 (0.03)
Treatment	-0.021 (0.02)		0.018 (0.02)	
Treatment *	-0.047 (0.04)		-0.078** (0.03)	
Age in Years	0.013*** (0.00)	0.013*** (0.00)	0.024*** (0.00)	0.024*** (0.00)
Intensive Treatment		-0.000 (0.02)		0.025 (0.03)
Expansion Treatment		-0.036** (0.02)		0.012 (0.03)
Intensive Treatment *		-0.070* (0.04)		-0.073** (0.03)
Expansion Treatment *		-0.028 (0.04)		-0.085** (0.03)
Constant	-0.108*** (0.04)	-0.107** (0.04)	-0.233*** (0.05)	-0.233*** (0.05)
Observations	4254	4254	4254	4254
R^2	0.04	0.04	0.06	0.06

Lasso-selected variables are used for weighting.

Table 19: Ordered Logit, Fathers' Survey, Weighting on Lasso-Selected Variables: Who Do You Think Should Have a Greater Say in Each of the Following Decisions? (1 = Husband, 2 = Both Jointly, 3 = Wife)

	(1) Large HH purchases	(2) Small HH purchases	(3) When to visit family/friends	(4) Use of wife's earnings	(5) Daughter's marriage	(6) Son's marriage
Follow-Up	1.336 (0.54)	0.250*** (0.08)	0.530 (0.25)	0.308*** (0.11)	0.361* (0.20)	0.338** (0.18)
Treatment	1.055 (0.50)	0.960 (0.28)	0.657 (0.36)	1.136 (0.38)	0.762 (0.56)	0.761 (0.56)
Treatment * Follow-Up	1.032 (0.71)	2.089* (0.78)	3.308* (2.29)	1.347 (0.65)	6.656* (6.25)	7.206** (6.63)
Observations	1480	1479	1479	1471	1477	1471

Exponentiated coefficients. Lasso-selected variables are used for weighting.

Table 20: Ordered Logit, Mothers' Survey, Weighting on Lasso-Selected Variables: Who Do You Think Should Have a Greater Say in Each of the Following Decisions? (1 = Husband, 2 = Both Jointly, 3 = Wife)

	(1) Children's education	(2) Children's marriage	(3) Use of family planning	(4) When to visit family/friends	(5) HH budget	(6) Lending /borrowing
Follow-Up	1.229 (0.28)	1.011 (0.21)	1.000 (0.29)	1.068 (0.29)	1.057 (0.26)	1.039 (0.23)
Treatment	0.673 (0.18)	0.652 (0.18)	0.666 (0.19)	0.709 (0.22)	0.736 (0.20)	0.681 (0.19)
Treatment *	2.151 (1.33)	3.685** (2.30)	2.131 (1.29)	2.148 (1.37)	4.932** (2.96)	3.884* (2.62)
Observations	1836	1831	1833	1836	1836	1836

Exponentiated coefficients. Lasso-selected variables are used for weighting.

Table 21: Mothers' Survey: Logistic Regressions on Earning and Spending, Weighting Using Lasso-Selected Variables

	(1) Earns money	(2) Wife decides how money is spent	(3) Wife and husband jointly decide how money is spent
Follow-up	3.287*** (1.05)	0.567 (0.32)	2.164 (1.27)
Treatment	4.167*** (1.66)	1.482 (0.69)	0.773 (0.36)
Treatment *	0.588 (0.26)	9.986*** (7.89)	0.069*** (0.06)
Observations	1889	507	507

Exponentiated coefficients. All questions refer to money the wife has earned, with the questions answered in columns 2 and 3 asked only of those wives who earned money. Lasso-selected variables are used for weighting.

Table 22: Logit, Fathers' Survey, Weighting Using Lasso-Selected Variables: Do You Think That if a Woman Refuses to Have Sex with Her Husband When He Wants Her to, He Has the Right to...? (0 = Yes, 1 = No)

	(1)	(2)	(3)	(4)
	Get angry and reprimand her	Refuse to give her money	Use force to have sex	Have sex with another woman
Follow-Up	2.107*	1.886*	1.413	2.506**
	(0.87)	(0.67)	(0.69)	(1.11)
Treatment	0.781	0.671	0.752	0.646
	(0.32)	(0.28)	(0.31)	(0.38)
Treatment *	0.282**	0.336**	0.461	0.200*
Follow-Up	(0.15)	(0.16)	(0.29)	(0.17)
Observations	1472	1470	1474	1468

Exponentiated coefficients. Lasso-selected variables are used for weighting.

Table 23: Logit, Mothers' Survey, Weighting Using Lasso-Selected Variables: Do You Think That if a Woman Refuses to Have Sex with Her Husband When He Wants Her to, He Has the Right to...? (0 = Yes, 1 = No)

	(1)	(2)	(3)	(4)
	Get angry and reprimand her	Refuse to give her money	Use force to have sex	Have sex with another woman
Treatment	0.728 (0.23)	0.519* (0.17)	0.661 (0.22)	0.573 (0.20)
Follow-Up	1.869** (0.56)	2.669** (1.04)	1.656* (0.44)	2.952*** (1.04)
Treatment *	0.856 (0.31)	0.569 (0.19)	1.492 (0.68)	0.751 (0.28)
Observations	1781	1787	1785	1754

Exponentiated coefficients. Lasso-selected variables are used for weighting.

Table 24: Logit, Mothers' Survey, Weighting Using Lasso-Selected Variables: Sometimes a Husband is Annoyed and Angry by Things that his Wife Does. In Your Opinion, is a Husband Justified in Hitting and Beating his Wife in the Following Situation? (0 = Yes, 1 = No)

	(1) She goes out without telling him	(2) She neglects the children	(3) She argues with him	(4) She refuses to have sex	(5) She burns the food
Follow-Up	2.449*** (0.70)	1.860** (0.56)	2.027** (0.58)	1.873** (0.54)	1.908* (0.64)
Treatment	0.370** (0.14)	0.508** (0.17)	0.367** (0.15)	0.437** (0.17)	0.547* (0.17)
Treatment *	1.702 (0.77)	1.676 (0.76)	1.393 (0.69)	1.361 (0.65)	1.429 (0.67)
Observations	1805	1797	1802	1799	1786

Exponentiated coefficients. Lasso-selected variables are used for weighting.

Table 25: Regression of Treatment on Education Outcomes Using Weighting on Lasso-Selected Variables

	(1) School enrollment	(2) School enrollment	(3) Highest grade completed	(4) Highest grade completed
Follow-Up	3.613*** (0.96)	3.629*** (0.96)	1.391*** (0.30)	1.391*** (0.30)
Treatment	2.337* (1.00)		-0.139 (0.42)	
Treatment * Follow-Up	0.995 (0.41)		-0.125 (0.32)	
Age in Years	0.737*** (0.02)	0.734*** (0.02)	0.567*** (0.05)	0.567*** (0.05)
Intensive Treatment		3.127** (1.45)		-0.134 (0.43)
Expansion Treatment		1.881 (0.83)		-0.143 (0.49)
Intensive Treatment * Follow-Up		0.622 (0.23)		-0.181 (0.34)
Expansion Treatment * Follow-Up		1.555 (0.99)		-0.063 (0.34)
Constant			-4.214*** (0.49)	-4.211*** (0.50)
Observations	2810	2810	2641	2641

The first two columns report results of logistic regressions and thus report exponentiated coefficients. Lasso-selected variables are used for weighting.

Table 26: Regression of Treatment on Perceptions of Early Marriage Using Weighting on Lasso-Selected Variables

	(1) Positively perceived by community	(2) Positively perceived by community	(3) Positively perceived by religion	(4) Positively perceived by religion
Follow-Up	0.525** (0.15)	0.525** (0.15)	3.105** (1.51)	3.105** (1.51)
Treatment	0.912 (0.43)		2.542 (1.52)	
Treatment * Follow-Up	4.322*** (1.67)		0.090*** (0.07)	
Intensive Treatment		0.740 (0.32)		1.174 (0.53)
Expansion Treatment		1.042 (0.64)		3.816* (2.67)
Intensive Treatment * Follow-Up		4.965*** (2.25)		0.244** (0.16)
Expansion Treatment * Follow-Up		4.007*** (1.78)		0.046*** (0.04)
Observations	3393	3393	3184	3184

Exponentiated coefficients. Lasso-selected variables are used for weighting.

Table 27: Marginal Effects for Ordered Logit, Fathers' Survey: Who Do You Think Should Have a Greater Say in Each of the Following Decisions? (1 = Husband, 2 = Both Jointly, 3 = Wife)

	Treatment Status	Odds Ratio	Confidence Interval
Large HH purchases	Control	1.51	0.71 - 3.21
	Treatment	1.10	0.40 - 3.01
Small HH purchases	Control	0.32	0.15 - 0.68
	Treatment	0.62	0.34 - 1.14
When to visit family/friends	Control	0.57	0.25 - 1.33
	Treatment	1.26	0.37 - 4.35
Use of wife's earnings	Control	0.32	0.18 - 0.60
	Treatment	0.39	0.21 - 0.71
Daughter's marriage	Control	0.32	0.11 - 0.91
	Treatment	1.63	0.41 - 6.48
Son's marriage	Control	0.32	0.12 - 0.84
	Treatment	1.74	0.45 - 6.70

This table presents the average marginal effects of moving from the pre-treatment (baseline) to post-treatment (follow-up) period, for the treatment and control group. Odds ratios and 95% confidence intervals are provided.

Table 28: Marginal Effects for Ordered Logit, Mothers' Survey: Who Do You Think Should Have a Greater Say in Each of the Following Decisions? (1 = Husband, 2 = Both Jointly, 3 = Wife)

	Treatment Status	Odds Ratio	Confidence Interval
Children's education	Control	0.94	0.62 - 1.43
	Treatment	3.50	1.86 - 6.58
Children's marriage	Control	0.83	0.59 - 1.16
	Treatment	4.95	2.49 - 9.82
Use of family planning	Control	0.83	0.54 - 1.27
	Treatment	2.68	1.46 - 4.92
When to visit family/friends	Control	0.83	0.55 - 1.23
	Treatment	3.11	1.72 - 5.62
HH budget	Control	0.85	0.58 - 1.22
	Treatment	6.40	3.55 - 11.54
Lending/borrowing	Control	0.82	0.57 - 1.18
	Treatment	5.99	3.00 - 11.99

This table presents the average marginal effects of moving from the pre-treatment (baseline) to post-treatment (follow-up) period, for the treatment and control group. Odds ratios and 95% confidence intervals are provided.

Table 29: Marginal Effects for Mothers' Survey: Logistic Regressions on Earning and Spending

	Treatment Status	Odds Ratio	Confidence Interval
Earns money	Control	3.21	1.54 - 6.68
	Treatment	2.48	1.16 - 5.33
Wife decides how money is spent	Control	0.94	0.39 - 2.23
	Treatment	6.29	1.85 - 21.45
Wife and husband jointly decide how money is spent	Control	1.33	0.51 - 3.44
	Treatment	0.12	0.03 - 0.52

This table presents the average marginal effects of moving from the pre-treatment (baseline) to post-treatment (follow-up) period, for the treatment and control group. Odds ratios and 95% confidence intervals are provided.

Table 30: Marginal Effects for Logit, Fathers' Survey: Do You Think That if a Woman Refuses to Have Sex with Her Husband When He Wants Her to, He Has the Right to...? (0 = Yes, 1 = No)

	Treatment Status	Odds Ratio	Confidence Interval
Get angry and reprimand her	Control	1.64	0.75 - 3.59
	Treatment	0.54	0.24 - 1.20
Refuse to give her money	Control	2.26	1.06 - 4.83
	Treatment	0.57	0.24 - 1.34
Use force to have sex	Control	1.05	0.43 - 2.57
	Treatment	0.62	0.31 - 1.27
Have sex with another woman	Control	1.89	0.94 - 3.80
	Treatment	0.61	0.21 - 1.75

This table presents the average marginal effects of moving from the pre-treatment (baseline) to post-treatment (follow-up) period, for the treatment and control group. Odds ratios and 95% confidence intervals are provided.

Table 31: Marginal Effects for Logit, Mothers' Survey: Do You Think That if a Woman Refuses to Have Sex with Her Husband When He Wants Her to, He Has the Right to...? (0 = Yes, 1 = No)

	Treatment Status	Odds Ratio	Confidence Interval
Get angry and reprimand her	Control	1.48	0.86 - 2.57
	Treatment	1.47	0.84 - 2.59
Refuse to give her money	Control	1.64	0.93 - 2.88
	Treatment	1.29	0.70 - 2.39
Use force to have sex	Control	1.49	0.93 - 2.38
	Treatment	2.24	1.10 - 4.56
Have sex with another woman	Control	2.27	1.27 - 4.08
	Treatment	1.55	0.76 - 3.13

This table presents the average marginal effects of moving from the pre-treatment (baseline) to post-treatment (follow-up) period, for the treatment and control group. Odds ratios and 95% confidence intervals are provided.

Table 32: Marginal Effects for Logit, Mothers' Survey: Sometimes a Husband is Annoyed and Angry by Things that his Wife Does. In Your Opinion, is a Husband Justified in Hitting and Beating his Wife in the Following Situation? (0 = Yes, 1 = No)

	Treatment Status	Odds Ratio	Confidence Interval
She goes out without telling him	Control	2.00	1.07 - 3.73
	Treatment	3.98	2.30 - 6.88
She neglects the children	Control	1.88	1.06 - 3.33
	Treatment	2.12	1.05 - 4.29
She argues with him	Control	1.91	1.09 - 3.33
	Treatment	2.19	1.21 - 3.97
She refuses to have sex	Control	1.54	1.02 - 2.33
	Treatment	2.26	1.23 - 4.13
She burns the food	Control	1.94	1.08 - 3.50
	Treatment	2.42	1.19 - 4.92

This table presents the average marginal effects of moving from the pre-treatment (baseline) to post-treatment (follow-up) period, for the treatment and control group. Odds ratios and 95% confidence intervals are provided.

Table 33: Marginal Effects for Logit of Treatment on Perceptions of Early Marriage Using Weighting

	Treatment Status	Odds Ratio	Confidence Interval
Positively perceived by community	Control	0.43	0.20 - 0.91
	Treatment	2.28	1.18 - 4.41
Positively perceived by community	Control	0.43	0.20 - 0.91
	Intensive Treatment	2.18	0.95 - 5.02
	Expansion Treatment	2.46	0.90 - 6.78
Positively perceived by religion	Control	1.87	0.80 - 4.39
	Treatment	0.43	0.18 - 1.03
Positively perceived by religion	Control	1.87	0.80 - 4.39
	Intensive Treatment	0.82	0.34 - 1.97
	Expansion Treatment	0.17	0.05 - 0.62

This table presents the average marginal effects of moving from the pre-treatment (baseline) to post-treatment (follow-up) period, for the treatment and control group. Odds ratios and 95% confidence intervals are provided.

Table 34: Mothers' Survey: Logistic Regressions on Earning and Spending, Restricted Sample

	(1) Earns money	(2) Wife decides how money is spent	(3) Wife and husband jointly decide how money is spent
Follow-up	2.622** (1.04)	0.957 (0.38)	1.269 (0.58)
Treatment	2.177* (0.96)	1.024 (0.40)	1.091 (0.47)
Treatment * Follow-Up	0.853 (0.46)	6.125** (4.85)	0.108** (0.10)
Observations	1297	320	320

Exponentiated coefficients. All questions refer to money the wife has earned, with the questions answered in columns 2 and 3 asked only of those wives who earned money. This table restricts attention to those households that completed both the baseline and follow-up survey.

Table 35: Regression of Treatment on Education Outcomes, Restricted Sample

	(1)	(2)	(3)	(4)
	School enrollment	School enrollment	Highest grade completed	Highest grade completed
Follow-Up	3.282*** (0.88)	3.289*** (0.89)	1.136*** (0.25)	1.136*** (0.25)
Treatment	2.484** (1.00)		-0.198 (0.29)	
Treatment *	0.721 (0.26)		0.041 (0.30)	
Follow-Up				
Age in Years	0.745*** (0.02)	0.744*** (0.02)	0.642*** (0.03)	0.641*** (0.03)
Intensive Treatment		2.998** (1.29)		-0.062 (0.30)
Expansion Treatment		1.871 (0.89)		-0.433 (0.43)
Intensive Treatment *		0.511 (0.21)		-0.202 (0.28)
Follow-Up				
Expansion Treatment *		1.397 (0.55)		0.483 (0.38)
Observations	1776	1776	1654	1654

The first two columns report results of logistic regressions and thus report exponentiated coefficients. This table restricts attention to those households that completed both the baseline and follow-up survey.

Table 36: Regression of Treatment on Perceptions of Early Marriage, Restricted Sample

	(1) Positively perceived by community	(2) Positively perceived by community	(3) Positively perceived by religion	(4) Positively perceived by religion
Follow-Up	0.403** (0.15)	0.403** (0.15)	1.871 (0.80)	1.871 (0.80)
Treatment	0.993 (0.41)		1.453 (0.61)	
Treatment * Follow-Up	5.568*** (2.93)		0.179** (0.12)	
Intensive Treatment		0.740 (0.33)		0.755 (0.37)
Expansion Treatment		1.396 (0.76)		2.770** (1.23)
Intensive Treatment * Follow-Up		7.069*** (3.94)		0.434 (0.31)
Expansion Treatment * Follow-Up		4.287** (2.87)		0.058*** (0.05)
Observations	2268	2268	2146	2146

Exponentiated coefficients. This table restricts attention to those households that completed both the baseline and follow-up survey.

Table 37: Regression of Treatment on Marriage Outcomes, Unweighted

	(1) Currently married or promised	(2) Currently married or promised	(3) Ever married	(4) Ever married
Follow-Up	0.017 (0.01)	0.017 (0.01)	0.016 (0.01)	0.016 (0.01)
Treatment	-0.025*** (0.01)		0.002 (0.01)	
Treatment *	-0.032** (0.02)		-0.054*** (0.02)	
Age in Years	0.012*** (0.00)	0.012*** (0.00)	0.021*** (0.00)	0.021*** (0.00)
Intensive Treatment		-0.007 (0.01)		0.021* (0.01)
Expansion Treatment		-0.045*** (0.01)		-0.019 (0.01)
Intensive Treatment *		-0.049*** (0.02)		-0.064*** (0.02)
Expansion Treatment *		-0.012 (0.02)		-0.046* (0.02)
Constant	-0.086*** (0.02)	-0.084*** (0.02)	-0.187*** (0.02)	-0.185*** (0.02)
Observations	4254	4254	4254	4254
R^2	0.03	0.03	0.05	0.05

This table shows results for two outcomes: whether or not girls aged 8 to 18 are currently married or promised, and whether or not they were ever married, without using any weights. This table is the unweighted equivalent of Table 4.