Experimental Evidence on the Effects of Women’s Employment *

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Abstract

A standard prediction of the household literature is that women’s employment should increase women’s intra-household bargaining power. This paper provides the first experimental tests of this prediction. The experiment is set in an area of rural India where women’s employment is low and where women’s family members typically decide whether women work. My intervention is a video promoting a women’s employment opportunity that was designed to address family members’ key objections to women working. I inform both treated and control family members about the opportunity but only show the promotion to treated family members. The promotion led to large increases in women’s employment and is unlikely to have affected other family outcomes through channels aside from women’s employment; I interpret effects of the promotion on these outcomes as effects of women’s employment. I find employment enables women to make more decisions independently and without their husbands’ knowledge. However, it does not increase their bargaining power in joint decisions. My results are inconsistent with the standard collective model of the household and more aligned with a model in which spouses do not fully pool their incomes.

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1 Introduction

A standard prediction of the household literature is that women’s employment should increase women’s intra-household bargaining power. This idea is discussed widely across decades of research. Chiappori (1988, 1992), the papers that developed the collective model, mention that wages and non-labor income will influence bargaining weights. In theoretical work that allows the balance of power in the collective model to be endogenously determined, Basu (2006) chooses female labor supply for a case study of a household decision that shifts future bargaining power (in the favor of women). Empirically, an increase in women’s bargaining weights has been used to explain why household outcomes differ when women contribute more to total resources (Duflo, 2003; Qian, 2008; Thomas, 1990). Other studies use direct reports of decision-making and document changes in women’s influence over household decisions accompanying their employment (Anderson and Eswaran, 2009; Atkin, 2009; Majlesi, 2016). The literature review of Heath and Jayachandran (2018) highlights an increase in bargaining power as an effect of women’s employment. However, the evidence for this hypothesis is non-experimental. This paper provides the first experimental test of it.¹

The experiment is set in rural Uttar Pradesh, India, an area with low levels of women’s employment. I partner with a large Indian carpet manufacturer that offers training and employment in weaving to women in this area. Consistent with low overall employment of women, sign-up rates for the program are low. My sample consists of several hundred women who were eligible for the firm’s program. I orchestrated program recruitment in this sample and experimentally varied the recruitment campaign.

The observation motivating the experimental intervention is that decisions about women’s employment in this setting are typically made by women’s family members rather than women themselves; in my control group, just 29% of women and 34% of their husbands said women make decisions, either alone or together with others, about whether the women should work outside of the home. I therefore offer an intervention that promotes the partner firm’s program to women’s husbands, mothers-in-law, and fathers-in-law. Both treatment and control family members were given basic details about the program, but treated family members were also given a promotion for the program. The promotion featured a six-minute video with testimonials from individuals affiliated with the program. Testimonials highlighted merits of the program, and there was a focus on addressing concerns that women’s family members may have about women’s participation. Interspersed with the speakers were shots of the women’s workplace. All women, regardless of treatment status, were given both job details and promotion.

The intervention increased program take-up dramatically: it increased sign-up rates by 43% and increased the fraction of women who participated in the first three months by 61%. Data from follow-up surveys reveal effects of 44% and 32% on any work for income one week and four months

¹There is a related experiment by Jensen (2012) which studies the effects of labor market opportunities for women. While some of his results may be driven by employment, the focus of his paper is on investments in females’ human capital made in anticipation of employment rather than effects of employment itself.
after the intervention. The effect at one week, when the firm’s program had not yet begun, suggests
the promotion shifted family members’ support for women’s work in general and not only with the
firm. One year after the promotion, employment in the control group had risen substantially and
there was no longer a treatment effect on employment, though an effect on hours worked per day
remained. These results parallel the finding from Bursztyn, González and Yanagizawa-Drott (2018)
that a light-touch intervention targeting the preferences of women’s family members about women’s
employment can have meaningful effects on decisions around women’s employment.

I view the promotion as an instrument for women’s employment. It produced large increases
in women’s employment in the short-run. An exclusion assumption is likely to hold for many
household outcomes; the promotion was randomly assigned and is unlikely to have affected such
variables through channels other than women’s employment. While I ultimately estimate effects
in reduced form, the instrumental variable logic provides a useful interpretation of effects. In
particular, effects of the promotion on a number of household outcomes can be interpreted as
effects of women’s employment, scaled down due to non-universal take-up of employment.

I consider effects on a number of household outcomes, all of which were registered in advance of
analysis. I consider 10 classes of outcomes: household decision-making, women’s time use, women’s
mobility, women’s psychology, women’s risk taking, household gender attitudes, husbands’ work,
household saving, fertility, and children’s education. Outcomes data come from endline surveys
conducted with women and family members four months after the intervention, and from another
wave of endline surveys with women at one year.

I begin with effects on household decision-making. I asked respondents who in their house-
holds makes many common decisions and form summary indices measuring women’s influence over
decisions based on the responses. The treatment significantly increases women’s reports of their
influence at four months, increasing the index by over 0.2 standard deviations. An effect remains
at one year, though it is not statistically significant at conventional levels. Interestingly, husbands
reports of women’s involvement in household decisions, which were measured at four months, are
unaffected. I interpret these results as suggesting employment allows women to make more in-
dependent decisions that their husbands may not be aware of, but it does not give them more
influence over joint household decisions.

Further evidence for effects on women’s independent decision-making come from an incentivized
task. On the four-month endline, women were invited to enter a lottery at no cost. The winner
would receive Rs.500 allotted as she wished across women’s and men’s clothing. Women were asked
to choose during the survey how they would like the money allotted should they win. Decisions
were made in private. Treatment significantly increases the amount of money women allocate to
women’s goods, at the cost of men’s goods. This is consistent with employment making women
more assertive in independent decisions. I find no effect on husbands’ allocations when they were
asked to make the same decision.

Women may be able to make independent decisions by spending money they earn. This would
be facilitated for many women in the partner firm’s program by the compensation system; as much
as possible, women’s stipends during training are deposited in accounts that are in women’s names. 2 Treatment reduces the fraction of women participating in self-help groups by a significant 46% at the four-month endline survey, which occurred during the training period. This is consistent with women substituting away from informal financial services and instead utilizing the formal accounts where their payments are deposited.

I then consider outcomes that require joint household decision-making. If employment does not shift in intra-household bargaining power, I should find no effect of employment on outcomes of joint household decisions. This is indeed what I find: there are no effects on husbands’ work, on the likelihood that a household member contributed to savings, on fertility, or on children’s education.

A joint decision with important implications for women is the allocation of household chores. A norm in the setting is that women tend to the home while husbands earn income. It is not obvious how chores will be allocated when women start working; responsibilities may or may not be reallocated to other family members, and if they are not, employed women may work a “second shift” in their homes. My treatment reduces the amount of time women spend on chores at four months, but the effect is not significant. Likewise, there is a slight but non-significant increase in the amount of time their family members spend on chores. On the other hand, treatment significantly reduces women’s leisure time. These findings suggest employed women effectively work two shifts. Moreover, little reallocation of chores to other family members is consistent with employment producing no effect on intra-household bargaining power.

I also consider effects on variables outside of standard household decision-making models. I find little evidence of effects on these outcomes. Employment does not appear to change women’s psychology; there are little or no effects on women’s generalized self-efficacy, risk-taking, and aspirations. Effects on women’s mobility are mixed, and household gender attitudes are largely unaffected.

The effect of women’s employment on welfare is ambiguous. I find very little evidence of effects on household members aside from women. Effects on women do not offer a clear prediction for how women’s wellbeing is affected by their employment. One the one hand, the ability to make decisions independently may increase their welfare. On the other hand, employment reduces their leisure time, and there is a negative effect of the promotion on women’s happiness at one year.

Results have important implications for the household literature. The standard prediction in this literature that women’s employment will increase women’s intra-household bargaining power is not borne out in my results; I find employment enables women to make more independent decisions but does not shift bargaining power. The literature’s focus on women’s influence over decisions as the key effect of women’s employment does appear warranted given there are few changes in variables outside of standard household decision-making models.

More generally, my findings are inconsistent with the collective model of household decision-making. They add to evidence that spouses do not pool incomes (Duflo and Udry, 2004; Robinson, 2004). Field et al. (2019) argue that depositing pay in accounts in women’s names increases women’s bargaining power. The firm’s payment system thus represents one channel through which employment could have increased women’s bargaining power in my setting.
This lack of pooling parallels findings that households do not pool inputs to household production (Udry, 1996) and that many couples prefer to use individual over joint bank accounts (Schaner, 2015). The result that husbands are not fully aware of decisions wives make with their earnings echoes the idea in Ashraf (2009) and Ashraf, Field and Lee (2014) that spouses’ imperfect knowledge of one another’s choices is an important feature of household decision-making.

The remainder of the paper is organized as follows. The following section presents background information. The experimental design is detailed in section 3. In section 4, I present effects of the promotion on women’s employment and argue the promotion can be viewed as an instrument for women’s employment. Section 5 details the primary outcomes and empirical specification. Effects on primary outcomes are presented in section 6. Section 7 summarizes results across the 10 classes of primary outcomes and discusses implications for models of household decision-making. Section 8 concludes.

2 Background

2.1 Setting

The experiment was conducted in rural Uttar Pradesh, India. This is a poor area of one of India’s poorest states.

Women’s employment is low in the setting. Of the sample of women aged 18-40 studied in this paper, about 29% of participants had worked for income in the two weeks prior to taking a baseline survey. The corresponding value for women’s husbands is 74%. This level of women’s employment is high for this setting as the baseline survey coincided with the end of the rice sowing season, a time when women do a large amount of agricultural work. At the time of the four-month endline survey, which was conducted in a lull of the agricultural calendar, 23% of control group women and 78% of control group husbands had worked for income in the preceding two weeks.

Decisions about women’s employment in this setting are generally made by women’s family members rather than by women themselves. A question on the four-month endline asked who in the household usually makes decisions about whether the woman should work outside of the home. In the control group, only 29% of women and 34% of husbands said the women made such decisions, either alone or together with others.

Given family members’ role in women’s employment decisions, opposition from family members could explain low levels of women’s employment. Indeed, at the four-month endline, only 60% of husbands in the control group said they think it is alright if women go out for work to earn money. Interestingly, women report more support for women’s employment than their husbands do; the corresponding statistic from women’s reports is 78%. Lowe and McKelway (2019) provides additional evidence that women in this setting support women’s employment more than their husbands do, and Bernhardt et al. (2018) document this pattern in a neighboring Indian state.
2.2 Partner Firm Program

I partner with a large Indian firm that manufactures carpets in the setting. Carpet weaving is a very common occupation in this area and is typically done by men from lower-caste households.

The firm recently began a program to train and employ women as hand-knotted carpet weavers. This program helps the firm ensure a high supply of hand-knotted carpets and, through its focus on women, also helps the firm meet its corporate social responsibility requirements. The firm orchestrates construction of women’s weaving centers in many villages in the area. Each center is owned by a village loom owner and aims to employ about 20 women from its village. The program begins with four months of paid training. The partner firm pays women’s training stipends, and training pay is transferred to bank accounts that are, as much as possible, in women’s names, which often means bank accounts are created in women’s names when they begin the program. Once training is complete, the loom center becomes a supplier for the partner firm. Women who complete training can become weavers in the center, though they are free to work elsewhere if they prefer. The partner firm purchases completed carpets from the loom owner, who then determines how and how much the women working in the center are paid.

Consistent with low levels of women’s employment in the setting, program sign-up rates are low. The firm would like to increase sign-up.

3 Experimental Design

The idea of the intervention studied in this paper is to increase sign-up by convincing women’s family members that women should sign up. The experiment coincided with the firm’s opening of six weaving centers for the women’s weaving program. The research team orchestrated recruitment and enrollment of women to work in these centers, which allowed me to implement experimental interventions in conjunction with the process.

The experimental variation used in this paper is part of the experiment studied in McKelway (2019). McKelway (2019) studies how a psychosocial intervention in women’s Generalized Self-Efficacy (GSE) shapes their labor market experiences. Part of the project investigates how the effect of the GSE intervention on women’s employment responds to an intervention that reduces family member opposition to women’s employment. The latter intervention entailed promoting the firm’s program to women’s family members. The present paper exploits the experimental variation induced by this intervention to study effects of women’s employment. This section discusses details of the experimental design relevant to this paper. A description of the experimental procedures for the full project can be found in McKelway (2019).

3.1 Subject Recruitment, Randomization, and Sample

I began in August 2017 by asking the partner firm to define six catchment areas where they would recruit women for the program in the absence of the study. In this area, villages include many “bastis,” or neighborhoods almost always inhabited by households of the same subcaste. Catchment
areas consisted of bastis in close proximity to the six weaving centers, typically in the same village as the weaving centers but sometimes on the outskirts of neighboring villages. Subcastes in the bastis belonged to lower castes, which are the castes that male weavers typically belong to.

Surveys then went door-to-door in the catchment areas to identify women eligible for the study. Women who were eligible to participate in the study met seven criteria: (i) were at least 18 years of age and no more than 40, (ii) were not disabled, (iii) were available to speak with the surveyor in person, (iv) had no plans to leave the village for an extended period anytime in the following six months, (v) were married, widowed, divorced, or separated, (vi) had not had permission to participate in the study denied by family members, and (vii) were not the mother-in-law of another eligible woman in their household. (i) and (ii) are requirements from the partner firm for the women to be eligible to participate in their weaving program; (iii) eased logistics of inviting women to participate in the study and of completing baseline surveys; (iv) and (v) were imposed to minimize attrition; (vi) helped to prevent future issues with women’s households; and (vii) prevented individuals from participating in the study as both women and family members of women. Surveyors then invited any eligible women to enroll in the study. In total, 1022 women from 927 households enrolled in the study.

During subject recruitment, field staff introduced themselves as part of a J-PAL/IFMR research team but did not mention any affiliation with the partner firm. This was done to keep individuals from making decisions to participate in the study based on their opinions of the partner firm.

A first randomization determined whether women would be offered the GSE intervention. In this paper, I study only women assigned to the GSE control group. A second randomization determined promotion treatment status in this sample. This randomization was at the household level and assigned half of households to promotion treatment and half to promotion control. Randomization was stratified to maintain 50% treatment probability within geographic units.

Three women in the GSE control group did not have family members eligible to receive the promotion intervention (see section 3.4 for a discussion of the family members eligible to receive the promotion). I exclude these three from this paper’s analysis.

This gives a sample of 507 women from 459 households, of which 251 women from 230 households were assigned to promotion treatment and 256 women from 229 households assigned to promotion control.

3.2 Baseline Characteristics and Balance

Table 1 of McKelway (2019) presents baseline characteristics and tests for balance in the characteristics across the treatment groups. Comparisons between the group assigned neither intervention and

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3 The subcastes were from scheduled castes or tribes (SC/ST) or from other backwards castes (OBC).

4 GSE treatment assignment was held constant within households so women studied in this paper came from households in which any women participating in the experiment were assigned GSE control.

5 The geographic units used as strata were equivalent to bastis unless a basti was very large or very small; large bastis were subdivided and formed multiple strata, while small bastis were pooled with other small bastis in their villages to form a single strata.
the group assigned the promotion only suggest the two groups are largely balanced on observables.

### 3.3 GSE Intervention

The GSE intervention was delivered in September 2017. It was delivered in nine meetings with groups of three to eight women and a surveyor who facilitated the meetings. Women in the groups lived near one another and groups met somewhere in the women’s neighborhoods. Meetings were held two to three times a week for four weeks. What is relevant about this for the present study is that I used an active control group to hold fixed certain aspects of meeting attendance. Women in the GSE control group also met with a surveyor and a group of two to seven other women who lived nearby them. The GSE control meeting groups had the same schedule as GSE treatment meetings groups and met in the same sorts of places. The difference was the content of group discussion: GSE control meeting groups took group surveys on aspects of their daily lives.

### 3.4 Promotion Intervention

The promotion intervention was delivered over a week in early October 2017. During this time, surveyors met individually with women and met separately with individual women’s family members. Those eligible to attend the meeting for a particular woman’s family members were the woman’s husband, the woman’s mother-in-law if she was part of the woman’s household, and the woman’s father-in-law if he was part of the woman’s household. Surveyors delivered information about the partner firm’s opportunity in these meetings. However, the content of the meetings varied; all women and all family members were given basic details about the opportunity, while all women and only treated family members were given a promotion for it.

In all meetings, surveyors explained the relationship between the partner firm’s opportunity and the research team; surveyors said that the partner firm learned about the study and asked the research team to inform study participants about an opportunity, that the opportunity is sponsored by the partner firm and not the research team, and that the research team is interested in understanding opinions on the opportunity as part of its research. Surveyors then provided basic details of the opportunity, such as the location of the loom center, the pay, the hours, and the fact that the program offers both training and employment. Instructions on how to sign up were given at the end of all meetings.

In meetings with all women and in meetings with treated family members, surveyors also delivered a promotion for the opportunity. The promotion consisted of information on a few job perks (such as the loom center facilities, the childcare policy, and the fact that only women would work

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6 For the handful of women who lived in their natal villages rather than their husbands’, women’s parents replaced women’s parents-in-law. Throughout the paper, I refer to “mothers-in-law” rather than “mothers-in-law or mothers” because very few women live in their natal villages, but for those who do, any reference to mothers-in-law is actually a reference to mothers.

7 Three women in the GSE control group were widowed and were not part of the same household as their mothers-in-law or fathers-in-law. As mentioned in section 3.1, these women are not included in the sample studied in this paper.
in the center), followed by a six-minute video. The video begins with a message from a man at the partner firm who oversees the program. This is followed by testimonials of individuals from villages where the program was well established. These individuals include a female loom owner, the husband of a loom owner, two female participants, and the husband of a participant. Each testimonial highlights merits of the program from the individual’s perspective. There is an emphasis in the testimonials on points that would make family members more supportive of women’s participation; for example, the testimonials stress that only women work in the loom center and that participants have time to do their usual household chores. Interspersed with shots of the speakers are shots of the weaving centers, completed carpets, and women weaving.

3.5 Compliance

The family members of 78% of women attended their job information meetings. Family member attendance is balanced across treatment groups. Attendance of women at their job information meetings was also high, at 84%. The content of women’s meetings did not vary by treatment status, but it is possible that the content of their family members’ meetings affected women’s attendance at their own meetings. However, I find no difference in women’s attendance by promotion treatment status.

3.6 Job Enrollment

The research team organized a sign-up day at the six loom centers that was held two days after the final woman and family member meetings. Women wishing to sign up came to their loom center and completed a 10-minute enrollment process. Part of the process ensured women were accompanied by their husbands, mothers-in-law, fathers-in-law, or household heads so as to ensure they were signing up with the support of their households. Another step of the sign-up process verified women met the partner firm’s age requirement for participation (as mentioned above, participants must be at least 18 and no more than 40), and any women who did not meet this requirement could not sign up.

In a few cases, women completed the sign-up process without attending the sign-up day. Some of these cases occurred on an alternate sign-up day. In the week after the first sign-up day, surveyors administered an endline survey with women and separately with family members. During this survey, surveyors asked both women who had not signed up and those women’s family members if they were interested in an alternate sign-up day. If both a woman and her family members expressed interest (or if only one of the two was surveyed and expressed interest), the household was invited to an alternate sign-up day. The alternate day was held at the loom centers two weeks after the first day and required the same process to sign up as the first. There were also a few cases of individuals completing the sign-up process after both sign-up days, having contacted the research team about their interest in the program.

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8In a few cases, none of these family members could attend so surveyors accepted permission from one of them over the phone.
There was oversubscription for five of the six centers. I randomly determined which women could begin the program at its start in November 2017. The rest of the women were put on a randomly ordered waitlist, and the research team drew women from the waitlist when participants dropped out.

4 Effects of Promotion on Women’s Employment

This section documents substantial increases in women’s employment due to the promotion. After presenting these results, I argue the promotion can be viewed as an instrument for women’s employment.

4.1 Effects of Promotion on Women’s Employment

The promotion increased women’s employment dramatically. Table 1 compares promotion treatment and control on a variety of measures of employment.

Outcomes in the first two columns reflect take-up of the partner firm’s program. The outcome in column (1) is an indicator for signing up for the program. As mentioned above, the research team organized program sign-up, and I therefore observe official sign-up decisions for the full sample. I find the promotion produced a dramatic rise in sign-up; it increased sign-up by 9.5 percentage points off a base of 22.3, a 43% increase that is highly significant.

Sign-up is not equivalent to participation, particularly given oversubscription meant some women who signed up were not invited to participate. Column (2) considers effects on participation in the program. The outcome is an indicator for ever attending in the first three months of training. The outcome comes from loom center records and is observed for the full sample. The effect here is also dramatic, with the promotion increasing participation from 9.0 to 14.5 percentage points, a statistically significant increase of 61%.

Column (3) examines effects on any employment one week after the intervention. The outcome comes from an endline survey conducted at that time and is an indicator for the woman doing any work for income in the preceding two weeks. I also find a significant effect here that is large in magnitude, with the promotion increasing the outcome by 44%, from 21.6 to 31.2 percentage points. This effect is interesting because it cannot be driven by participation in the partner firm program; the program had not begun at the one-week endline. This suggests the promotion made family members more supportive of women’s employment in general and not just with the partner firm.

The effect on the same variable measured on a four-month endline survey is presented in column (4). The partner firm program had begun at this time and is one potential source of employment women may have reported at four months. The promotion increases employment 7.5 percentage points off a base of 23.5, a 32% increase significant at the 10 percent level.

Column (5) presents effects on hours of paid work per day at the four-month endline. On this survey, women were asked what they did each hour between waking up and going to bed the
previous day. Surveys were scheduled so that, as much as possible, the previous day would have been a working day. Any time spent working for income or in-kind payment is counted as paid work time. I find the promotion increases the average amount of paid work in a day by 27.7 minutes off a base of 58.1 minutes. This is an increase of 48% and is significant at the 10 percent level.

I find mixed effects on longer-term employment in columns (6)-(8). The outcomes in these columns come from a one-year endline survey. Women were asked on this survey about their work in the rice sowing season that occurred 10 months after the intervention (and two months before the survey); the outcome in column (6) is an indicator for working for income in this rice cultivation. The outcome in column (7) is the any employment variable from columns (3) and (4) measured at one year, and the outcome in column (8) is the hours of paid work variable from column (5) measured at one year. I find no treatment effect on having worked in the rice cultivation or on any employment at one year. Interestingly, the overall level of employment at one year is high; over the year between the one-week and one-year endlines, the percent of control women with any employment increased markedly, from 21.6 to 37.1. Column (8) finds the treatment effect on hours spent working persists to one year. Treatment increases time spent working at one year by 24.5 minutes per day, an effect significant at the 10 percent level. This corresponds to an enormous 112% effect as the control average is just 21.8 minutes. It is surprising that the control average at one year is so much lower than at four months given control group employment is high at one year; this could be due to the one-week and one-year endlines being conducted in a different season than the four-month endline, or perhaps due to general equilibrium implications of high employment. Overall, employment effects at one year are therefore mixed; there are no effects on the extensive margin but there are on the intensive margin. This may reflect differences in the type of jobs treatment and control women hold, or perhaps having worked for many months increases the hours a woman spends working per day.

It is remarkable that a brief promotion had such large effects. These effects are consistent with women’s family members being very influential in decisions about women’s employment, but also suggest opinions of family members are not especially difficult to move. Effects parallel Bursztyn, González and Yanagizawa-Drott (2018), who also find that a light-touch intervention in family members’ preferences about women’s employment has meaningful effects on decisions around women’s employment.

4.2 Promotion as Instrument for Women’s Employment

I view the promotion as an instrument for women’s employment. I argue it meets the two required conditions for an instrument. The results of the previous subsection provide evidence of the first stage; the promotion produced large and significant increases in women’s employment. Notably, these are primarily short-run effects. At one year, the fraction of women in the control group who were working for income had caught up to the fraction in the treatment group. I therefore focus on short-run effects of women’s employment. Long-run differences between treated and control women are also presented but require a slightly different interpretation given catch-up of the control group.
Moreover, the promotion is likely to meet the second condition for an instrument: exclusion. The promotion was assigned randomly. Further, it is unlikely to have affected most of the woman and household outcomes I consider (detailed in the following section) through channels aside from women’s employment.

Ultimately, I estimate effects in reduced form. This avoids concerns about exclusion for certain outcomes. Further, there are several employment outcomes affected by the promotion, and reduced form estimation means I do not need to choose which of them should be instrumented. When the exclusion assumption does apply, the treatment effects I estimate can be interpreted at effects of employment, scaled down by non-universal take-up of employment.

5 Primary Outcomes and Empirical Specification

The promotion therefore produced large “first stage” effects on employment. It is reasonable to expect that the promotion would have affected a number of other outcomes through its effect on employment. I now detail the variables I consider as primary outcomes of the promotion and discuss the empirical specification.

5.1 Primary Outcomes

Primary outcomes were registered in advance of analysis. Each outcome fits into one of ten outcome classes. Following Kling, Liebman and Katz (2007), whenever I have multiple measures of the same outcome I aggregate the measures into a summary index to reduce the number of hypotheses tested and to improve power.

The outcomes come from women’s four-month and one-year endline surveys, and from endline surveys with family members administered four months after the intervention. Outcomes include responses to survey questions as well as actual decisions participants were asked to make during the surveys in experimental tasks. Each family member survey was completed by one family member. Surveyors were instructed to survey husbands in person whenever possible. If this was not possible, surveyors attempted to survey husbands over the phone. If no survey with the husband was possible, surveyors surveyed mothers-in-law, and if that wasn’t possible, fathers-in-law. For certain outcomes, it is easier to interpret responses from husbands than from parents-in-law; in such cases, I only use data from family member surveys provided by husbands.

The outcomes, grouped into ten classes, are as follows:

1. Household decision-making.

1.1. Women’s involvement in household decisions. Respondents were asked who in their households usually makes decisions about: (a) spending on food, (b) spending on clothing, (c) spending on education, (d) whether to purchase large household items, (e) how much to save, (f) what to do if a child falls sick, and (g) how money the husband earns is spent. For each of these seven, I define an indicator for the respondent saying the
woman makes the decision, either alone or together with others. I consider responses from women at four months, husbands at four months, and women at one year. I aggregate the seven indicators from a particular respondent on a particular endline to form a summary index of women’s involvement in household decisions.

1.2. Women’s involvement in household decisions regarding their work. Respondents were asked who in their households usually makes decisions about: (a) whether the woman works outside of the home, and (b) how money the woman earns is spent. For each of these two, I define an indicator for the respondent saying the woman makes the decision, either alone or together with others. I consider responses from women at four months, husbands at four months, and women at one year. I aggregate the two indicators from a particular respondent on a particular endline to form a summary index of women’s involvement in household decisions on their work.

1.3. Spending on women’s goods. On the four-month endline survey, women were invited to enter lotteries at no cost. The winner of the first women’s lottery would receive Rs.500 allotted as she wished across four goods: women’s accessories, men’s accessories, women’s clothing, and men’s clothing. Women had to choose during the survey how they would like the money allotted should they win. Husbands surveyed at four months could enter an identical lottery for men and also had to make their allotment choice during the survey. I consider as outcomes the amount of the lottery prize allotted to women’s goods by (a) the woman, and (b) the husband.

1.4. Women’s willingness to negotiate with husbands. Any women that entered the lotteries on the four-month endline survey were also put into a separate drawing. Women again had to choose during the survey the prize they would like should they win this separate lottery, but the choices differed from those in the first lottery. In particular, each woman could choose from two options. The first was the set of goods her husband had selected as his prize should he win the men’s lottery. The second was a set of the four goods worth Rs.X, again chosen by her husband, but chosen after a discussion with her. If the woman chose the second option and won, a surveyor would meet the two several weeks later, let them discuss the allotment, and then ask the husband how the money would be allotted. A randomization set X at 500, 450, or 400; since the value of the goods in the first option is Rs.500, this assignment created a discussion price of Rs.0, Rs.50, or Rs.100, respectively. The lotteries were not repeated on the one-year endline survey, but there was a question on this survey that gauges women’s willingness to negotiate with their husbands. Each woman respondent was asked what she would do if she wanted to do something that required her husband’s permission but that she thought her husband would not allow. There were three options: don’t ask husband’s permission and don’t do it, ask husband’s permission and go along with whatever he wants, and ask husband’s permission and discuss it in a way that will make him agree with you. I consider as outcomes (a) an indicator for the woman choosing to discuss
lottery prize with her husband, and (b) an indicator for the woman choosing the third option on the question from the one-year endline survey.

2. **Women’s time use.** A survey module measured women’s time use at four months and one year, and family members’ time use at four months. The module asked when the respondent woke up and went to bed the previous day, and what the respondent did each hour between waking up and going to bed. For each hour, the surveyor selected one or more choices from a list of 34 activities and “other.” As much as possible, surveys were not scheduled on Mondays or on days following holidays so that the previous day would have been a normal day for respondents. Outcomes in this class come from this survey module.

2.1. **Household chores.** I use as outcomes the number of hours spent on household chores the previous day by (a) the woman, and (b) the family member. I measure (a) on women’s four-month and one-year endlines, and measure (b) on family members’ four-month endlines.

2.2. **Leisure time.** I use as an outcome the number of hours the woman spent on leisure activities the previous day. I measure this outcome on women’s four-month and one-year endlines.

2.3. **Sleep time.** The outcome is the number of hours of nighttime sleep reported for the previous day by the woman. I calculate this by summing the hours before she woke up and the hours after she went to bed. I measure this outcome on women’s four-month and one-year endlines.

3. **Women’s mobility.** Outcomes under this class come from the survey module described in the class of time use outcomes.

3.1. **Total time outside home.** I use as an outcome the number of hours the woman spent outside of her home the previous day. I measure this outcome on women’s four-month and one-year endlines.

3.2. **Total time outside home, excluding paid work.** I use as an outcome the number of hours the woman spent outside of her home the previous day, excluding work for income or in-kind payment. I measure this outcome on women’s four-month and one-year endlines.

4. **Women’s psychology.**

4.1. **Generalized Self-Efficacy (GSE).** I use both (a) a GSE index based on responses to a GSE questionnaire and (b) a decision made in an experimental task that measures exertion of effort. The questionnaire is the GSE scale of Schwarzer and Jerusalem (1995) with minor modifications for use in my sample.\(^9\) The questionnaire has 10 items, which I

\(^9\)See McKelway (2019) for details on the modifications.
aggregate to form a GSE index. Following the scoring procedure suggested by Schwarzer and Jerusalem (1995), I record the index as missing whenever a respondent said “don’t know” for more than three questions. I use women’s GSE indices from the four-month and one-year endlines as outcomes. I also consider effects on a decision made during the four-month and one-year endline surveys that reflects exertion of effort. Exertion of effort is an outcome of independent interest and can also be interpreted as reflecting high GSE.\footnote{As outlined in McKelway (2019), higher GSE could increase effort exertion by enhancing assessments of one’s own abilities.} During the four-month and one-year endlines, women were asked to choose to either (1) receive a Rs.20 phone top-up card, or (2) attempt to complete a puzzle in two minutes, and win a top-up card worth more than Rs.20 if successful and worth Rs.10 if not. At four months, completing the puzzle meant assembling a small jigsaw puzzle, and at one year, it meant assembling small, plastic blocks to build a toy house modeled in a picture. A randomization at each endline determined whether the top-up card a participant could win from successfully completing the puzzle was worth Rs.30 or Rs.40. I use women’s decisions to try the puzzle at the two endlines as outcomes.

4.2. Happiness. Women were asked to assess their overall happiness on a four-point scale. I use assessments at four months and at one year as outcomes.

5. Women’s risk-taking. I do not measure women’s risk-taking at four-months, but an experimental task measures risk-taking at one year. On the one-year endline survey, I asked women to make a decision that was identical to the effort task decision with one exception: instead of attempting a puzzle, participants could draw out a ball from a canvas bag without looking, winning if the ball was one of the two balls with happy faces and losing if the ball was the one with a sad face. I use as an outcome an indicator for the woman choosing the risky option.

6. Household gender attitudes. A concern with outcomes proposed to measure gender attitudes is that they could be subject to strong social desirability bias and may not reflect true opinions. To address this, I specified the following rule in advance of analysis: I will not consider any of the outcomes proposed in this section for which over 75% of control group responses are the same, and if this leaves only one item in a group that I would otherwise aggregate, I will consider the item in isolation. The idea is that when social pressure to respond a certain way to a certain question is strong, I should observe a great deal of bunching on the “desired” response; this procedure screens out outcomes with bunched responses. This procedure also serves to screen out outcomes for which there is little variation in participant opinions.

6.1. Support for Women’s Employment. Respondents were asked if: (a) it is alright if women go out for work to earn money, (b) a woman’s main role should be to tend to household chores like cooking, cleaning, and managing children, (c) both women and
men should earn money to contribute financially to the household, and (d) a husband should earn more than his wife. Respondents were also asked how appropriate, on a four-point scale, it would be for women in their households to hold a full time job outside of the home as: (e) construction laborer, (f) weaver, and (g) teacher. I multiply (b) and (d) by $-1$ for analysis so that all outcomes are oriented in the same direction. I consider responses from women and husbands at four months. I aggregate items from a particular respondent for which less than 75% of responses in the control group are the same to form a summary index of support for women’s employment.

6.2. **Support for Women’s Ideas.** Respondents were asked if: (a) husbands should support ideas their wives have, and (b) it is wrong for women to disagree with their husbands. I multiply (b) by $-1$ for analysis so that both outcomes are oriented in the same direction. I consider responses from women and husbands at four months. I aggregate items from a particular respondent for which less than 75% of responses in the control group are the same to form a summary index of support for women’s ideas.

6.3. **Hitting or beating wives justified.** Respondents were asked if a husband is justified in hitting or beating his wife if she: (a) leaves the home without telling her husband, (b) neglects the children, (c) argues with her husband, and (d) doesn’t cook properly. I consider responses from women and husbands at four months. I aggregate items from a particular respondent for which less than 75% of responses in the control group are the same to form a summary index of hitting/beating wives being justified.

6.4. **Pro Female Children.** Respondents were asked if: (a) it is better to have a son than a daughter, and (b) girls should get as much education as boys. I multiply (a) by $-1$ for analysis so that both outcomes are oriented in the same direction. I consider responses from women and husbands at four months. I aggregate items from a particular respondent for which less than 75% of responses in the control group are the same to form a pro female children summary index.

6.5. **Support for women’s involvement in household decision-making.** Respondents were asked whether the husband, the wife, male elders, or female elders in a household should make decisions about: (a) spending on food, (b) spending on clothing, (c) spending on education, (d) whether to purchase large household items, (e) how much to save, (f) what to do if a child falls sick, and (g) how money the husband earns is spent. Respondents could select multiple options, and for each of the seven decisions, I define an indicator for the respondent saying the woman makes the decision, either alone or together with others. I consider responses from women and husbands at four months. I aggregate items from a particular respondent for which less than 75% of responses in the control group are the same to form a summary index of support for women’s involvement in household decision-making.

6.6. **Support for women’s involvement in household decisions regarding their work.** Respondents were asked whether the husband, the wife, male elders, or fe-
male elders in a household should make decisions about: (a) whether the wife works outside of the home, and (b) how money the wife earns is spent. Respondents could select multiple options, and for each of the two decisions, I define an indicator for the respondent saying the wife makes the decision, either alone or together with others. I consider responses from women and husbands at four months. I aggregate items from a particular respondent for which less than 75% of responses in the control group are the same to form a summary index of support for women's involvement in household decisions regarding their work.

7. **Husbands’ work.** I collected information about husbands' work in family members' four-month endline surveys. Husbands provided the information about their own work whenever they were surveyed, and otherwise mothers-in-law or fathers-in-law provided information about husbands' work. I consider (a) the number of days the husband worked in the preceding two weeks, and (b) the rupees the husband earned in the preceding two weeks, top-coded at the 99th percentile. I aggregate these two measures to form a husband work index.

8. **Household saving.**

8.1. **Contributions to household savings.** Respondents were asked whether they or anyone else in their households contributed to savings in the two weeks preceding their survey. I use an indicator for a contribution to savings as an outcome. I consider reports from (a) women at four months and one year, and (b) family members at four months.

8.2. **Woman’s self-help group participation.** I consider an indicator for the woman participating in a self-help group in the month prior to being surveyed as an outcome. I use reports from women at four months and one year.

8.3. **Woman has savings goal.** I asked women if there was anything in particular they were saving up for and use an indicator for women having a savings goal as an outcome. I record this outcome on women’s four-month and one-year endline surveys.

9. **Fertility.** I use as an outcome the number of successful pregnancies women have had since baseline, defined as the number of children a woman has at a particular endline plus an indicator for her being pregnant at that endline, minus the same sum at baseline. This outcome is recorded at four months and one year, based on women’s reports on the endline surveys at those times and at baseline.

10. **Children’s education.** Note that all child education outcomes are at the child level. Analyses of these outcomes will consider overall treatment effects as well as treatment effects that vary by child gender.

10.1. **Children’s education.** I asked women questions about the educational activities of each of their children aged two or above. In particular, I asked how many days in the week prior to the survey the child had: (a) attended school, and (b) studied outside of
school. I consider responses from women at four months and one year. I aggregate the two variables from a particular endline to form a child education index.

10.2. Woman’s aspirations for children’s education. I also asked women what level of education they wanted each of their children to achieve. I consider as outcomes three indicators formed based on a woman’s response for a particular child. These are indicators for: (a) the desired educational attainment being class 12, (b) the desired educational attainment being a level beyond class 12, and (c) the woman not knowing the educational attainment she desired. I use data from women’s four-month endline surveys but did not ask about aspirations for children’s education on the one-year endline.

5.2 Endline Survey Attrition

There was attrition on the endline surveys. Of the 507 women in the sample, 391 were surveyed at four-months and 334 at one-year. 379 of these women’s family members were surveyed at four-months, and 278 of family member surveys were with women’s husbands. Reassuringly, attrition is balanced across treatment groups.

5.3 Empirical Specification

I use the following reduced form empirical specification

\[ Y_{i,h} = \beta Promo_h + \mu_s + \varepsilon_{i,h}, \]  

where \( Y_{i,h} \) is the value of a particular primary outcome for woman \( i \) from household \( h \), \( Promo_h \) is an indicator for assignment to promotion treatment, and \( \mu_s \) are strata fixed effects. I allow for clustering of standard errors within households.

In section 4, I find the promotion produced large and significant increases in women’s employment, and note that it likely meets an exclusion restriction for most outcomes. There are three outcomes for which an exclusion assumption may not hold: support for women’s employment, women’s involvement in decisions about their own work, and support for women’s involvement in decisions about their own work. The promotion would have had direct effects on family members’ support for women’s employment, and women’s support for women’s employment could have been influenced by the support of their family members. The promotion may also have had the direct effect of making family members more involved in decisions about women’s employment or of signalling that they should be. However, an exclusion assumption is likely to apply for outcomes aside from these three. When the exclusion assumption does apply, estimates of \( \beta \) can be interpreted as the effect of employment, scaled down by non-universal take-up of employment.
6 Results

I now turn to effects on primary outcomes. I consider effects on each of the 10 classes of outcomes in turn. A summary of results across the 10 classes is provided in section 7.

Effects on primary outcomes from women’s and family members’ four-month endlines are presented in tables 2-7. As seen in section 4.1, the promotion’s effect on employment was sizable at that time and in the months leading up to it. Effects on primary outcomes from women’s one-year endlines are a bit harder to interpret due to the mixed effects on longer-term employment but are presented in appendix A. Appendix B presents effects on components of indices.

6.1 Effects on Household Decision-Making

Table 2 presents effects on household decision-making a four months. The first two columns present effects on the index of women’s involvement in household decisions. Column (1) uses reports of women, while column (2) uses reports of husbands. There is a large effect on this outcome when reported by women; the treatment effect in column (1) is a statistically significant and large 0.211 standard deviations. On the other hand, the effect on the version reported by husbands is much smaller (0.083 standard deviations) and not significant. This suggests employment gives women a greater role in decisions but these are not decisions made with full knowledge of the husband; employment seems to lead women to make more independent decisions. It may be that employed women make these independent decisions using money they earn, which would be facilitated for many women in the partner firm’s program by training payments going to bank accounts in their names.\footnote{Field et al. (2019) argue that paying women’s salaries to bank accounts that are in women’s names rather than the names of their male household heads increases women’s intra-household bargaining power. It is likely that paying women in their own accounts is a channel through which employment in my context affects outcomes. Note, however, that my results are not entirely consistent with the story in Field et al. (2019); Field et al. (2019) argue there is an effect on bargaining power in a collective setting, while my results are consistent with greater autonomy in independent decisions.}

Next, I consider effects on the index of women’s involvement in decisions on their own employment. Note that the decisions in this index are not part of the index considered in the first two columns. In column (3), I find a dramatic and highly significant increase of 0.348 standard deviations in women’s reports. On the other hand, the effect on husbands’ reports is negative, though small in magnitude (-0.098 standard deviations) and not statistically significant. These effects are challenging to interpret for two reasons. First, the promotion may have directly increased family members’ involvement in decisions on women’s employment, meaning the exclusion assumption may not hold. Second, the promotion and the employment it produced may have led households to make these decisions when they otherwise would not have.

Columns (1) and (2) of appendix table A.1 present effects on women’s reports of these two indices at the one-year endline. Here, the treatment effect on the involvement in household decisions index is 0.160 standard deviations, which is relatively large but not quite significant. The treatment effect on the index of decisions about women’s employment is 0.224 standard deviations and significant.
The effects therefore persist to some extent but are smaller in magnitude at the later outcome. The muting of these effects is consistent with the mixed effects on employment at one year. Appendix tables B.1, B.2, and B.3 present effects on components of the two indices reported by women at four months, husbands at four months, and women at one year, respectively. Effects on individual components are generally consistent with effects on the summary indices, suggesting effects on the indices are not driven by any particular components.

I have thus far considered effects on reports of household decision-making; the second half of Table 2 presents effects on decisions made during the survey in incentivized tasks. Columns (5) and (6) consider as outcomes the rupee amount of lottery prize allocated to women’s goods by women and husbands, respectively. In column (5), I find a small but significant effect on allocation to women’s goods by women; treatment increases average women’s spending on women’s goods from Rs.411 to Rs.432, a difference that is relatively small (5%) but significant at the 10 percent level. This suggests employment made women more assertive in independent decisions. The effect on husbands’ allotment to women’s goods is slightly negative but very small and not significant.

Finally, I consider effects on women’s willingness to negotiate with their husbands. Columns (7) and (8) examine effects on women’s decisions to discuss allocation of prize money with their husbands instead of having husbands’ allocations implemented. Column (7) estimates equation (1), while column (8) adds an indicator for the woman facing a positive discussion price (i.e. a lower prize value should she choose to discuss) and an interaction between this indicator and promotion treatment. Column (7) finds no overall effect of the promotion on discussion choice, but column (8) finds this overall effect masks significant heterogeneity by discussion price. With no price, treatment makes women significantly more likely to choose discussion, moving the percentage of women that choose discussion from 69.6 to 85.3 percentage points. Interestingly, the coefficient on the interaction is large, negative, and significant. Summing the two coefficients, we find the treatment effect with a discussion price is -10.4 percentage points with a p-value of 0.122. This suggests employment makes women choose to be more involved in household decisions. The negative effect when there is a price could be because earning income and choosing how it is spent makes women more attuned to budget constraints. The third column of appendix table A.1 presents effects on a similar, though self-reported, outcome at one year. The outcome is an indicator for the woman saying she would attempt to persuade her husband to give permission for something she wants to do. The point estimate on this outcome is somewhat large, suggesting a 24% increase from 34.6 to 43.0 percentage points, though not quite statistically significant.

6.2 Effects on Women’s Time Use

Columns (1)-(4) of table 3 present effects on women’s time use at four months. Results suggest the increase in time women spend working comes primarily at the cost of their leisure. Column (3) finds the promotion significantly reduced the time women spent on leisure the previous day. The effect for the average woman is a reduction of 24.0 minutes off a base of 1 hour and 37.9 minutes. The time the average woman spends on chores drops by 15.6 minutes, but the effect is
not significant and represents a small change off a base of 8 hours and 45.8 minutes. There is an increase of roughly the same size in the time the average family member who was surveyed spends on chores, though it is also not significant. There is no effect on women’s hours of nighttime sleep.

Effects at one year are presented in appendix table A.2. These results tell a similar story. There is a highly significant reduction in women’s leisure time of 31.0 minutes. Time spent on chores increases slightly, by 21.1 minutes, though this effect is not statistically significant. There is again no effect on nighttime sleep.

6.3 Effects on Women’s Mobility

Next, I consider effects on women’s mobility. Mobility has been used by others as a measure of women’s empowerment, and it also can proxy for women’s empowerment in rural Uttar Pradesh, where traditional culture says women should stay in their homes and where women are generally required to have permission from their households to go outside. However, the effect of employment on mobility is not easily interpretable as an effect of employment on empowerment. If one considers any time outside of the home as the outcome, the estimated treatment effect will at least partly reflect a mechanical effect of attending work; however, it is not clear time outside of the home excluding work would be a better outcome as working women have less non-work time to leave home. I present effects on both outcomes because these effects provide interesting descriptions of how employment changes women’s lives, but I caution that neither effect is a good measure of how employment affects empowerment.

Columns (5) and (6) of table 3 present effects at four months. Treatment increases the total time women spend outside of their homes by about 29.6 minutes, an effect significant at the 10 percent level. This effect is about equal to the effect on hours of paid work at four months, and there is no effect on time spent out of the home if one excludes paid work (see column (6)). Employment appears to bring women out of their home for the purpose of attending work but does not lead them to spend more time out of their homes when they are not working.

The corresponding effects at one year are presented in columns (4) and (5) of table A.2. There is no effect on total time spent outside the home, and there is a significant negative effect on time out of the home if one excludes hours of paid work. The former suggests the effect on hours of paid work at one year comes from work done at home, while the latter suggests this paid work done at home crowds out time women would spend outside in non-working hours or makes women less likely to leave home in a marginal non-working hour.

6.4 Effects on Women’s Psychology

I now turn to effects on women’s psychology. Effects at four months are presented in table 4. As shown in column (1), there is no effect on GSE. Effects on the decision to try the puzzle in the experimental task are presented in columns (2) and (3). Column (2) estimates equation 1, while column (3) allows for heterogeneity in the effect by the prize for successfully completing the puzzle. The promotion makes women 5.3 percentage points (9%) more likely to choose the puzzle overall.
and 8.0 percentage points (14%) more likely to choose the puzzle at the high prize, though neither effect is significant. An effect on effort without an effect on GSE could reflect a decrease in the perceived cost of effort, though one should not make too much of the effects on effort given they are not statistically significant. Column (4) finds no effect on happiness; this is consistent with the treatment both increasing women’s autonomy, which might increase happiness, and decreasing leisure, which should decrease happiness.

Columns (1)-(4) of appendix table A.3 present the corresponding effects at one year. The treatment decreases GSE by 0.139 standard deviations, but this effect is not statistically significant. There is no overall effect on choosing the puzzle. There is some heterogeneity in the effects, with the treatment making women less likely to choose the puzzle at the high prize and more likely to choose the puzzle at the low prize, but the difference in effects is not significant and nor are the effects at either prize level. Interestingly, the treatment produces a drop in happiness that is highly significant. It may be that the negative aspects of work, namely reduced leisure, come at a greater cost to women’s happiness as women spend more months working.

6.5 Effects on Women’s Risk Taking

Next, I consider effects on women’s risk taking. I unfortunately do not have a measure of risk taking at four months, but I do observe a decision in an experimental task that measures risk taking at one year. Effects on this outcome are in columns (5) and (6) of appendix table A.3. Column (5) estimates equation 1, and column (6) allows for heterogeneity in the effect by prize level. I find no effects on risk taking overall or at either prize level.

6.6 Effects on Household Gender Attitudes

Table 5 presents effects on the gender attitudes indices of women and husbands from the four-month endline. Appendix tables B.4 and B.5 present effects on the components of women’s indices, while appendix tables B.6 and B.7 present effects on the components of husbands’ indices. Both in the appendix tables and in the indices themselves, I include only components that were not screened out by the rule discussed in section 5.1. Screening never eliminated all components of an index for women or husbands, but it did result in some “indices” with only one component; in such cases, the “index” is simply the component alone, standardized so that magnitudes are comparable to other indices. Note also that for many of the six indices, the procedure screened out different components for women and husbands.

I begin with attitudes about women’s employment. Columns (1) and (2) of table 5 present effects on the support of women’s employment indices of women and husbands, respectively. The exclusion assumption may not hold for these outcomes (see discussion in section 5.3) so effects should be interpreted as direct effects of the promotion combined with effects of the women’s employment it produced. The index of women’s support for women’s employment increases by 0.164 standard deviations, an effect significant at the 10 percent level. Effects on the individual components of this index are presented in columns (1) and (2) of appendix table B.4. There are
positive effects on both components and a particularly strong effect on appropriateness of women in one’s household working as weavers.

In column (2) of table 5, I find the effect on the corresponding index of husbands is 0.129 standard deviations and not significant. Effects on the individual components, presented in columns (1)-(4) of table B.6, suggest this is an average of relatively large effects on appropriateness of women in one’s household working as weavers and as teachers, and zero effects on appropriateness of women as construction laborers and on it being alright if women go out for work. It is somewhat surprising that effects on this index are not larger given the promotion directly targeted husbands’ opinions on women’s employment.

Columns (3) and (4) of table 5 find no effects on the index of support for women’s ideas of women or husbands. The screening procedure left just one component in this index for both spouses, and effects on the non-standardized version of that component are in column (3) of appendix table B.4 for women and in column (5) of appendix table B.6 for husbands. In columns (5) and (6) of table 5, I find a slightly negative but non-significant effect (of -0.076 standard deviations) on women’s index of domestic violence being justified, but no effect on the corresponding index of husbands. Effects on the four components of the women’s index are in columns (4)-(7) of table B.4 and are either slightly negative or zero. The husbands’ index consists of just one component, and the effect on the non-standardized version of that component is in column (6) of table B.6.

There is no effect on the pro female children index of women in column (7) of table 5, but column (8) finds a highly significant effect of 0.308 standard deviations on the husband version of this index. For both women and husbands, the “index” consists only of the indicator for it being better to have a son than a daugher (multiplied by $-1$). Effects on the non-standardized version of this component are presented in column (8) of appendix table B.4 for women and column (7) of appendix table B.6 for husbands. These results suggest women’s employment makes husbands see greater value in female children, though the same does not occur for women.

There are positive but non-significant effects of 0.109 and 0.119 standard deviations for women and husbands, respectively, on the index of support for women’s involvement in decisions (see columns (9) and (10) of table 5). The effect on the index of support for women’s involvement in decisions on their work is about the same size for women (0.108 standard deviations) and slightly smaller for husbands (0.072 standard deviations), but neither is significant (see columns (11) and (12) of table 5). Effects on the components of the former index are in columns (1)-(7) of appendix table B.5 for women and columns (1)-(7) of appendix table B.7 for husbands, while effects on the components of the latter index are in columns (8)-(9) of appendix table B.5 for women and columns (8)-(9) of appendix table B.7 for husbands. Effects on individual components are generally consistent with there being a modest, positive effect overall. The slight positive effects on these indices, particularly those of women, could be driven by employment leading women to make more independent decisions. For the index of decisions on women’s work, this effect appears to outweigh the possible direct, negative effect of the promotion discussed in section 5.3.

Taken together, these results suggest there is little or no effect of employment on the gender
attitudes of women or husbands.

6.7 Effects on Husbands’ Work

Next, I turn to husbands’ work at four months. Column (1) of table 6 presents effects on the husband work index, while appendix table B.8 presents effects on the two components individually. It is possible that income effects or household chores would lead husbands to work less as their wives work more, but if women’s incomes are not pooled with all household income and if women do not do fewer chores, there may be no effect. Indeed, I find no effects on husbands’ work.

6.8 Effects on Household Saving

Columns (2)-(5) of table 6 present effects on household saving outcomes from the four-month endline. Columns (2) and (3) present effects on an indicator for a household member contributing to savings in the preceding two weeks as reported by the woman and family member, respectively. I find no effects on contributing to savings. It is hard to know what to make of this result as theory does not offer a clear prediction for which way the effect should go; more income may lead to more savings, but more income may also lead households to make large purchases that they previously could not make. Moreover, if income goes directly to a bank account, income earners may report no contribution to savings even if the money is not immediately spent.

In column (4), I find the promotion makes women much less likely to have participated in a self-help group in the month prior to being surveyed; the percent of women who participated falls from 16.7 to 9.1, a statistically significant change that represents a 46% reduction. This may be due to women having less time to participate once they start working, or to women having less need to participate if employment means the creation of a bank account in their names (as is the case for many women who participate in the partner firm program).

The final outcome, in column (5), is an indicator for the woman having something in particular she is saving up for. I find no effect on this outcome, suggesting employment does not change women’s savings aspirations.

Appendix table A.4 presents effects at one year. I again find no effects on contributing to savings (column (1)) or on the woman having a savings goal (column (3)). The effect on self-help group participation present at the four-month endline is not present at one year. One explanation is that it is the extensive margin of working or not (rather than the intensive margin of hours worked) that matters for self-help group participation. This would be consistent with employment providing a substitute for informal financial services through payment in formal accounts. Another explanation is that the firm makes training payments to bank accounts in women’s names as much as possible, but after training, loom owners determine how payments are made; if it is rare for loom owners and other employers to deposit women’s salaries in women’s bank accounts, then treated women who used these accounts in place of self-help groups at the four-month endline may have switched back to self-help groups at one year.
6.9 Effects on Fertility

Next, I present effects on fertility. Column (1) of table 7 presents effects at four months. The point estimate is positive and quite large relative to the control mean, implying an increase in the number of pregnancies since baseline of 0.070 off a base of 0.036, but it is not statistically significant. Column (1) of appendix table A.5 finds no effect at one year. Fertility reflects decisions made jointly by household members; provided women differ from their family members in the number of children they would like the women to have, finding no effect here is consistent with there being no shift in intra-household bargaining power.

6.10 Effects on Children’s Education

Finally, I investigate effects on children’s education. Column (2) of table 7 considers effects on the child education index, and column (3) allows for heterogeneity in the effect by child gender. I find no effect overall and no effect for either gender. Results for the child education index at one year are presented in columns (2) and (3) of appendix table A.5 and again suggest no effects. Appendix table B.9 presents effects on the components of the child education indices from the four-month and one-year endlines. There are no effects on either component at either endline. Like fertility, child education outcomes reflect joint household decisions; as long as women’s preferences for their children’s education, or for the education of their daughters or sons in particular, differ from those of their family members, these findings are consistent with intra-household bargaining power not being changed by employment.

Columns (4)-(9) present effects on aspirations for child education, again presenting estimates of equation 1 alongside specifications that allow effects to vary by child gender. The promotion does not affect aspirations for either gender or for children overall.

7 Discussion

7.1 Summary of Results

Results suggest women’s employment allows women to make more independent decisions but does not increase their bargaining power in joint household decisions. This is evidenced in treatment increasing women’s reports of making decisions but having no effect on husbands’ reports of women making decisions. Further support for the idea that employment makes women more empowered in independent decision-making comes from treatment increasing the amount of money women allocate to women’s goods in an incentivized task.

Working women may be able to make independent decisions precisely because they earn independent incomes. That is, women may be making independent decisions by allocating their own earnings. For many women in the partner firm’s program, doing so would have been facilitated by training payments being deposited in bank accounts that are in their names. The negative effect on women’s self-help group participation is consistent with a substitution away from informal financial
services and towards more formal accounts where pay is deposited.

Consistent with employment not shifting intra-household bargaining power, I find no effects on outcomes that reflect joint household decisions; husbands’ work, contribution of household members to savings, fertility, and children’s education are unaffected. Likewise, households do not reallocate responsibilities for household chores, which means women’s employment comes at the cost of women’s leisure.

Classes of outcomes that are outside of standard models of household decision-making are largely unaffected. Employment has little effect on women’s psychology; I find weak or no effects on women’s generalized self-efficacy, on exertion of effort, on risk-taking, and on aspirations. I find mixed effects on women’s mobility and few effects on household gender attitudes.

7.2 Implications for Models of Household Decision-Making

These findings have important implications for understanding of household decision-making. A standard prediction in the literature is that women’s employment will give women greater bargaining power in the collective decision-making framework of Chiappori (1992). My results suggest that employment does give women greater power over decisions but not in the way the collective model outlines; I find employment enables women to make more independent decisions but does not increase their intra-household bargaining power. The focus on decision-making power as an important outcome of women’s employment does, however, appear warranted given I find little or no effects on outcomes outside of standard household decision-making models.

More generally, my results suggest households do not make decisions as the collective model would predict. Women appear to use their earnings to make independent decisions rather than pooling the earnings with other household income to be allocated in joint decisions. My results are consistent with existing evidence that households do not pool incomes (Duflo and Udry, 2004; Robinson, 2012). This lack of pooling parallels the finding from Udry (1996) that households do not pool inputs to household production as well as the finding from Schaner (2015) that many couples choose to use individual rather than joint bank accounts. I also find that husbands are not fully aware of decisions wives make with their earnings. This result echoes the idea in Ashraf (2009) and Ashraf, Field and Lee (2014) that spouses’ imperfect knowledge of one another’s choices is an important aspect of household decision-making.

8 Conclusion

This paper investigates the effects of women’s employment on women and their households. It is the first study to provide experimental evidence on these effects. My results suggest employment enables women to make independent decisions but does not grant them greater intra-household bargaining power. As a result, there are limited effects on outcomes of joint household decisions. Responsibilities for household chores are not reallocated to other family members, which means
women’s employment comes at the cost of women’s leisure. I find little or no evidence that employment changes women’s psychology or shifts household gender attitudes.

There are three important take-aways from the results that I wish to highlight here. First, I cannot say whether women’s employment enhances welfare. Perhaps because it does not change intra-household bargaining power, I find very few effects of women’s employment on women’s family members. Even for women themselves, effects on welfare are ambiguous. On the one hand, the ability to make independent decisions could improve women’s wellbeing. But on the other hand, employment comes at the cost of women’s leisure, and there is actually a negative effect on women’s happiness one year after the intervention.

Second, an important corollary of my results involves the design of surveys that measure intra-household decision-making. A key piece of evidence leading to the overall conclusion that employment gives women more power in independent but not joint decisions is the difference between women’s and husbands’ responses to questions on who makes decisions in their households. While these questions are commonly asked in population surveys and in surveys in experiments, they are often asked only of women. My results suggest important insights into household decision-making can be gained by asking both husbands and wives.

Finally, a better understanding of household decision-making remains a promising agenda for future research. Future research should investigate when and why spouses make decisions independently rather than jointly, and conditions under which women’s employment might increase women’s bargaining power in joint household decisions.
References


Tables

Table 1: Effects on Women’s Employment

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<td>0.055**</td>
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* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. Outcomes in columns (1) and (2) come from official records of women’s involvement in the partner firm’s program. The outcome in column (1) is an indicator for signing up for the program, and the outcome in column (2) is an outcome for attending the program at least once in the first three months of training. The outcomes in columns (3), (4), and (7) are indicators for the woman working for income in the preceding two weeks at the one-week, four-month, and one-year endline surveys, respectively. The outcomes in columns (5) and (8) are the hours the woman spent on paid work the previous day at the four-month and one-year endline surveys. The outcome in column (6) comes from one-year endline surveys and is an indicator for the woman working for income in the rice sowing season that occurred 10 months after the intervention (and two months before the survey).
Table 2: Effects on Household Decision-Making at Four Months

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<td>-0.098</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>0.000</td>
<td>-0.016</td>
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<td>326.500</td>
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<td>356</td>
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* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcomes in columns (1) and (2) are the summary index for primary outcome 1.1 as reported by women and husbands, respectively, on four-month endline surveys. The outcomes in columns (3) and (4) are the summary index for primary outcome 1.2 as reported by women and husbands, respectively, on four-month endline surveys. The outcomes in columns (5) and (6) are items (a) and (b) of primary outcome 1.3, respectively. The outcome in both columns (7) and (8) is item (a) of primary outcome 1.4.
Table 3: Effects on Women’s Time Use and Mobility at Four Months

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<td></td>
<td>Hrs Chores</td>
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<td>Hrs Leisure</td>
<td>Hrs Night Sleep</td>
<td>Hrs Outside Home</td>
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<td></td>
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<td>Promo Treat (=1)</td>
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<td>-0.401**</td>
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<td></td>
<td>(0.337)</td>
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<td>Yes</td>
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<td>374</td>
<td>390</td>
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* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in column (1) is item (a) of primary outcome 2.1, measured on four-month endline surveys. The outcome in column (2) is item (b) of primary outcome 2.1. The outcomes in columns (3), (4), (5), and (6) are, respectively, primary outcomes 2.2, 2.3, 3.1, and 3.2, measured on four-month endline surveys.
Table 4: Effects on Women’s Psychology at Four Months

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<th>(1) GSE Index</th>
<th>(2) Chose Puzzle (=1)</th>
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<td></td>
<td>(0.099)</td>
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<td>(0.071)</td>
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<td></td>
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<td>(0.071)</td>
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| Strata FE | Yes | Yes | Yes | Yes  |
| Control Avg | 0.165 | 0.588 | 0.573 | 3.366 |
| N         | 369  | 389  | 389  | 385   |

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in column (1) is item (a) of primary outcome 4.1. The outcome in both columns (2) and (3) is item (b) of primary outcome 4.1. The outcome in column (4) is primary outcome 4.2. All outcomes are the versions of these primary outcomes from four-month endline surveys.
Table 5: Effects on Household Gender Attitudes at Four Months

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<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
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<td></td>
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<tr>
<td>Woman</td>
<td>0.164*</td>
<td>0.129</td>
<td>0.026</td>
<td>0.005</td>
<td>-0.076</td>
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<td>0.009</td>
<td>0.308*</td>
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<td>0.119</td>
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<td>0.131</td>
<td>0.103</td>
<td>0.135</td>
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| Support for Women's Ideas Index: |       |       |       |       |       |       |       |       |       |       |       |       |
| Woman          |       |       |       |       |       |       |       |       |       |       |       |       |
| Husband        |       |       |       |       |       |       |       |       |       |       |       |       |

| Hitting/Beating Wives Justified Index: |       |       |       |       |       |       |       |       |       |       |       |       |
| Woman          |       |       |       |       |       |       |       |       |       |       |       |       |
| Husband        |       |       |       |       |       |       |       |       |       |       |       |       |

| Pro Female Children Index: |       |       |       |       |       |       |       |       |       |       |       |       |
| Woman          |       |       |       |       |       |       |       |       |       |       |       |       |
| Husband        |       |       |       |       |       |       |       |       |       |       |       |       |

| Support for Women's Involvement in Decisions on Their Work Index: |       |       |       |       |       |       |       |       |       |       |       |       |
| Woman          |       |       |       |       |       |       |       |       |       |       |       |       |
| Husband        |       |       |       |       |       |       |       |       |       |       |       |       |

| Strata FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Control Avg | -0.008 | 0.000 | -0.008 | 0.000 | -0.006 | -0.000 | 0.013 | 0.000 | -0.012 | -0.000 | -0.003 | -0.000 |
| N           | 386 | 274 | 371 | 265 | 390 | 270 | 368 | 268 | 390 | 274 | 390 | 274 |

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcomes in the six pairs of columns (1) and (2), (3) and (4), (5) and (6), (7) and (8), (9) and (10), and (11) and (12) are the summary indices for primary outcomes 6.1, 6.2, 6.3, 6.4, 6.5, and 6.6, respectively. Outcomes in odd-numbered columns are reports of women, and outcomes in even-numbered columns are reports of husbands.
Table 6: Effects on Husbands’ Work and Household Saving at Four Months

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<td>0.016</td>
<td>-0.076**</td>
<td>0.016</td>
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<td>(0.046)</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
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<td>369</td>
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* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in column (1) is the summary index for primary outcome 7. The outcome in column (2) is item (a) of primary outcome 8.1, measured on four-month endline surveys. The outcome in column (3) is item (b) of primary outcome 8.1. The outcomes in columns (4) and (5) are, respectively, primary outcomes 8.2 and 8.3, measured on four-month endline surveys.
Table 7: Effects on Fertility and Children’s Education at Four Months

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<tr>
<td>N Successful Pregnancies Since BL</td>
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<td>-0.034</td>
<td>-0.023</td>
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</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>0.057</td>
<td>0.093</td>
<td>0.112</td>
<td>0.036</td>
<td>0.039</td>
<td>0.040</td>
<td>0.050</td>
<td>0.039</td>
<td>0.050</td>
</tr>
<tr>
<td>Child Female (=1)</td>
<td>-0.062</td>
<td>0.188***</td>
<td>-0.119***</td>
<td>-0.127***</td>
<td>0.015</td>
<td>-0.021</td>
<td>-0.041</td>
<td>0.041</td>
<td>0.053</td>
</tr>
<tr>
<td>Promo Treat X Child Female (=1)</td>
<td>(0.089)</td>
<td>(0.043)</td>
<td>(0.043)</td>
<td>(0.036)</td>
<td>(0.133)</td>
<td>(0.058)</td>
<td>(0.062)</td>
<td>(0.053)</td>
<td></td>
</tr>
<tr>
<td>P-Value: $\beta_1 + \beta_3 = 0$</td>
<td>0.646</td>
<td>0.289</td>
<td>0.429</td>
<td>0.140</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Omitted Avg</td>
<td>0.036</td>
<td>0.000</td>
<td>0.032</td>
<td>0.257</td>
<td>0.169</td>
<td>0.412</td>
<td>0.468</td>
<td>0.244</td>
<td>0.308</td>
</tr>
<tr>
<td>N</td>
<td>390</td>
<td>942</td>
<td>942</td>
<td>1125</td>
<td>1125</td>
<td>1125</td>
<td>1125</td>
<td>1125</td>
<td>1125</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in column (1) is primary outcome 9, measured on four-month endline surveys. The outcome in both columns (2) and (3) is the summary index for primary outcome 10.1, measured on four-month endline surveys. The outcomes in the three pairs of columns (4) and (5), (6) and (7), and (8) and (9) are, respectively, items (a), (b), and (c) of primary outcome 10.2.
## Appendix A: Effects at One Year

### Table A.1: Effects on Household Decision-Making at One Year

<table>
<thead>
<tr>
<th></th>
<th>Woman Involved in Decisions Index: Woman’s Report</th>
<th>Woman Involved in Work Index: Woman’s Report</th>
<th>Would Persuade Husband (=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promo Treat (=1)</td>
<td>0.160</td>
<td>0.224**</td>
<td>0.084</td>
</tr>
<tr>
<td></td>
<td>(0.114)</td>
<td>(0.113)</td>
<td>(0.055)</td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg</td>
<td>-0.019</td>
<td>-0.019</td>
<td>0.346</td>
</tr>
<tr>
<td>N</td>
<td>334</td>
<td>334</td>
<td>310</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcomes in columns (1) and (2) are the summary indices for primary outcomes 1.1 and 1.2, respectively, as reported by women on one-year endline surveys. The outcome in column (4) is item (b) of primary outcome 1.4.
Table A.2: Effects on Time Use and Mobility at One Year

<table>
<thead>
<tr>
<th>Hrs Chores Yesterday</th>
<th>Hrs Leisure Yesterday</th>
<th>Hrs Night Sleep Yesterday</th>
<th>Hrs Outside Home</th>
<th>Hrs Outside Home Excluding Paid Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promo Treat (=1)</td>
<td>0.352</td>
<td>-0.517***</td>
<td>0.035</td>
<td>-0.091</td>
</tr>
<tr>
<td></td>
<td>(0.345)</td>
<td>(0.171)</td>
<td>(0.180)</td>
<td>(0.252)</td>
</tr>
<tr>
<td>Strata FE Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg 7.874</td>
<td>1.767</td>
<td>7.779</td>
<td>1.623</td>
<td>1.427</td>
</tr>
<tr>
<td>N 334</td>
<td>334</td>
<td>334</td>
<td>334</td>
<td>334</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in column (1) is item (a) of primary outcome 2.1. The outcomes in columns (2), (3), (4), and (5) are, respectively, primary outcomes 2.2, 2.3, 3.1, and 3.2. All outcomes are the versions of these primary outcomes from one-year endline surveys.
Table A.3: Effects on Women’s Psychology and Risk-Taking at One Year

<table>
<thead>
<tr>
<th></th>
<th>(1) GSE Index</th>
<th>(2) Chose Puzzle (=1)</th>
<th>(3) Happiness (1-4)</th>
<th>(4) Chose Risky Option (=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promo Treat (=1)</td>
<td>-0.139</td>
<td>-0.000</td>
<td>-0.074</td>
<td>0.024</td>
</tr>
<tr>
<td></td>
<td>(0.121)</td>
<td>(0.054)</td>
<td>(0.079)</td>
<td>(0.046)</td>
</tr>
<tr>
<td>1-Yr EL Prize Low (=1)</td>
<td></td>
<td></td>
<td>-0.194***</td>
<td>0.022</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.074)</td>
<td>(0.066)</td>
</tr>
<tr>
<td>Promo Treat X 1-Yr EL</td>
<td></td>
<td></td>
<td>0.151</td>
<td>0.008</td>
</tr>
<tr>
<td>Prize Low (=1)</td>
<td></td>
<td></td>
<td>(0.115)</td>
<td>(0.098)</td>
</tr>
</tbody>
</table>

P-Value: $\beta_1 + \beta_3 = 0$

|                        |               |                       | 0.327                 | 0.672                      |
|                        |               |                       | (0.151)               | (0.082)                    |
| Strata FE              | Yes           | Yes                   | Yes                  | Yes                        |
| Control Avg            | 0.022         | 0.634                 | 0.730                | 0.802                      |
|                        | 324           | 334                   | 334                  | 334                        |

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in column (1) is item (a) of primary outcome 4.1. The outcome in both columns (2) and (3) is item (b) of primary outcome 4.1. The outcome in column (4) is primary outcome 4.2. All outcomes are the versions of these primary outcomes from one-year endline surveys. The outcome in both columns (5) and (6) is primary outcome 5.
Table A.4: Effects on Household Saving at One Year

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HH Member Contributed to Savings Last 2 Weeks (=1)</td>
<td>Woman Participated in SHG Last Month (=1)</td>
<td>Woman Saving Up for Something (=1)</td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>-0.002 (0.047)</td>
<td>-0.032 (0.042)</td>
<td>0.040 (0.053)</td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg</td>
<td>0.226</td>
<td>0.209</td>
<td>0.298</td>
</tr>
<tr>
<td>N</td>
<td>330</td>
<td>318</td>
<td>329</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in column (1) is item (a) of primary outcome 8.1. The outcomes in columns (2) and (3) are primary outcomes 8.2 and 8.3, respectively. All outcomes are the versions of these primary outcomes from one-year endline surveys.
Table A.5: Effects on Fertility and Children’s Education at One Year

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Successful Pregnancies Since BL</td>
<td>Child Education Index</td>
<td></td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>-0.016</td>
<td>0.013</td>
<td>0.078</td>
</tr>
<tr>
<td></td>
<td>(0.067)</td>
<td>(0.083)</td>
<td>(0.109)</td>
</tr>
<tr>
<td>Child Female (=1)</td>
<td>0.020</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.091)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promo Treat X Child Female (=1)</td>
<td>-0.129</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.137)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P-Value: $\beta_1 + \beta_3 = 0$ 0.628

Strata FE Yes Yes Yes
Omitted Avg 0.215 -0.000 0.014
N 334 857 857

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in column (1) is primary outcome 9. The outcome in both columns (2) and (3) is the summary index for primary outcome 10.1. Both outcomes are the versions of these primary outcomes from one-year endline surveys.
### Appendix B: Effects on Components of Indices

Table B.1: Effects on Components of Household Decision-Making Indices Reported by Women at Four Months

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman Involved in Decisions (=1) on:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Spending</td>
<td>Clothing Spending</td>
<td>Education Spending</td>
<td>Whether to Purchase Large Items</td>
<td>How Much to Save</td>
<td>Action if Child Sick</td>
<td>Spending of Husband’s Earnings</td>
<td>Whether She Works Outside</td>
<td>Spending of Her Earnings</td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>0.124***</td>
<td>0.053</td>
<td>0.095*</td>
<td>0.026</td>
<td>0.112**</td>
<td>0.036</td>
<td>0.096*</td>
<td>0.112**</td>
</tr>
<tr>
<td></td>
<td>(0.045)</td>
<td>(0.050)</td>
<td>(0.049)</td>
<td>(0.047)</td>
<td>(0.049)</td>
<td>(0.051)</td>
<td>(0.049)</td>
<td>(0.048)</td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg</td>
<td>0.241</td>
<td>0.333</td>
<td>0.338</td>
<td>0.287</td>
<td>0.308</td>
<td>0.513</td>
<td>0.374</td>
<td>0.292</td>
</tr>
<tr>
<td>N</td>
<td>390</td>
<td>390</td>
<td>389</td>
<td>390</td>
<td>390</td>
<td>389</td>
<td>390</td>
<td>390</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcomes in columns (1)-(7) are items (a)-(g), respectively, of primary outcome 1.1. The outcomes in columns (8) and (9) are items (a) and (b), respectively, of primary outcome 1.2. All outcomes are the versions of these primary outcomes reported by women on four-month endline surveys.
Table B.2: Effects on Components of Household Decision-Making Indices Reported by Husbands at Four Months

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman Involved in Decisions (=1) on:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Spending</td>
<td>Clothing Spending</td>
<td>Education Spending</td>
<td>Whether to Purchase Large Items</td>
<td>How Much to Save</td>
<td>Action if Child Sick</td>
<td>Spending of Husband’s Earnings</td>
<td>Whether She Works Outside</td>
<td>Spending of Her Earnings</td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>0.052</td>
<td>0.031</td>
<td>0.098</td>
<td>0.010</td>
<td>-0.016</td>
<td>-0.023</td>
<td>0.037</td>
<td>-0.024</td>
</tr>
<tr>
<td>(0.059)</td>
<td>(0.067)</td>
<td>(0.062)</td>
<td>(0.062)</td>
<td>(0.061)</td>
<td>(0.066)</td>
<td>(0.064)</td>
<td>(0.058)</td>
<td>(0.061)</td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg</td>
<td>0.278</td>
<td>0.396</td>
<td>0.306</td>
<td>0.368</td>
<td>0.389</td>
<td>0.486</td>
<td>0.389</td>
<td>0.340</td>
</tr>
<tr>
<td>N</td>
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<td>278</td>
<td>278</td>
<td>278</td>
<td>277</td>
<td>277</td>
<td>277</td>
<td>277</td>
</tr>
</tbody>
</table>

*p* < 0.10, **p** < 0.05, ***p*** < 0.01. Standard errors clustered by household. The outcomes in columns (1)-(7) are items (a)-(g), respectively, of primary outcome 1.1. The outcomes in columns (8) and (9) are items (a) and (b), respectively, of primary outcome 1.2. All outcomes are the versions of these primary outcomes reported by husbands on four-month endline surveys.
Table B.3: Effects on Components of Household Decision-Making Indices Reported by Women at One Year

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Woman Involved in Decisions (=1) on:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whether to Spend</td>
<td>Whether She Spend</td>
<td>How Much to Save</td>
<td>Action if Child Sick</td>
<td>Spending of Husband’s Earnings</td>
<td>Whether She Works Outside</td>
<td>Spending of Her Earnings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Spending</td>
<td>Clothing Spending</td>
<td>Education Spending</td>
<td>Whether to Purchase Large Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>0.079</td>
<td>0.054</td>
<td>0.080</td>
<td>0.038</td>
<td>0.073</td>
<td>0.020</td>
<td>0.059</td>
<td>0.077</td>
</tr>
<tr>
<td>(0.050)</td>
<td>(0.052)</td>
<td>(0.054)</td>
<td>(0.052)</td>
<td>(0.052)</td>
<td>(0.055)</td>
<td>(0.055)</td>
<td>(0.052)</td>
<td>(0.053)</td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg</td>
<td>0.244</td>
<td>0.291</td>
<td>0.349</td>
<td>0.267</td>
<td>0.302</td>
<td>0.494</td>
<td>0.395</td>
<td>0.262</td>
</tr>
<tr>
<td>N</td>
<td>334</td>
<td>334</td>
<td>334</td>
<td>334</td>
<td>334</td>
<td>334</td>
<td>334</td>
<td>334</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcomes in columns (1)-(7) are items (a)-(g), respectively, of primary outcome 1.1. The outcomes in columns (8) and (9) are items (a) and (b), respectively, of primary outcome 1.2. All outcomes are the versions of these primary outcomes reported by women on one-year endline surveys.
Table B.4: Effects on Components of Gender Attitudes Indices of Women at Four Months, Part 1

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Promo Treat (=1)</strong></td>
<td>0.100</td>
<td>0.274**</td>
<td>0.012</td>
<td>-0.031</td>
<td>0.009</td>
<td>-0.042</td>
<td>-0.051</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(0.140)</td>
<td>(0.131)</td>
<td>(0.050)</td>
<td>(0.043)</td>
<td>(0.047)</td>
<td>(0.046)</td>
<td>(0.044)</td>
<td>(0.048)</td>
</tr>
<tr>
<td><strong>Strata FE</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Control Avg</strong></td>
<td>2.466</td>
<td>2.613</td>
<td>-0.375</td>
<td>0.287</td>
<td>0.308</td>
<td>0.304</td>
<td>0.292</td>
<td>-0.387</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>378</td>
<td>383</td>
<td>389</td>
<td>385</td>
<td>387</td>
<td>389</td>
<td>368</td>
<td>368</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. Outcomes in this table are the components of the first four gender attitudes indices of women. Note components are those that were not screened out by the rule discussed in section 5.1, not all potential components listed in that section. The outcomes in columns (1) and (2) are the components of the summary index for primary outcome 6.1, that in column (3) the component for 6.2, those in columns (4)-(7) the components for 6.3, and that in column (8) the component for 6.4.
Table B.5: Effects on Components of Gender Attitudes Indices of Women at Four Months, Part 2

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Food</td>
<td>Clothing</td>
<td>Education</td>
<td>Whether to Purchase Large Items</td>
<td>How Much to Save</td>
<td>Action if Child Sick</td>
<td>Spending of Husband’s Earnings</td>
<td>Whether She Works Outside</td>
<td>Spending of Her Earnings</td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>0.022</td>
<td>0.035</td>
<td>0.034</td>
<td>0.013</td>
<td>0.065</td>
<td>0.061</td>
<td>0.055</td>
<td>0.011</td>
<td>0.078</td>
</tr>
<tr>
<td></td>
<td>(0.046)</td>
<td>(0.048)</td>
<td>(0.050)</td>
<td>(0.048)</td>
<td>(0.050)</td>
<td>(0.052)</td>
<td>(0.052)</td>
<td>(0.047)</td>
<td>(0.052)</td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg</td>
<td>0.256</td>
<td>0.272</td>
<td>0.400</td>
<td>0.297</td>
<td>0.338</td>
<td>0.492</td>
<td>0.431</td>
<td>0.287</td>
<td>0.513</td>
</tr>
<tr>
<td>N</td>
<td>390</td>
<td>390</td>
<td>389</td>
<td>390</td>
<td>389</td>
<td>390</td>
<td>390</td>
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</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Outcomes in this table are the components of the last two gender attitudes indices of women. Note components are those that were not screened out by the rule discussed in section 5.1, not all potential components listed in that section. The outcomes in columns (1)-(7) are the components of the summary index for primary outcome 6.5, and those in columns (8) and (9) the components for 6.6.
Table B.6: Effects on Components of Gender Attitudes Indices of Husbands at Four Months, Part 1

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Appropriate (1-4) for Women in HH to Work As:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>-0.025</td>
<td>0.189</td>
<td>0.206*</td>
<td>0.038</td>
<td>0.003</td>
<td>-0.011</td>
<td>0.147***</td>
</tr>
<tr>
<td></td>
<td>(0.177)</td>
<td>(0.174)</td>
<td>(0.121)</td>
<td>(0.062)</td>
<td>(0.062)</td>
<td>(0.054)</td>
<td>(0.055)</td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg</td>
<td>2.220</td>
<td>2.454</td>
<td>3.472</td>
<td>0.601</td>
<td>-0.449</td>
<td>0.264</td>
<td>-0.350</td>
</tr>
<tr>
<td>N</td>
<td>271</td>
<td>270</td>
<td>272</td>
<td>274</td>
<td>265</td>
<td>270</td>
<td>268</td>
</tr>
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* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. Outcomes in this table are the components of the first four gender attitudes indices of husbands. Note components are those that were not screened out by the rule discussed in section 5.1, not all potential components listed in that section. The outcomes in columns (1)-(4) are the components of the summary index for primary outcome 6.1, that in column (5) the component for 6.2, that in column (6) the component for 6.3, and that in column (7) the component for 6.4.
Table B.7: Effects on Components of Gender Attitudes Indices of Husbands at Four Months, Part 2

<table>
<thead>
<tr>
<th></th>
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<th>(2)</th>
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<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women Should be Involved in Decisions (=1) on:</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food Spending</td>
<td>Clothing Spending</td>
<td>Education Spending</td>
<td>Whether to Purchase Large Items</td>
<td>How Much to Save</td>
<td>Action if Child Sick</td>
<td>Spending of Husband’s Earnings</td>
<td>Whether She Works Outside</td>
<td>Spending of Her Earnings</td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>0.053</td>
<td>0.102</td>
<td>-0.006</td>
<td>0.025</td>
<td>0.059</td>
<td>0.004</td>
<td>0.048</td>
<td>0.056</td>
<td>-0.005</td>
</tr>
<tr>
<td></td>
<td>(0.061)</td>
<td>(0.062)</td>
<td>(0.062)</td>
<td>(0.063)</td>
<td>(0.062)</td>
<td>(0.065)</td>
<td>(0.064)</td>
<td>(0.059)</td>
<td>(0.060)</td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control Avg</td>
<td>0.287</td>
<td>0.343</td>
<td>0.385</td>
<td>0.420</td>
<td>0.385</td>
<td>0.517</td>
<td>0.524</td>
<td>0.259</td>
<td>0.706</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. Outcomes in this table are the components of the last two gender attitudes indices of husbands. Note components are those that were not screened out by the rule discussed in section 5.1, not all potential components listed in that section. The outcomes in columns (1)-(7) are the components of the summary index for primary outcome 6.5, and those in columns (8) and (9) the components for 6.6.
Table B.8: Effects on Components of Husbands’ Work Index

<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>N Days</td>
<td>Rs Husband</td>
<td>N Days</td>
<td>Rs Husband</td>
</tr>
<tr>
<td></td>
<td>Husband</td>
<td>Worked Last 2</td>
<td>Husband</td>
<td>Worked Last 2</td>
</tr>
<tr>
<td></td>
<td>0.093</td>
<td>231.605</td>
<td>0.093</td>
<td>231.605</td>
</tr>
<tr>
<td></td>
<td>(0.620)</td>
<td>(259.253)</td>
<td>(0.620)</td>
<td>(259.253)</td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Strata FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Control Avg</td>
<td>7.506</td>
<td>1892.438</td>
<td>7.506</td>
<td>1892.438</td>
</tr>
<tr>
<td>N</td>
<td>330</td>
<td>321</td>
<td>330</td>
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</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcomes in columns (1) and (2) are items (a) and (b), respectively, of primary outcome 7.
Table B.9: Effects on Components of Children’s Education Indices

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<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>N Days Last Week Child:</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Attended School, 4 Month EL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studied Outside School, 4 Month EL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended School, 4 Month EL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studied Outside School, 4 Month EL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended School, 1 Year EL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studied Outside School, 1 Year EL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended School, 1 Year EL</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studied Outside School, 1 Year EL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promo Treat (=1)</td>
<td>-0.160</td>
<td>0.221</td>
<td>-0.006</td>
<td>0.089</td>
<td>0.156</td>
<td>-0.231</td>
<td>0.400</td>
<td>-0.145</td>
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<tr>
<td>(0.251)</td>
<td>(0.244)</td>
<td>(0.301)</td>
<td>(0.317)</td>
<td>(0.214)</td>
<td>(0.280)</td>
<td>(0.296)</td>
<td>(0.339)</td>
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</tr>
<tr>
<td>Child Female (=1)</td>
<td>0.151</td>
<td>-0.487*</td>
<td>0.298</td>
<td>-0.229</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.259)</td>
<td>(0.278)</td>
<td>(0.290)</td>
<td>(0.270)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promo Treat X Child Female (=1)</td>
<td>-0.319</td>
<td>0.285</td>
<td>-0.507</td>
<td>-0.151</td>
<td></td>
<td></td>
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<tr>
<td>(0.369)</td>
<td>(0.381)</td>
<td>(0.399)</td>
<td>(0.421)</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>P-Value: $\beta_1 + \beta_3 = 0$</td>
<td>0.315</td>
<td>0.213</td>
<td>0.711</td>
<td>0.410</td>
<td></td>
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<tr>
<td>Strata FE</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tr>
<tr>
<td>Omitted Avg</td>
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<td>3.770</td>
<td>2.932</td>
<td>3.697</td>
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<tr>
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<td>895</td>
<td>854</td>
<td>813</td>
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<td>813</td>
</tr>
</tbody>
</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered by household. The outcome in odd-numbered columns is item (a) of primary outcome 10.1, and the outcome in even-numbered columns is item (b) of primary outcome 10.1. The outcomes in columns (1)-(4) are versions of these primary outcomes from four-month endline surveys, and the outcomes in columns (5)-(8) are versions of these primary outcomes from one-year endline surveys.