Women's Self-Efficacy and Women's Employment: Experimental Evidence from India*

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Abstract

Women's employment is low in many developing countries. I test whether aspects of women's internal psychology constrain women's employment in India. I offer an intervention to increase generalized self-efficacy (GSE), or beliefs in own ability to attain desired outcomes. The effect on employment will depend on women's external realities; in particular, beliefs in ability may not affect employment if women do not actually have the ability to overcome opposition from their family members. I therefore cross-randomize the promotion of a women's employment opportunity to women's family members. The GSE intervention alone produces large and persistent increases in employment. The promotion intervention alone produces similar effects but the combination of the two produces no additional gain. Channels data suggest the GSE intervention works by leading women to exert effort to reach desired employment outcomes. These results suggest there exist internal constraints to women's employment in India. In a second experiment, I investigate why these internal constraints exist. I hypothesize that the typical economic experiences of women in my setting, and exclusion from the labor market in particular, produce low GSE. To test the causal effect of employment on GSE, I randomly assign job offers amongst women that enroll in an employment opportunity. Indeed, women who received a job offer have significantly higher GSE several months later. Taken together, these results provide important insights for understanding links between psychology and economics.

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1 Introduction

Women's employment is generally low in developing countries. In 2009-2010 data, 52% of women in poor countries participate in the labor force, whereas 78% of their male counterparts do so (Duflo, 2012). Women's employment is particularly low in India; 2011-2012 data suggest only 27% of women in India participate in the labor force, a stark contrast to the male participation rate of 96% (Fletcher, Pande and Troyer Moore, 2017). Literature on women's employment in India and other developing countries focuses primarily on constraints external to individual women; literature identifies factors such as education, gender norms, male preferences and intra-household bargaining, access to women's employment opportunities, and sectoral composition of aggregate economies as important external constraints to women's employment (Erten and Keskin, 2018; Field, Jayachandran and Pande, 2010; Field et al., 2016; Goldin, 1995; Heath and Mobarak, 2015; Jensen, 2012). However, internal barriers within women's own psychologies receive less attention in the literature and may also be important constraints to women's employment. This paper explores such internal barriers. In particular, I use two randomized controlled trials to investigate three research questions: (i) Does women's internal psychology constrain women's employment in India? (ii) How do internal and external constraints interact? And (iii) What creates the internal constraints?

I focus on a particular aspect of psychology: generalized self-efficacy (GSE), or beliefs in own ability to attain desired outcomes. I hypothesize that traditional Indian culture gives women life experiences that may produce particularly low GSE. Rigid gender norms result in low education and employment for women, arranged and patrilocal marriages, restrictions on women's mobility, low intra-household bargaining power for women, and, often, violence against women. These practices may produce low GSE in women by suggesting to women that they are unable to attain outcomes they desire or by limiting women's opportunities to experiment and learn about their abilities. A vast literature in psychology argues GSE is a key determinant of whether individuals exert effort (see Bandura, 1997; Reich and Infurna, 2017; Skinner, 1996, for summaries); low GSE may prevent women from exerting effort to attain outcomes they desire.

Employment appears to be a desired outcome of many women in India (Fletcher, Pande and Troyer Moore, 2017). However, work is an outcome that requires a great deal of effort. This is particularly true for women in India who may face challenges finding employment, overcoming opposition to women's employment from family members, acquiring requisite skills, or managing chores at home in addition to the challenges any worker might face in accomplishing tasks at work. Low GSE may act as a barrier to women's employment by preventing women from exerting such effort.

In a randomized controlled trial, I offer women a psychosocial intervention to increase GSE. My sample consists of 1,022 women living in rural Uttar Pradesh, India. The intervention is delivered in nine meetings held two to three times a week for four weeks. I use a scalable, community-health approach by having trained laypeople, in this case surveyors, deliver the intervention. To control for effects of meeting attendance unrelated to GSE, I also hold meetings with non-treated women in which participants took surveys. Note that both the GSE curriculum and control group surveys intentionally avoid explicit mentions of women's employment so as to not directly promote employment. This intervention could increase women's employment by raising women's perceived returns to effort and inspiring women to exert effort required to work.

However, GSE will not affect women's employment if the actual returns to women's efforts are zero. Intra-household opposition is an important reason to suspect women may not actually have the ability to

work; in my setting, women's husbands and parents-in-law typically have high bargaining power and often oppose women's employment. Women may exert effort to persuade their family members but whether they actually have the ability to overcome this external constraint is not obvious. I therefore cross-randomize the promotion of a women's employment opportunity to women's family members. If women have the ability to persuade their family members, there is a sense in which the interventions will substitute for one another; if not, there should be complementarities between the two. Put differently, the experimental design also allows me to test if relaxing these internal constraints allows women themselves to overcome external constraints, or if there are additional gains from directly relaxing external constraints.

I measure women's employment in the weeks and months following the interventions. To do so, I leverage a partnership with a large firm that offers an employment opportunity for women. It is this opportunity I promote to family members in the cross-randomized promotion intervention. I orchestrate the recruitment of women for 120 new positions so as to record official data on women's employment decisions in a real opportunity. I also collect data on women's participation in any income-generating activity through surveys with women.

I find the GSE treatment raises GSE dramatically, producing effects that are around 0.2 standard deviations above the baseline control group mean. Effects are present at least four months after the intervention ends. Evidence from a "lab-in-the-field" outcome suggests the treatment also increases effort women exert to attain desired outcomes.

Effects on women's employment are striking. Four months after the GSE intervention ended, women that received the GSE treatment only are a significant 35.8% more likely to work for income than are women that received neither treatment. The corresponding effect of the promotion treatment is also positive, large, and significant. I find similar effects on enrollment in the partner firm's employment opportunity. Remarkably, the combination of the two treatments produces no additional gains in employment. Results on any work for income at the four-month endline suggest the two treatments perfectly substitute for one another. In enrollment, the combination of treatments not only produces no additional gain but also un-does the effect of either alone, bringing enrollment back to levels observed without either treatment.

Next, I investigate channels driving effects on employment using data on decisions about enrollment in the partner firm's employment opportunity. I argue the GSE treatment works by inspiring women to exert effort to reach desired employment outcomes. In enrollment, this involved exerting effort to persuade family members of women's desired enrollment decision. Data suggest women's desired enrollment decision varies by promotion treatment. An unexpected effect of the promotion is that it led family members to assert control over money women would earn in the program; while women are generally interested in enrolling, this would have made them less so. Indeed, survey data on intra-household decision-making are consistent with the GSE treatment alone leading women to "turn on" persuasive effort that they "turn off" when their family members receive the promotion. Additional data suggest results cannot be explained by women's desire to work or by family members feeling too much external pressure.

These results suggest that low GSE is a constraint to women's employment in India. This begs an important question: why does this internal constraint exist? I hypothesize that economic experiences of women in my setting, and exclusion from the labor market in particular, produce low GSE. That is, women's employment is low because women lack the confidence that work itself would engender.

A second experiment tests this theory. Over twice as many women enrolled in the partner firm's

opportunity as there were slots for. I randomly determined which women were offered the chance to participate. Comparisons between enrollees that were given an offer and enrollees that were not therefore isolates the causal effect of the employment opportunity.

As predicted, the offer significantly raises GSE. The magnitude of the effect is large, at over 0.2 standard deviations from the control group mean at baseline, and striking given the sample of enrollees had high GSE at the time of enrollment.

Results provide important insights for understanding links between psychology and economics. Psychological constraints may be important barriers to key economic outcomes, while economic experiences can create those psychological constraints. Relaxing such constraints can empower individuals to overcome external constraints and reach economic attainments. There exist scalable interventions that can alleviate these constraints.

I view these findings as contributing to three bodies of literature. First is literature on the determinants of women's employment in India in particular and in developing countries more generally. A well-known empirical finding is that female labor force participation is "U-shaped" in development, which can be explained by a confluence of factors: shifts in the sectoral composition of economies, relaxation of education constraints, and competing income and substitution effects (Goldin, 1995). More recent studies investigate the role of education, gender norms, male preferences and intra-household bargaining, and access to women's employment opportunities (Erten and Keskin, 2018; Field, Jayachandran and Pande, 2010; Field et al., 2016; Heath and Mobarak, 2015; Jensen, 2012). My results suggest internal, psychological factors are important determinants of women's employment; in a setting where cultural norms have deleterious effects on women's assessments of their own abilities, an intervention in GSE can produce large and persistent increases in women's employment.

Second, I contribute to a nascent and growing literature suggesting that interventions in psychology have important effects on poverty (Baranov et al., 2017; Bernard et al., 2014; Campos et al., 2017; Ghosal et al., 2017; Hall, Zhao and Shafir, 2014; Heller et al., 2017; Lybbert and Wydick, 2016). To my knowledge, mine is the first large-scale, field experiment that investigates the effects of a GSE intervention in a developing country setting. My study also makes contributions to this literature by providing evidence that psychological factors affect important labor supply decisions and by coupling these results with data on nuanced mechanisms linking psychology and economic outcomes.

Finally, results make important contributions to the large literature on intra-household decision-making. This literature typically views a bargaining weight as the key parameter in intra-household decision-making that, together with preferences and resources, determines household decisions. My results contribute to a smaller and younger literature suggesting that the nature of communication between household members matters for determining household decisions (Ashraf et al., 2017; Lowe and McKelway, 2017).

The remainder of the paper proceeds as follows. I begin in Section 2 by providing relevant background information along with a conceptual framework for interpreting results. In Section 3, I provide information about the experimental design. I discuss the data and empirical strategy in Section 4. Section 5 presents results of the first experiment, investigating whether there are internal constraints to women's employment and how internal and external constraints interact. The results of the second experiment, which investigate why internal constraints exist, are presented in Section 6. I conclude in Section 7.

2 Background and Conceptual Framework

2.1 Background

I conduct the field experiment in rural Uttar Pradesh, India. Uttar Pradesh is an Indian state located in the north of the country. It is one of India's poorest states, and rural areas are particularly impoverished. The state is predominantly Hindu and adheres strongly to traditional Indian cultural norms. Levels of women's employment in the setting are low. In my sample at baseline, 31.6% of women had done any work for income in the previous two weeks, and only 16.1% had done work to earn income off their household's own land. In contrast, the corresponding values for women's husbands are 74.6% and 64.3%.

2.1.1 Generalized Self-Efficacy (GSE)

While literature generally focuses on constraints external to women to explain low women's employment, this paper investigates barriers that originate in women's own internal psychologies. I focus on Generalized Self-Efficacy (GSE), or beliefs in own ability to attain desired outcomes. GSE beliefs may pertain to any desired outcomes throughout life and may also concern avoidance of undesired outcomes. GSE beliefs need not match external reality; that is, beliefs about ability may differ from actual ability.

It is worth noting several related but distinct constructs that describe one's own views of oneself. In contrast to Generalized Self-Efficacy, Self-Efficacy describes beliefs about ability to succeed in a specific domain. Self-Esteem differs from both and describes one's overall evaluation of one's own worth. Finally, Self-Confidence is a term typically used outside of psychology and used roughly synonymously with GSE.

Bandura (1997) describes key determinants of Self-Efficacy and argues personal experience is the most influential. Experiences of women in my setting are defined by traditional Indian gender norms. There is a strong preference for sons over daughters, and boys generally receive more formal education than girls. Typically, marriages are arranged and require women move to husbands' villages. While husbands work for income, wives are generally tasked with household chores. Women are often concealed from public observation through restrictions on physical mobility and clothing. Intra-household bargaining power generally favors women's husbands and parents-in-law. Cultural restrictions on married women are typically stronger for more recently married women. Violence against women is relatively common.

I hypothesize that these gender norms give women life experiences that would produce low GSE. These experiences may suggest to women that they are unable to attain outcomes they desire. Certain practices, violence against women and low bargaining power for example, may directly signal to women that they are unable to attain outcomes they desire, while other practices, such as low education and low employment, may bar women from economic experiences that would provide women higher signals of their own ability. Moreover, this rigid social structure may give women little opportunity to experiment and learn about their abilities.

2.1.2 GSE and Women's Employment

A large literature in psychology argues GSE beliefs have a robust influence on whether individuals exert effort (see Bandura, 1997; Reich and Infurna, 2017; Skinner, 1996, for summaries). This literature offers a link between a psychological construct and economic outcomes; an individual's GSE may determine her perceived returns to effort. Low GSE may constrain effort individuals exert to attain outcomes they desire.

Employment seems to be an outcome that many women in India desire.[1] Fletcher, Pande and Troyer Moore (2017) find over 30% of women in India who are engaged primarily in domestic activities would like to work.[2] If all of these women worked, female labor force participation would be 48%, and much closer to the overall level in poor countries Duflo (2012) provides. Women in my sample also appear interested in working. On an endline survey, 76.7% of women expressed a desire to work for income in the following month.[3] If all of these women actually did work for income, their employment level would be similar to that of their husbands.

Employment may be a desired outcome of women, but it is also an outcome that requires a great deal of effort, particularly for women in India. In addition to the effort any worker must exert to accomplish tasks at work, a working woman in this setting may need to exert effort to find an employment opportunity for women, overcome opposition from family members to women's employment, learn skills required to maintain employment, and manage household chores while working. Low GSE may constrain women's employment by preventing women from exerting required effort.

I offer a randomized intervention to increase GSE in my sample of women from rural Uttar Pradesh. This intervention could increase employment by increasing effort.

2.1.3 Internal Constraints Meet External Realities

However, GSE will not increase employment if external realities mean that the actual returns to women's efforts are zero. Intra-household opposition is one reason to suspect the actual returns to women's efforts may be zero. Husbands and parents-in-law typically enjoy greater intra-household bargaining power than women, and may have the final say over women's employment decisions. However, these family members often oppose the idea of women working;[4] indeed, in data from this setting presented in Lowe and McKelway (2017), husbands report it significantly less appropriate for women to work than women themselves do. Women may exert effort to persuade their family members but it is not obvious whether any women actually have the ability to do so.

I therefore cross-randomize the promotion of a women's employment opportunity to women's family members. The effects of each intervention alone and their combination provide information on women's ability to persuade their families. To illustrate, and to provide a structure for interpreting treatment effects more generally, I now turn to a conceptual framework.

[1] Women may want to be employed for a variety of reasons. Earning an income may give women more control over how household income is spent or, more generally, give women higher intra-household bargaining power. Employment may be a desired end in itself; employment may relax constraints on women's physical mobility, offer variety in women's daily lives, allow women to develop friendships, or give women a greater sense of purpose.

[2] The survey question that generates this statistic asks if the respondent would accept work if it were made available at her household.

[3] Women were asked how many days they wanted to work for income in the following month and how much they wanted to earn in the following month. I consider them as expressing a desire to work for income if either value is positive. I do not find a treatment effect on this outcome so I report the percentage expressing desire to work in the full sample.

[4] A variety of factors may produce this opposition. Women's work may impose a threat to men's identity, or result in social stigma that is differentially borne by women's family members. More practically, family members may depend on women to complete household chores and worry work would keep women from completing these tasks.

2.2 Conceptual Framework

2.2.1 Decision-Making Absent Intervention

Consider a set of many households, each of which consists of a woman and a family member of the woman. There are two periods, $t \in \{1, 2\}$. Preferences are risk neutral and there is no discounting. Women can be employed at $t = 2$ if and only if their family members approve. At $t = 1$, women choose whether or not to exert effort to persuade their family member. Households differ in their support and women differ in their ability to persuade.

More specifically, a family member of type $j \in \{H, L\}$ receives util benefit and cost, $\gamma_j > 0$ and $k > 0$, if the woman is employed at $t = 2$. Fraction $\lambda \in [0, 1]$ of family members are type H and $1 - \lambda \in [0, 1]$ are type L, with $\gamma_L < \gamma_H$. Without any external persuasion,

$$\gamma_L < \gamma_H < k.$$

That is, without external persuasion, neither high- nor low-type family members support women's employment. High-types, however, are more susceptible to external persuasion.

Women receive 1 util at $t = 2$ if they are employed, and 0 utils if not. Women know that their family members will not support employment without persuasion. At $t = 1$, women must choose whether or not to attempt to persuade their family members. Attempting to persuade requires an effort cost of c utils. By exerting persuasive effort, a woman of type $i \in \{H, L\}$ adds $\theta_i \geq 0$ utils to her family member's perceived benefit, γ_j. Fraction $\pi \in [0, 1]$ of women are type H and fraction $1 - \pi \in [0, 1]$ are type L, with $\theta_L < \theta_H$. I assume that

$$\gamma_j + \theta_H > k, j \in \{H, L\}$$

and

$$\gamma_j + \theta_L < k, j \in \{H, L\}.$$

In words, high-type women can successfully persuade their families regardless of their families' type, while low-type women cannot persuade high- or low-type families.

Importantly, women do not know their own type. Women perceive the probability of being a high type as $\hat{\pi} \in [0, 1]$. GSE determines $\hat{\pi}$.[5] Women will exert effort if and only if

$$\hat{\pi} - c > 0.$$

2.2.2 GSE and Promotion Interventions

I assume that without intervention, women's GSE is low and $\hat{\pi} < c$. I also assume that the GSE intervention is successful in raising $\hat{\pi}$ to $\hat{\pi}' > c$. That is, all women in the GSE treatment group will exert effort and all women in the GSE control group will not. Only π of the treated women will successfully become employed. In this framework, the GSE intervention alone will raise employment if and only if some women do indeed

[5]The description of GSE this framework provides parallels that of self-confidence provided in Bénabou and Tirole (2002); namely, GSE determines perceived returns to effort and therefore has a motivational value. However, aside from this commonality, the themes I explore are quite distinct from Bénabou and Tirole (2002). Bénabou and Tirole (2002) investigate ways in which individuals build or protect their self-confidence, whereas I study a situation in which GSE may be low.

have the ability to persuade their family members (i.e. $\pi > 0$); should no women have this ability (i.e. $\pi = 0$), there will be no effect on employment.

I model the promotion treatment as adding $\delta > 0$ to γ_j. As explained below, women were not told whether or not their family members would receive the promotion treatment. I therefore view the treatment as offering a way for women to reach employment without effort that women were not aware of at $t = 1$. I assume that

$$\gamma_L + \delta < k$$

but

$$\gamma_H + \delta > k,$$

or the promotion convinces high-type family members but not low-type family members.

2.2.3 Interpreting Treatment Effects

I now explore insights this framework offers for interpreting treatment effects. Appendix Table A.1 tabulates household decision rules as a function of household type and household treatment assignment.

A household's decision rule will be a comparison between the family member's benefit (after any persuasion or promotion) and k; the woman will work if and only if the former exceeds the latter. By assumption, 0 women will work in households assigned to both GSE and promotion control. The family member's benefit in households assigned to GSE treatment and promotion control will be of the form

$$\gamma_j + \theta_i,$$

and, by definition, will exceed k for fraction π of households. Likewise, in households assigned to GSE control and promotion treatment, the family member's benefit will be of the form

$$\gamma_j + \delta,$$

which, by definition, will be greater than k for fraction λ of households. That is, the effect of GSE treatment alone on employment will equal π, and that of promotion treatment alone will equal λ.

The effect of combining the two treatments is ambiguous. Family member interest in households that receive both treatments will be of the form

$$\gamma_j + \theta_i + \delta.$$

This will exceed k for any households with high-type women or high-type family members. The number of households that meet this description will depend on the correlation between woman and family member types; the less high-type women and family members tend to match with one another, the greater the gains in employment from combining the interventions. This value may also exceed k for households with low-type women and low-type family members. While adding either θ_L or δ alone to γ_L produces a value below k, it may be that adding both produces a value above k. If this is the case, then all women in households assigned both treatments will work.

There are many combinations of treatment effects that may result, but I consider the interpretation

of two in particular: (1) the interventions complement one another in affecting women's employment, and (2) the interventions substitute for one another in affecting women's employment.

1. Complements: (i) each intervention alone has zero or small positive effects, and (ii) combining the two produces additional gains. (i) would be consistent with both π and λ being relatively small. (ii) would be consistent with the correlation between woman and family member types being small or negative, and/or with the sum of γ_L and θ_L being relatively large.

2. Substitutes: (i) each intervention alone has positive effects on women's employment, and (ii) combining the two produces no additional gain. (i) would be consistent with both π and λ being relatively large. (ii) would be consistent with the correlation between woman and family member types being large and positive, and with the sum of γ_L and θ_L being relatively small.

In the first case, the GSE intervention leads women to exert effort to persuade their family members but few of them have the ability to do so without additional intervention. The combination of the interventions produces additional gains in employment because the two interventions affect different groups of people, and/or because low-type women with external assistance can persuade family members. In the second case, many women do indeed have the ability to persuade their family members on their own, but those that do not are far from being able to and also have family members who are more difficult to persuade.

3 Experimental Design

I now discuss the experimental design. Figure 1 provides a timeline of the experiment for reference.

3.1 Partner with Large Carpet Manufacturer

To study women's employment, I partner with a large carpet manufacturer that offers an employment opportunity to women in rural Uttar Pradesh. Carpet weaving is a common occupation in the setting but, like most occupations, typically employs men. The company has recently begun a program to train and employ women as weavers. The program occurs in newly constructed weaving centers, each of which employs 20 women from surrounding village neighborhoods; participating women therefore would work in a new workspace, would live a relatively short walk from the center, and would only work with other women. The construction of these centers is undertaken through a partnership between the firm and a village loom owner. Women that enroll sign up for four months of training. Those that complete training may work as weavers in the center or elsewhere. The firm ensures women are paid a stable and respectable wage throughout the training period. After training, the firm purchases carpets from the loom owner, who then distributes payment to the weavers. Post-training payments are determined by loom owners and are typically at least as high as training pay.

I assume responsibility for the recruitment of women for six new weaving centers, or 120 new positions, so as to record official data on women's employment decisions in a real opportunity. I conduct the experimental interventions and surveys in conjunction with the recruitment process.

3.2 Study Enrollment

I began by defining a catchment area for each loom, or a group of bastis from which the loom owner would recruit women in absence of the study. Bastis are neighborhoods within villages that almost always consist of households from the same subcaste. Selected bastis were in close proximity to the loom center; the average basti in the sample is within 0.5km of its center, and all bastis are within 2km of their centers. Loom owners typically excluded bastis with general or Muslim subcastes from catchment areas as weaving is not an occupation typically held by men in these subcastes.[6] The six catchment areas include a total of 57 bastis.

The research team then conducted village introductions. The team first visited village pradhans to provide information about the study and to obtain permission to conduct the study in the village.[7] Because many GSE intervention group meetings would be held in schools and anganwadis, the research team also visited school and anganwadi heads to obtain permission to conduct group meetings in the buildings and to agree upon times to use the buildings during the intervention period.[8] Finally, the research team held public meetings in bastis in the catchment areas to provide households with information about the study.

All pradhans, school and anganwadi heads, and attendees of public meetings were given, both verbally and on paper flyers, the following key details about the study. Team members were part of a survey team from J-PAL/IFMR working to understand the daily lives of younger adult women from OBC, SC, and ST bastis in rural India.[9] The team would be inviting women and women's family members from the area to participate in a series of surveys over the following two months. While the team would give small gifts for survey participation, J-PAL/IFMR would not be providing employment, products, or new facilities in the village. Importantly, the team's affiliation with the women's weaving opportunity and the partner firm were not mentioned. This was done to avoid participants selecting into (or out of) the sample based on their attitudes towards the opportunity or the firm, and to avoid participants interpreting study activities (particularly the GSE curriculum) as motivated by the partner firm.[10] [11]

Following village introductions, surveyors were instructed to visit each home in the catchment areas. Surveyors began the visits by asking the household head for information about members of the household to identify women that might be eligible to participate in the study.[12] If any women met a set of initial eligibility requirements based on this information, the household head was then asked to identify the women's husbands, mothers-in-law, and fathers-in-law from the household roster.[13] The surveyor then

[6] Subcastes can be sorted into four broad categories: general, other backwards classes (OBCs), scheduled castes (SCs), and scheduled tribes (STs). General subcastes are typically the wealthiest and most advantaged of the four.

[7] Pradhans are elected village heads.

[8] Anganwadis are centers for maternal and child health.

[9] See footnote 6 for explanation of the OBC, SC, and ST acronyms.

[10] Regardless of their beliefs about the team's involvement in it, many participants were likely aware that the women's weaving opportunity would soon become available. This is because loom centers were under construction in the weeks leading up to their openings and because the loom owners were from local families.

[11] There were cases in which participants heard through loom owners or others that the J-PAL/IFMR team was affiliated with the women's weaving opportunity or the partner firm, and asked members of the research team about the affiliation. Team members were initially at their own discretion in responding to these questions. After some members reported facing such questions, all team members were instructed to respond to any such questions by saying: the survey team would distribute information about a women's weaving opportunity sponsored by the partner firm, the surveys and survey team were otherwise separate from the partner firm, and households could participate in the study without participating in the weaving opportunity (and vice versa).

[12] If the household head was not available, surveyors spoke to another knowledgeable adult in the household.

[13] Household heads were not asked to identify husbands of unmarried women. If women lived in their parents' village, the

asked to speak to any family members that were identified and asked their permission for the women to participate in study activities over the following two months. Finally, the surveyor asked to speak to any women whose family members had not denied permission. Surveyors asked women whether they would like to participate in the study and any that agreed were said to have enrolled in the study. Surveyors reviewed information provided in the village introductions with household heads, family members, and eligible women. Surveyors also provided eligible women and family members with calendars illustrating the study activities to be completed over the following two months.

In total, women were required to meet seven eligibility criteria to be invited to participate in the study: (i) were at least 18 years of age and no more than 40, (ii) were married, widowed, divorced, or separated, (iii) were available to speak in person the day the surveyor visited, (iv) had no plans to leave the village for an extended period anytime in the following six months, (v) were not disabled, (vi) were not the mother or mother-in-law of another eligible woman in their household, and (vii) had not had permission to participate denied by family members.[14]

Surveyors spoke with 1,385 households in total. Across all households, 1,039 women were deemed eligible. This represents 41.74% of all women on household rosters, and 62.82% of all women in the age range on household rosters. In total, 1,022 (98.36% of the 1,039 eligible) women from 927 households enrolled in the study. Certain portions of the study (detailed below) involve participation of women's family members. Family members eligible to participate were husbands of married women, and mothers-in-law and fathers-in-law who lived in women's households. All but seven of the 1,022 women had at least one eligible family member.

3.3 Randomization Assignment

Women that enrolled in the study were given GSE and promotion treatment assignments. The GSE intervention would be delivered in meetings with groups of women; the first step of randomization was therefore assignment of women to meeting groups. Each group consisted of women from the same basti so that women would not need to walk far to meet and so that women felt comfortable around one another. I determined the number of groups per basti with a target of six women per group.[15] Each household, possibly including multiple enrolled women, was then distributed evenly and randomly across the meeting groups in their basti. I then randomly assigned each meeting group to GSE treatment or control, stratifying by catchment area and basti.[16] Finally, whenever a meeting group contained multiple women from the same household and its basti had at least one other meeting group of the same treatment, individual women from that household were reassigned to a different meeting group. The goal of reassignment was to allow women more freedom to discuss issues at home in a group meeting without another member of their household present. Given possible intra-household spillovers and benefits of all women in a group

household head was asked to identify the mother and father instead of the mother-in-law and father-in-law.

[14]The partner firm requires that any women participating in the weaving program meet (i) and (v). (ii), (iv), and (vii) were imposed to minimize attrition. (iii) was imposed for feasibility. (vi) was imposed to ensure that women would never be in a GSE meeting group with their mother or mother-in-law, which may have discouraged women from speaking freely during the meetings, and that females would participate in the study as either participating women or family members, but not both.

[15]A targeted meeting group size of six was large enough to allow group discussion even if some members were absent but small enough to make moderating, scheduling, and finding space to hold discussions feasible.

[16]Some bastis only had enough women to form one meeting group. I pooled all such bastis in a catchment area to form a single larger stratum in that catchment area. If a catchment area contained only one basti with one meeting group, the pooled stratum included all bastis with one or two meeting groups in that catchment area.

coming from the same basti, reassignments were only done when there were multiple groups of the same treatment in the basti. Reassigned women were chosen at random from all women in their households, and assigned to the smallest other group in their basti of the same treatment.[17] In total, 177 meeting groups were formed, each including at least three and no more than eight women.

I then assigned promotion treatment. Assignment was at the household level in anticipation of intra-household spillovers. Randomization was stratified by GSE treatment, catchment area, and basti.[18]

3.4 GSE Intervention

The GSE intervention was delivered in meetings with the assigned groups of women. Over the four-week GSE intervention period, each group met for nine sessions, held two to three times a week or roughly every three days. Groups met in private and in locations within their participants' bastis. Each meeting group was assigned a single female surveyor to facilitate meetings.[19]

The assignment of each group to GSE treatment or control determined session content: GSE treatment groups received a psychosocial intervention to increase GSE, while GSE control groups took group surveys about aspects of daily life (e.g. men's employment, health, agriculture). Appendix Table A.2 details the content of each treatment and each control session.

The GSE curriculum was designed in partnership with CorStone.[20] In particular, the curriculum was based on a resiliency program CorStone offers women in Bihar, India. With guidance from CorStone and academic psychology, I selected content from the resiliency program most relevant for GSE and identified conceptual gaps requiring new content; I adapted any content taken from the resiliency program to my setting, and created new content as necessary, modeling structure, language, and activities after the resiliency program. Two research team leaders received training in facilitation from CorStone's India team, and trained the remainder of the team involved in delivering the GSE curriculum. The curriculum was tested in a seventh catchment area devoted to piloting, and revised during and after the pilot based on feedback from the research team and pilot participants.

The GSE curriculum, detailed in Appendix Table A.2, can be conceptually divided into three parts. Part (i) has women recognize their own abilities. In particular, the second and third sessions ask women to think about and recognize their own talents and character strengths. The fourth session asks women to recognize successes in their lives and identify the talents and strengths of theirs that contributed to those successes. Part (ii) develops an understanding of goals. Women in this setting are unfamiliar with the concept of a goal so session five develops an understanding of what goals are and why they matter. Part (iii) helps women see paths to reaching their goals. This is done by teaching women a strategy for planning to

[17] If groups tied, the group was chosen at random from the tied groups.

[18] Any bastis that were pooled for GSE randomization strata remained pooled for promotion randomization strata.

[19] Based on performance in an initial facilitator training, surveyors were assigned to be GSE treatment group facilitators, GSE control group facilitators, or logistical aids. All facilitators and most aids were female. Each GSE treatment or control group facilitator was assigned five meeting groups in a single catchment area that all belonged to either GSE treatment or control, respectively. Due to uneven numbers of meeting groups, four facilitators were assigned four or five meeting groups from multiple catchment areas. Logistical aids assisted in meeting implementation (e.g. gathering women for a meeting, watching women's children during the meeting, answering questions of adults passing by who otherwise would have interrupted the meeting). Logistical aids were assigned to catchment areas and facilators as needed. Each female logistical aid was also trained in facilitating either GSE treatment or control meetings to fill in when facilitators were absent. There was roughly one logistical aid for every two facilitators.

[20] CorStone (webpage: corstone.org) develops and provides programs in personal resilience to disadvantaged communities worldwide. Programs are guided by research from psychology and related fields.

reach goals in session six, and by promoting problem-solving mindsets for facing obstacles that might arise in session seven. The eighth session ties these three parts together, asking women to recognize how they can employ their own abilities in following paths to reach their goals. The first and ninth sessions introduce and conclude the curriculum. Content of the curriculum was delivered through instruction, story-telling, reflection, discussion, visual aids and worksheets, and trying new tasks. Concepts were illustrated through references to particular domains and participants considered many domains across the nine sessions.

While the curriculum was designed to enhance GSE, the nature of the intervention style and the GSE construct mean that the treatment likely affected many related aspects of psychology; the treatment may have increased self-esteem, led women to form goals, or developed soft-skills required for effective planning or inter-personal communication.

I also invited GSE control women to attend group meetings facilitated by particular surveyors. The assignment of women to meeting groups, frequency with which the meetings were held, and the sorts of locations where meetings occurred were identical to those of the GSE treatment. The key difference was session content; in their sessions, control meeting groups responded to group survey questions. Each session had sets of survey questions centered around particular topics, listed in Appendix Table A.2. Questions asked women about aspects of daily life in their bastis and villages. Groups were encouraged to discuss answers for each question before the surveyor recorded a single answer for the group. The questions were meant to be purely descriptive, asking participants to describe many features of their daily lives. GSE control meetings were designed to control for effects of meeting attendance unrelated to GSE, such as mobility, social connections, and participant compensation.

Importantly, both the GSE curriculum and the control survey questions intentionally avoided explicit mentions of women's employment (though it is possible that participant-generated discussion in treatment or control meetings mentioned women's employment). This was done so as to avoid explicit promotion of women's employment. Note also that surveyors were assigned to new catchment areas after the GSE intervention to minimize any experimenter demand effects on outcomes.

3.5 Job Details and Promotion Intervention

Following the GSE intervention, I informed participants about the women's weaving opportunity with the partner firm. I simultaneously delivered the promotion intervention. This phase lasted about one week, began several days after the GSE intervention ended, and ended two days before job enrollment. During this phase, surveyors held individual meetings with each woman and separate meetings with each woman's family member(s). All women were given details about, and a promotion for, the job. Information given to family members was determined by promotion treatment assignment; family members in control households received only job details, while family members in treated households received both job details and the job promotion.

The job details, which all women and all family members received, were meant to convey key facts about the opportunity. The details began with information about the relationship between the research team and the partner firm. Surveyors explained that the partner firm learned about the study and asked the team to provide information to participating households about the women's weaving opportunity, and that J-PAL/IFMR is interested in understanding households' opinions on this opportunity as part of its goal of understanding daily lives of women. Surveyors clarified that households could participate in the

surveys without enrolling in the opportunity (and vice versa). The remainder of the job details were basic facts about the opportunity. Surveyors explained that the opportunity was for women, involved both training and employment in weaving, had been arranged by the partner firm, and that the respondent (or the respondent's wife or daughter-in-law) was eligible to enroll. Surveyors described the location of the loom center, the compensation scheme, the hours, and enrollment instructions.

The job promotion, which all women and only treated family members received, was meant to promote the opportunity. It consisted of information about the opportunity that was promotional in nature[21] and a six-minute, promotional video about the opportunity. The video tours women's loom centers existing under this program in nearby villages, and interviews a partner firm official, loom owners, female participants, and the husband of a female participant. The partner firm selected the loom centers to be shown and the individuals to be interviewed, and the research team filmed and edited the video. Interviewees were asked to provide their overall opinions on the opportunity and to address specific points that are commonly cited as concerns about or merits of the opportunity. Given that women are generally interested in the opportunity (Lowe and McKelway, 2017) and that the video would be used to shift family members' preferences, the selection of specific points for interviewees to address and the editing of the video were done with the opinions of women's family members in mind.

Note that women were not told whether their family members would be given the promotion; women could learn this only through discussion with family members.

3.6 Job Enrollment

Enrollment in the women's weaving opportunity was organized by the research team. Enrollment occurred on a single day at the loom centers. Those wishing to enroll could arrive anytime that day to complete a 15-minute enrollment process. Women were required to attend enrollment with their husband, mother-in-law, father-in-law, or household head.[22] Enrollment decisions can therefore be interpreted as joint decisions within the household.

As mentioned above, the partner firm requires women participating in the program be at least 18 years of age and no more than 40. Women outside of this age range based on the age their household head provided were not eligible to participate in the study. However, household heads may not have had access to women's identification cards and may not have known women's exact ages. Women were therefore asked to present an identification card to enroll.[23] In a few cases, women's official ages were out of the required age range. In such cases, women were not allowed to participate in the program and were not entered in the job offer experiment. However, I record these women as having enrolled for the purpose of analysis as they intended to enroll.

A few individuals expressed interest in enrolling after the enrollment day. These individuals were entered into the job offer experiment but are not considered as having enrolled for the purpose of analysis.

[21] In particular, information about the loom center and childcare policies was provided, and the fact that the only weavers in the center would be women from the area was highlighted.

[22] In a few cases, none of these family members could attend so surveyors accepted permission from one of them over the phone.

[23] If the woman did not present an identification card, her age was later verified with her village pradhan.

3.7 Job Offers

In five of the six catchment areas, more than 20 women enrolled in the opportunity. In these areas, I randomly determined which women were given job offers to set up a second experiment that would evaluate the causal effects of employment. Women given initial job offers were invited to begin the program on its first day, and the rest put on randomly ordered waitlists for their catchment areas. Whenever a woman in a particular center dropped out, a replacement was drawn from the catchment area's waitlist in the random order. Randomization was stratified by catchment area, GSE treatment, and promotion treatment. In total, and excluding the catchment area that did not have oversubscription, 256 women were entered into the job offer experiment, 100 were offered a job initially, and 156 were positioned on a waitlist.

Randomization results were delivered in person. Individuals were told whether they could begin the program on its first day or whether they were on a waitlist. They were also told that these results had been determined by a lottery, were completely up to chance, and not a result of anything their household had or had not done.

4 Data and Empirical Strategy

4.1 Data

4.1.1 Main Sample Data

I observe official enrollment decisions for all women in the sample. All other data come from surveys conducted throughout the experiment. Each survey is noted on the experimental timeline in Figure 1. A baseline questionnaire for family members and for women was administed at the time of study enrollment. At the end of the final GSE intervention meeting, women took a "zero-week" endline survey. Women took a one-week endline survey when surveyors delivered the job details and promotion to women.[24] Both women and family members took two-week and four-month endline surveys. I asked both women and family members about enrollment decision-making at the end of their two-week endline surveys.

Each survey was taken in private, with either only a surveyor and a woman present, or only a surveyor and a family member (or set of family members) present. Whenever a woman had multiple eligible family members, all were invited to attend the baseline and two-week endline surveys. Each question was asked of one family member in particular. However, only one family member was invited to attend the four-month endline survey. Surveyors prioritized attendance of the husband, then the mother-in-law, and finally the father-in-law.

Surveyor assignments to endline participants sought to minimize experimenter demand. For all study activities following the GSE intervention, surveyors were randomly assigned to catchment areas where they had not worked during the GSE intervention. Likewise, surveyors were assigned catchment areas where they had not delivered the promotion intervention for all activities following the promotion intervention. However, fewer surveyors worked on the four-month endline so a few surveyors were reassigned to catchment areas where they had delivered the promotion intervention for this endline. Note that for logistical reasons, participants were very often surveyed on the zero-week endline by the surveyors that had facilitated their group meetings; I therefore interpret zero-week endline surveys with caution.

[24] Survey questions were asked before job information was provided.

Definitions of key variables from survey data are below.

- **GSE Index**: to measure GSE, I use the scale developed by Schwarzer and Jerusalem (1995). This is a publically available scale that asks respondents to assess, on a 1-4 scale, the extent to which 10 statements reflecting high GSE accurately describe their lives. Following survey piloting, I made minor modifications to this scale for use in my sample. Key changes included rephrasing items to be questions rather than statements, standardizing surveyor explanations for words and phrases that often generated questions from participants, and adding a "don't know" option to the 1-4 scale. Following the authors' suggested scoring procedure, I average the 10 responses as long as no more than three are missing[25] and set the outcome to missing otherwise. I then standarize the score using responses from the GSE control group at baseline; the GSE Index unit is therefore standard deviations from the GSE control group at baseline and are comparable across the multiple waves of surveys.

- **Effort Task**: on the four-month endline, women were invited to play a game to determine the value of their participation gift. Women could choose to either (1) receive a Rs.20 phone top-up card, or (2) attempt an 8-9 piece jigsaw puzzle in two minutes, and win Rs.20+X if successful and Rs.10 if not. A randomization set $X = 10$ or $X = 20$. Jigsaw puzzles are rare in the setting; women were therefore given instructions and practice in jigsaw puzzles prior to making their choice. The practice consisted of fitting two adjacent pieces together, had no time limit, and was not incentivized. I record success in the practice round and choice to attempt the puzzle, as well as success in the actual puzzle for those that chose to attempt it.

- **Employment Variables**: I use survey data to measure employment of women and husbands. Women's employment is based on answers provided by women themselves. Answers for husbands' employment are provided by husbands whenever possible, and otherwise provided by another family member (i.e. a mother-in-law, or father-in-law). The employment questionnaire first asks whether the respondent worked for income in any of 10 common employment sectors in the preceding two weeks.[26] The primary extensive margin measure of employment is an indicator for a participant reporting work in any sector, but I also consider work in specific sectors. If the respondent reported work in a particular sector, the survey then asked for the number of days worked in that sector and total income earned from that sector in the two-week period. I aggregate days and earnings across all sectors to form intensive margin measures of employment. I compute an upper bound of the number of days worked by summing days reported in all sectors and top-coding at 14, and compute a lower bound by taking the maximum of days reported in any sector. I define the number of days worked for analysis as the average of the upper and lower bounds. Total income is computed by top-coding sector-specific incomes at the 99th percentile, and then summing across all sectors. This procedure for measuring employment using survey data and defining employment variables for analysis from the

[25] I consider "don't know" a missing value.

[26] The 10 sectors were agriculture on own household's land, agriculture off own household's land, husbandry of animals owned by own household, husbandry of animals owned by others outside of own household, own household's microenterprise, casual non-farm labor, employed by a firm, anganwadi work, teaching, and NREGA. Participants were able to report work that did not fit into one of these 10 as work in some other sector. Once the women's weaving program through the partner firm had begun, the list of sectors on women's surveys was modified to include the program as a sector and to exclude participation in this program from the "employed by a firm" sector.

data was modeled after the procedure used in Field et al. (2016). Note that because these measures are aggregates across all sectors, they are missing whenever the value from one sector is missing. In particular, if a participant reported work in a particular sector but did not know the number of days or amount of income he/she had earned in that sector, the aggregated value of his/her days worked or income earned will be missing.

4.1.2 Out-of-Sample Survey

In response to unexpected effects on enrollment, I conducted a survey to better understand the effects of the promotion intervention. This survey was conducted in February 2018 in two catchment areas outside of the main sample. These were two areas where the partner firm planned to recruit for the women's weaving program when it opened two new women's loom centers in fall 2018.

Surveyors visited households in these catchment areas and identified individuals that would have been considered eligible family members of eligible women had the household lived in a main-sample catchment area. Later in the same household visit, any such individuals were invited to complete a survey in private. During the survey the participant was given information about the women's weaving opportunity that the partner firm planned to offer in the following year. A randomization at the start of each household survey determined whether individuals in the household would receive job details only, or both job details and job promotion. Note that assigning treatment before any information about the household was collected means that this randomization could not be stratified. Survey questions following the delivery of job information elicited detailed opinions about the opportunity. These questions were meant to gauge opinions family members in the main sample would have held immediately after receiving the job information.

4.2 Empirical Strategy

To estimate effects in the first experiment on outcomes Y, I use regressions of the form:

$$Y_{i,h,g} = \beta_0 + \beta_1 T^G_{h,g} + \beta_2 T^P_h + \beta_3 T^G_{h,g} T^P_h + \mu_{s_1} + \varepsilon_{i,h,g}. \tag{1}$$

Each observation is a woman i from a household h and assigned to a meeting group g. $Y_{i,h,g}$ will either be enrollment in the opportunity with the partner firm, or an outcome measured on an endline survey. Regressions include the full sample when $Y_{i,h,g}$ is enrollment, and otherwise include only the subsample of participants who provided $Y_{i,h,g}$ on an endline survey. $T^G_{h,g}$ is an indicator for GSE treatment assignment and T^P_h an indicator for promotion treatment assignment. In analyses that investigate effects of the GSE treatment irrespective of promotion treatment assignment, I omit T^P_h and $T^G_{h,g} T^P_h$. μ_{s_1} denote fixed effects for the first experiment's strata (i.e. basti). I allow $\varepsilon_{i,h,g}$ to be clustered at both the household and meeting group levels, estimating two-way, cluster-robust standard errors.

I use two F tests to interpret the effect of combining the interventions. The null of first test is that the outcome when the treatments are combined is equal to the outcome when neither is present,

$$H_0 : \beta_1 + \beta_2 + \beta_3 = 0,$$

while the null of the second test is that the two interventions perfectly substitute for one another,

$$H_0 : \beta_1 + \beta_2 + \beta_3 = \beta_1 \ and \ \beta_1 + \beta_2 + \beta_3 = \beta_2.$$

Analyses of the second experiment that investigate effects on outcomes Y instead estimate:

$$Y_{i,h} = \alpha_0 + \alpha_1 T_h^J + \mu_{s_2} + \varepsilon_{i,h}. \tag{2}$$

These analyses include only women in the job offer experiment. $Y_{i,h}$ will be an outcome measured on the four-month endline survey. Regressions exclude any women in the job offer experiment who did not provide $Y_{i,h}$ on the survey. T_h^J is an indicator for receiving an initial job offer. μ_{s_2} are fixed effects for the second experiment's strata (i.e. catchment area $\times$ $T_{h,g}^G$ $\times$ T_h^P). Estimates allow for clustering of $\varepsilon_{i,h}$ at the household level.

Note that equations (1) and (2) both provide ITT effects; one could obtain the larger TOT effects by appropriately scaling estimates.

Finally, certain analyses consider outcomes, Y, from the out-of-sample survey about the job opportunity. For these analyses, I estimate:

$$Y_{j,h} = \rho_0 + \rho_1 T_h^P + \varepsilon_{j,h}. \tag{3}$$

Each observation is a family member j from household h. Estimates allow for clustering of $\varepsilon_{j,h}$ at the household level.

4.3 Baseline Characteristics

Tables 1 and 2 present sample baseline characteristics. Women in the sample come from low-income households; the average husband in the GSE and promotion control group earned Rs.477 (about $7) in the two weeks prior to baseline. Women in this group had 2.7 children on average and 8% of the women were pregnant. These statistics suggest high levels of fertility, particularly given that many women in the eligible age range will have more children. Adults not only have many children, but also live in households with many other adults. The household of the average woman in the GSE and promotion control group had 4.1 adults at baseline. 47% (41%) of the time women's mothers-in-law (fathers-in-law) lived in women's households. On average and at baseline, these women were 29 years old and had been married for 13 years, implying a young age at marriage. 42% of these women, and 14% of their husbands, received no education. As mentioned above, weaving is a relatively common occupation in the setting. 35% of women in the GSE and promotion control group had at least one household member who had worked as a weaver in the year prior to baseline, and 6% had at least one household member that had worked at a partner firm loom.

The tables also present tests of balance on baseline characteristics. While four treatment arms make possible many comparisons, I test for balance on the comparisons I make in the analyses below. In particular, I estimate equation (1) and perform the two F tests, considering baseline characteristics as outcomes. Most tests suggest balance but, as one might expect with 24 characteristics and five tests of each, there are several imbalances. My primary specifications include only treatment indicators and strata fixed effects, but I also present versions of the key employment results that control for these baseline characteristics to ensure key results are robust to their inclusion.

4.4 Compliance and Attrition

Ex ante, both levels of and balance in GSE intervention compliance were of concern. Restrictions on women's mobility and difficulty of scheduling meetings at times and places convenient for all women could have resulted in low levels of compliance. Given the difference in GSE treatment and control group discussion topics, attendance rates could have varied by treatment status. There were fewer potential compliance issues for the promotion intervention. Regarding levels of compliance, a concern was that work schedules would prevent many husbands from being able to meet with a surveyor. However, many women also had eligible mothers-in-law or fathers-in-law who could meet even if the husband could not. Promotion compliance rates were very unlikely to differ by promotion treatment status as participants would not have known their treatment assignment before meeting with the surveyor. However, promotion compliance rates could have differed by GSE treatment status if, for example, the nature of interactions with women during the GSE intervention affected family members' willingness to participate.

Appendix Table A.3 presents levels of, and tests of balance in, compliance. As in tests of balance on baseline covariates, I test for balanced compliance using the same comparisons I make in the analyses below. Columns (1)-(9) investigate GSE intervention compliance. Each estimates equation (1) without T_h^P and $T_{h,g}^G T_h^P$, and considers an indicator for attending the corresponding group meeting as the outcome. Group meeting attendance rates in the GSE control group are around 65% and are roughly constant across the nine meetings. I view attendance levels as reasonably high given the mobility and scheduling issues mentioned above. For each of the nine meetings, attendance rates in the treatment group are statistically indistinguishable from those in the control group. Appendix Figure A.1 presents the histogram of total meetings attended, separately by treatment and control. The two distributions look nearly identical. Interestingly, the distribution appears to be bimodal: very high attendance (i.e. 8-9 meetings) is most common and very low attendance (i.e. 0 meetings) is also common, while intermediate attendance (i.e. 1-7 meetings) is relatively infrequent. That is, many women enrolled in the study but never attended meetings, perhaps due to mobility or scheduling issues; however, women that did attend sessions attended many sessions, suggesting women enjoyed the sessions. I investigate promotion compliance in column (10) of Table A.3. I estimate equation (1) and consider an indicator for the family member(s) attending the job information meeting as the outcome. About 80% of family members in the GSE and promotion control group attended the meeting. Levels of compliance appear balanced.

Though I observe job enrollment for the full sample, the remainder of outcomes come from endline surveys that had non-zero levels of attrition. In theory, all treatments (i.e. GSE, promotion, and job offer) may have affected whether participants took endline surveys. Appendix Table A.4 investigates levels of attrition and balance of attrition across treatment groups. Again, in tests of balance, I compare groups that I compare in analyses below. Columns (1)-(4) and (6)-(7) consider as outcomes indicators for women and family members, respectively, being surveyed on various endlines. All estimate equation (1), though column (1) excludes T_h^P and $T_{h,g}^G T_h^P$ as it considers an endline that ended before the promotion intervention began. Generally around 80% of women in the GSE and promotion control group, and 75% of their family members, were surveyed on the endlines. A lower number, around 65%, of women in the GSE control group were surveyed on the zero-week endline. This lower rate is because the zero-week endline surveys were taken immediately after the final meeting group session so there was less flexibility in scheduling than on other surveys and very few women who had not attended the meeting completed the survey. Columns (5)

and (8) consider attrition in the job offer experiment. These columns estimate equation (2) and outcomes are indicators for women and family members, respectively, being surveyed on the four-month endline. Women in the job offer experiment and their family members are more likely than those in the full sample to have been surveyed on the four-month endline; around 90% of women that enrolled and were not given job offers, and around 85% of these women's family members, were surveyed at four months. Attrition is balanced on all but one of the comparisons in columns (1)-(8).

5 Experiment #1 Results: Constraints to Employment

5.1 "First Stage" Results

I begin by investigating "first stage" results of the GSE and promotion treatments, testing whether the GSE treatment increases GSE and effort, and whether the promotion treatment changes family members' opinions. While none of my main results will be estimated via 2SLS, these "first stage" results provide information useful for understanding the effects of the interventions.

5.1.1 Effects of GSE Treatment on GSE and Effort

Table 3 asks whether the GSE treatment indeed increased GSE and whether this translated into an increase in effort. Regressions estimate equation (1) but exclude T_h^P and $T_{h,g}^G T_h^P$. Columns (1)-(4) investigate effects on the GSE Index. I find a positive effect that is highly significant and very large in magnitude. The treatment effect one week after the intervention ended was 0.241 standard deviations from the control group mean at baseline. The effect is even higher immediately after the intervention ended, though I interpret this result with caution as (a) participants were very often surveyed at the zero-week endline by the surveyor who facilitated their GSE intervention meetings and (b) participants surveyed on the zero-week endline were selected differently than those surveyed on the other endlines (see discussion in Section 4.4). Columns (3) and (4), along with Figure 2, investigate the effects on GSE over time.[27]. The treatment effect persists for at least four months after the intervention ended. The treatment effect falls over time. Interestingly, this is not because GSE in the treatment group reverts to the baseline mean; GSE in the treatment group is actually increasing over time. Rather, the treatment effect shrinks because GSE in the control group increases faster than does GSE in the treatment group. Appendix Figure A.2 presents kernel densities of the GSE Index, separately for treatment and control groups, at each of the four endlines. Effects appear present throughout the GSE distribution.

I model GSE as affecting economic outcomes through its effect on effort. In columns (5) and (6), I use the "lab-in-the-field" outcome to test whether the increase in GSE translates into an increase in effort. Attempting the puzzle reflects an exertion of effort. Because success in jigsaw puzzles is primarily a function of ability and effort rather than luck, I view the choice to attempt the puzzle as an exertion of effort driven by favorable evaluations of own ability. Results in column (6) support this hypothesis; treated women are significantly more likely to choose to attempt the puzzle. Column (5) uses success in the practice round as an outcome. Perhaps surprisingly, I find that treated women are significantly more likely to win the practice round. Note that this is unlikely to reflect an effect on actual ability as

[27]I do not view the results from the zero-week endline as comparable to those from other endlines due to differences in selection of participants; I therefore exclude these results from Figure 2

the practice round actually required little ability (it asked participants to fit two adjacent pieces together without a time limit). I interpret succeeding in the practice round as another form of effort exertion, motivated by non-pecuniary benefits or by the desire to gain experience before the actual puzzle; treated women may have been more likely to exert effort in the practice round because they were more confident in their ability to succeed or because they wanted practice in the task in anticipation of choosing the puzzle.

5.1.2 Effects of Promotion on Family Opinions

Next, I investigate the "first stage" effects of the promotion. Table 4 investigates how the promotion affected family members' opinions, estimating equation (3) for outcomes from the out-of-sample survey. Though point estimates are positive, columns (1) and (2) find no significant effects on overall interest. Columns (3)-(13) investigate opinions of specific details of the program. The promotion made opinions about pay, hours, and loom center facilities significantly more favorable. Family members that received the promotion are also more likely to recognize the opportunity offers both training and employment. The effect on perceived stability of work is positive and large, though not quite significant. On the other hand, I find no effects on opinions about distance to the loom center, about the extent to which women working in the center would get along with one another or be respected by their supervisors, or about the safety of women participating in the program. In results not presented here, I find no effects on categories of more indirect outcomes such as predicted changes to household life, social acceptability of participation, or general attitudes towards gender and work. Overall, results suggest the promotion gave family members more favorable opinions on financial aspects of the program. It is surprising to find no effects on general interest but perhaps individuals do not readily know their overall opinions or need more time to form them.

5.2 Employment Results

I now turn to the key results on employment, presented in Table 5. In columns (1) and (2), I consider as an outcome enrollment in the women's weaving program through the partner firm, while columns (3)-(4) and (5)-(6) report effects on any work for income at the two-week and four-month endlines, respectively.[28] Columns (1), (3), and (5) estimate equation 1, while columns (2), (4), and (6) add the baseline covariates in Tables 1 and 2 to the specification.

In column (1), I find that the GSE treatment alone significantly increases enrollment, raising enrollment rates by 6.1 percentage points. Given the enrollment rate in the GSE and promotion control group is 19.8%, the magnitude of this effect is massive (30.8%). It is remarkable that the GSE treatment alone produces large gains in employment in light of low bargaining power of women and opposition from family members. This suggests that some women who are not working do indeed have the ability to work but lack the confidence to do so; in the language of Section 2.2, $\pi > 0$. The promotion intervention alone produces even more dramatic effects on enrollment, raising enrollment rates 10.6 percentage points (53.5%). This is consistent with $\lambda > 0$. The coefficient on the interaction is negative and significant. The magnitude of this coefficient is strikingly large; it suggests the combination of the two interventions not only produces no gains in enrollment but un-does the effect of either intervention alone. Indeed, column (1) fails to reject the null of the first F test but rejects the null of the second. This un-doing was unexpected; I expore potential reasons for it below. In column (2), I find these effects are robust to the inclusion of baseline covariates.

[28]The two-week and four-month endline surveys are the only endlines that measured general employment.

In columns (3) and (5) of Table 5, I investigate effects on any work for income at the two-week and four-month endlines, respectively. The GSE treatment alone has a positive but non-significant effect at the two-week endline. By the four-month endline, this effect is very large and significant; alone, the GSE treatment raised employment 8.3 percentage points (35.8%). These results are consistent with the full effect not materializing immediately but being large and persistent once it does. This is further evidence that some women do indeed have the ability to work (i.e. $\pi > 0$). The promotion intervention alone also has a positive and significant effect, increasing employment by 9.6 percentage points (44.0%) and 8.1 percentage points (34.9%) at the two-week and four-month endlines, respectively. Given the promotion focused on the partner firm's opportunity, it is surprising to find such large effects on general employment, particularly at the two-week endline (which occurred before the partner firm's program had begun). This suggests the promotion made salient the financial benefits not only of the partner firm's opportunity but also of women's employment in general. At 8.3 and 8.1 percentage points, the magnitudes of the two, one-way effects at the four-month endline are strikingly similar. Though not significant, the coefficient on the interaction in column (5) is negative and extremely close in magnitude to the one-way effects (it is -9.5 percentage points). When baseline covariates are added in column (6), the interaction's coefficient remains similar in magnitude and becomes significant. This magnitude suggests the interventions perfectly substitute for one another in their effects on general employment. Indeed, the p-value of the second F test is 0.954 in column (5) and 0.930 in column (6). The null of the first F test is not quite rejected in column (5) but is when baseline covariates are added in column (6). The four-month endline results are consistent with the two interventions substituting for one another.

Figure 3 visualizes results on the three employment outcomes presented in Table 5 along with levels of employment in each of the treatment arms at baseline. Overall levels of employment at baseline are high, likely because baseline overlapped with rice sowing activities that employ women. Levels of employment in the control group change very little between the two-week and four-month endlines. The fourth panel visualizes the near perfect substitutability of the two interventions, while the second panel visualizes the un-doing in enrollment that occurs when the two are combined.

For women's employment, the two interventions appear much closer to substitutes than complements. The four-month endline results in particular match exactly the second combination of treatment effects discussed in Section 2.2.3. In the framework of Section 2.2, this is consistent with a large π and a large λ, with a high correlation between woman and family member types, and with a small γ_L or small θ_L. That is, many women do have the ability to work so increasing perceptions of ability can raise employment on its own. Promoting women's employment to family members affects the same group of households and therefore produces no additional gain. On the other hand, women that do not have the ability are far from having it and also have family members that are particularly opposed to the women's employment.

Appendix Tables A.5 and A.6 decompose effects on any work at the two-week and four-month endlines, respectively, into effects by sector. Effects on any employment seem to be driven by modest effects across several sectors rather than any one sector in particular. Appendix Table A.7 investigates effects at the intensive margin, considering days worked and income earned as outcomes. All effects are in the same direction as those in Table 5 and many quite large in magnitude, but the data are noisy and results generally imprecise. Effects of the promotion treatment alone are often significantly different from zero and much larger in magnitude than effects of the GSE treatment alone. Estimates imply the combined

treatment group's outcomes are either between the promotion and GSE alone groups, or lower than the GSE alone group. Effects could be similar on the extensive margin but differ on the intensive margin if treatments lead women to select different types of work that vary in profitability. On the other hand, the data may not be particularly meaningful given the difficulties participants may have faced in estimating or remembering days worked and income earned. A related issue is that any participants dropped from this regression due to saying "don't know" would have been participants that reported work on the extensive margin. Overall, I view results on the intensive margin as inconclusive.

While I observe enrollment for the full sample, all other outcomes come from endline surveys that had some amount of attrition. Appendix Table A.8 investigates whether enrollment behavior in the samples for which endline data were collected is similar to that in the full sample. Columns (1), (2), (3), and (4) of Table A.8 estimate the specification in column (1) of Table 5 in the samples that completed all or part of the zero-week, one-week, two-week, and four-month endlines, respectively. Reassuringly, the direction and magnitude of the effects remain quite similar when restricting to these subsamples. However, the coefficient on GSE treatment alone, which was significant only at the 10% level in the full sample, is no longer significant.

5.3 Channels

In this section, I investigate channels driving these effects on employment. In particular, I address two questions: (i) How does GSE raise employment? And (ii) Why does combining the interventions un-do the effect of either alone on enrollment?

5.3.1 Proposed Channels

I view GSE as affecting employment by inspiring women to exert effort to reach employment outcomes they desire. I test this theory with data on enrollment decision-making. In general, employment would require women exert many forms of effort. The enrollment process in particular made many forms of effort unnecessary, but one key form of effort was required: women needed to persuade their family members. I hypothesize GSE gave women the confidence to do so. However, an important prerequisite for exerting effort to attain an outcome is that the individual actually desire the outcome. Data suggest the un-doing happens because women's desired enrollment decision varies by promotion treatment. A key reason women may want to earn an income is that they could influence how their own income is spent. An unexpected effect that emerges from the data is that the promotion treatment made family members assert more control over the wife's potential earnings. While women are generally interested in enrollment, this would have made women less interested in this particular opportunity. GSE treated women whose family members receive the promotion would instead exert effort to work elsewhere. On the other hand, GSE control women do not see work elsewhere as possible. Though promotion treatment may make them less interested in enrolling, these women may still prefer to enroll than to not work, and may therefore go along with their family members' enrollment decision. The prediction for enrollment decision-making is that GSE makes women "turn on" persuasive effort that they "turn off" when their family members receive the promotion.

Table 6 presents the relevant results. Columns (1), (2), and (5)-(8) estimate equation (1), while columns (3) and (4) use data from the out-of-sample survey and estimate equation (3). Columns (1) and (2) present effects on pre-enrollment interest in enrollment of women and family members, respectively.

These responses were elicited immediately after job information was provided. Women's interest may reflect GSE intervention effects but could only reflect promotion intervention effects when family members received job information before women and discussed the opportunity with women before women met with surveyors. Family members' interest may reflect effects of the promotion intervention but will only reflect effects of the GSE intervention if family members and women discussed the opportunity before family members met with surveyors. I find no effects on women's interest. As in table 4, the effect of the promotion on family members' interest is not significant. Interestingly, there is a significant, positive effect of the GSE treatment alone on family members' interest. This suggests women in this treatment arm successfully exerted effort to persuade their family members, even before family members met with surveyors.

Columns (3) and (4) present the effect that drives the explanation for the un-doing effect. A question on the out-of-sample survey asked family members who in their households they thought would decide how the earnings of their eligible female relatives would be spent should they enroll. Ideally, this question would have been asked of participants in the main sample immediately after surveyors delivered job information or as part of the decision-making survey. However, the un-doing in enrollment was not anticipated so the question was only added to a survey after an initial analysis of results. Nevertheless, opinions from the out-of-sample survey are indicative of the opinions family members in the main sample may have held immediately after receiving the job information. The outcome in column (3) is an indicator for predicting the woman would decide alone about the spending of her earnings while the outcome in column (4) is an indicator for predicting the woman would be part of the decision (i.e. decide alone or decide along with others). I find the promotion made family members significantly less likely to believe the eligible women would make the spending decision alone. The effect on women being part of the decision is not significant but negative and similar in magnitude. Though unexpected, this result is congruent with the finding from Section 5.1.2 that the promotion made family members recognize the financial benefits of the program; the promotion may have not only made family members more apt to view the opportunity as lucrative but also more apt to view the opportunity as offering an additional income stream that they themselves could control. The family members' reaction to the promotion should therefore have made women less interested enrollment.

Columns (5) and (6) return to data from the main sample collected from the decision-making survey in the days following enrollment. In particular, the analyses consider effects on the extent of disagreement during discussions about the opportunity as reported by women and family members, respectively. The GSE treatment alone significantly lowers the extent of disagreement reported by both women and family members, which is consistent with the GSE treatment leading women to "turn on" persuasive strategies. Though only significant in women's reports, the effect of the promotion treatment alone on disagreement is also negative. It may be that while the promotion treatment makes women less interested in enrolling, women that do not also receive the GSE treatment do not view employment elsewhere as possible and go along with their family members' enrollment decision. The third row finds that these two, one-way effects are largely un-done when the interventions are combined. These results are consistent with GSE-treated women "turning on" persuasive strategies that they then "turn off" when their family members receive the promotion.

Finally, columns (7) and (8) present effects on post-enrollment interest as measured on decision-making

surveys of women and family members, respectively. These outcomes are subject to ex-post rationalization but are nevertheless informative. The GSE treatment alone increases women's interest, suggesting women in this treatment arm are happy with their enrollment outcomes. The second row suggests that women in the promotion treatment and GSE control arm are also happy with their enrollment outcomes; this is consistent with women in this group being happy to go along with their familiy members' enrollment decision. Finally, combining the two treatments largely un-does the effect of either alone. Interestingly, this suggests that women in the joint treatment group are also happy with their enrollment outcomes. Effects on family members' interest follow a similar pattern to those on women's interest though they are smaller in magnitude and not significant.

5.3.2 Alternative Explanation: Women's Desire to Work

Women's desire to work is an alternative explanation for the GSE treatment increasing employment. While the GSE curriculum never explicitly discussed women's employment, it is possible that women became more interested in employment after recognizing employment as a step to reaching their goals or a goal in itself. An increase in women's desire to work would be consistent not only with increased employment, but also with increased effort as the decision to exert effort is a function of both interest and perceived likelihood of success. Data, however, are not consistent with this alternative explanation. Appendix Table A.9 tests whether the GSE treatment made women more interested in working. I estimate equation (1) without T_h^P and $T_{h,g}^G T_h^P$, and consider effects on a variety of measures of women's interest. Columns (1) and (2) present effects on interest in enrollment measured pre- and post-enrollment, respectively. The GSE treatment does not appear to have affected either on average (though Table 6 does find there is a significant effect of the GSE treatment on post-enrollment interest for women in the promotion control). Column (3) considers effects on women's perceived status/prestige of the opportunity, measured immediately after job information was delivered. Again, I find no effect of the GSE treatment. Columns (4)-(6) present data collected on the four-month endline about women's desire to work in the month following the survey. I find no effect of the GSE treatment on the number of days women want to work, the amount of income women want to earn, or whether women want at least one of these values to be positive. Note that in all of these results it is particularly striking not to find an effect on interest given that stated interest may partly reflect beliefs about ability.

5.3.3 Alternative Explanation: Too Much External Pressure

An alternative explanation for the un-doing effect in enrollment is that family members felt too much external pressure. The GSE treatment may have changed women's behavior in a way that made family members resentful of the survey team, and the subsequent promotion of a women's employment opportunity from the survey team may have increased resentment to a point where family members vetoed enrollment. A similar story is that family members did not like feeling pressure from both women and surveyors to enroll, and this led them to veto enrollment. Both stories rely on the promotion making family members feel pressure from the survey team to enroll; Appendix Table A.10 tests this directly. I asked participants on the out-of-sample survey for their perceptions of the interests of the partner firm and of the survey team. The promotion has little effect on the perceived interests of the partner firm, but makes participants think that the survey team would be significantly less involved in implementing the program and that the survey

team wants women to enroll significantly less. These results are inconsistent with, and even contradictory to, too much external pressure as an alternate explanation.

6 Experiment #2 Results: Why the Internal Constraint?

Results in the previous section find that the GSE intervention produces large and persistent gains in women's employment. The suggests that GSE is a constraint to women's employment in India. This begs an important question: why does this internal constraint exist?

I hypothesize that economic experiences of women in my setting, and exclusion from the labor market in particular, produce low GSE. I use the second experiment to estimate the causal effect of employment on GSE.

Results are presented in Table 7. In column (1), I estimate equation (2) and consider as an outcome GSE on the four-month endline. Note that the four-month endline occurred three months after the delivery of job offers and start of the program. Receiving an initial job offer does indeed have a large and significant effect on GSE three months later; the effect is 0.242 standard deviations from the baseline control group mean. Appendix Figure A.3 finds the effect is present in many parts of the GSE distribution. Figure 4 visualizes the effect of the job offer on GSE alongside the effects of the GSE intervention on GSE. This figure shows that the job offer treatment effect is not only large in magnitude but also occurs in a sample with high GSE.

As discussed above, I view GSE as affecting economic outcomes through its effect on effort. Given the job offer increases GSE, I use the "lab-in-the-field" outcome to test for effects on effort. Results presented in columns (2) and (3) find no effects on winning the practice round or on choosing the puzzle. It is not obvious why I do not find effects of the job offer on effort given the job offer increased GSE. It may be that the increase in GSE driven by the job offer affects behavior through a channel other than effort. Note also that overall levels of the effort outcomes are higher in the job offer experiment sample than in the full sample; there may be ceiling effects in the job offer analyses that were not present in analyses including the full sample.

Regardless of how the effect translates into effort, I do find a large effect of the initial job offer on GSE three months later. This is consistent with the theory that low employment in the setting contributes to low GSE.

7 Conclusion

While literature primarily focuses on external constraints to women's employment, this paper investigates constraints that arise internally and within women's own psychology. In particular, I focus on low GSE as a constraint to women's employment in India.

Results suggest that low GSE is indeed a constraint to women's employment in India; the GSE intervention led women to exert effort to work and many were successful. This is consistent with the intervention moving $\hat{\pi} < c$ to $\hat{\pi}' > c$, and with $\pi > 0$. Interestingly, relaxing this internal constraint allows women themselves to overcome opposition from family members such that there are no additional gains from directly relaxing this external constraint.

However, the results cannot say whether the GSE intervention moved women from pessimistic to correct beliefs, or from correct to optimistic beliefs. That is, they cannot distinguish between $\pi > c$ and $c > \pi$. In the first case, exerting effort would have been a good decision for the average woman. In the second, exerting effort was not good for the average woman but allowed successful women to learn their type. Importantly, low GSE may be a constraint to women's employment in India in either case; it may be that under-confidence keeps the average woman from making the optimal decision, or that over-confidence is necessary to induce the experimentation required for any participation.

Results of a second experiment suggest that the economic experiences of women in this setting may produce internal constraints. In particular, I find that exclusion from the labor market may reduce GSE. Results of the two experiments are consistent with a "vicious cycle" in which women do not work precisely because they lack the confidence that work would engender.

Taken together, results provide important insights for understanding links between psychology and economics. Psychological constraints have important implications for economic outcomes, while economic experiences can create psychological constraints. Alleviating these internal constraints can empower individuals to overcome external constraints and reach economic attainments. There exist scalable interventions to do so.

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Tables

Table 1: Baseline Characteristics and Balance, Part 1

	(1) Age	(2) Married (=1)	(3) Lives in In-Laws' Village (=1)	(4) Years Since Marriage	(5) Husband's Age	(6) Currently Pregnant (=1)	(7) Num Children	(8) Num Adults in HH	(9) Mother-in-Law in HH (=1)	(10) Father-in-Law in HH (=1)	(11) Muslim (=1)	(12) Scheduled Caste or Tribe (=1)
GSE Treat (=1)	0.931*	-0.015	-0.019*	1.096*	0.096	-0.000	0.164	-0.321	-0.054	-0.017	0.009	0.013
	(0.509)	(0.012)	(0.011)	(0.627)	(0.624)	(0.023)	(0.128)	(0.247)	(0.045)	(0.047)	(0.008)	(0.034)
Promo Treat (=1)	-0.045	0.005	-0.013	0.147	-1.024	0.004	-0.089	0.078	-0.019	0.037	-0.001	0.018
	(0.487)	(0.011)	(0.011)	(0.612)	(0.636)	(0.021)	(0.126)	(0.270)	(0.043)	(0.048)	(0.001)	(0.026)
GSE X Promo Treat (=1)	-0.397	0.013	0.033*	-0.774	0.427	0.038	-0.020	0.314	0.094	0.005	-0.002	-0.058*
	(0.775)	(0.016)	(0.017)	(0.909)	(0.927)	(0.031)	(0.179)	(0.378)	(0.063)	(0.065)	(0.006)	(0.035)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-Value of F Tests:												
$\beta_1+\beta_2+\beta_3=0$	0.349	0.768	0.960	0.428	0.438	0.091	0.684	0.789	0.643	0.608	0.378	0.412
$\beta_1+\beta_2+\beta_3=\beta_1$ *and* $\beta_1+\beta_2+\beta_3=\beta_2$	0.117	0.221	0.272	0.307	0.177	0.155	0.105	0.203	0.265	0.431	0.483	0.132
Control Avg	29.461	0.984	0.992	12.543	33.545	0.078	2.674	4.097	0.469	0.407	0.040	0.481
N	1022	1022	1022	979	924	1022	1022	1022	1022	1022	996	1022

Standard errors clustered by meeting group and household. Of the 1,022 women, 256 were assigned the GSE treatment only, 252 assigned the promotion treatment only, 256 assigned both, and 258 assigned neither. Characteristics have fewer than 1,022 observations if not observed for the full sample at baseline.

Table 2: Baseline Characteristics and Balance, Part 2

	(1) No Educ (=1)	(2) Husb No Educ (=1)	(3) Worked for Income Last 2 Weeks (=1): Any Work	(4) Worked for Income Last 2 Weeks (=1): Off Own Land	(5) Husb Worked for Income Last 2 Weeks (=1): Any Work	(6) Husb Worked for Income Last 2 Weeks (=1): Off Own Land	(7) Rs Earned Last 2 Weeks	(8) Husb Rs Earned Last 2 Weeks	(9) HH Mem Worked as Weaver in Last Year (=1)	(10) HH Mem Worked as Weaver at a Partner Firm Loom in Last Year (=1)	(11) Appropriate for HH Women to Work as Weaver (1-4), Family's Report	(12) GSE Index: Baseline
GSE Treat (=1)	0.109***	0.015	0.006	0.004	-0.048	-0.059	17.365	157.232	0.011	0.016	0.035	0.104
	(0.041)	(0.038)	(0.041)	(0.033)	(0.048)	(0.053)	(15.782)	(114.708)	(0.050)	(0.024)	(0.176)	(0.093)
Promo Treat (=1)	0.079*	-0.013	-0.053	-0.011	-0.041	-0.088*	-13.011	172.118	-0.000	-0.049*	0.000	0.182*
	(0.045)	(0.037)	(0.042)	(0.032)	(0.048)	(0.053)	(14.040)	(132.785)	(0.053)	(0.025)	(0.172)	(0.099)
GSE X Promo Treat (=1)	-0.107*	0.032	0.058	0.015	0.137*	0.120	4.674	-82.903	-0.002	0.035	-0.097	-0.209
	(0.060)	(0.055)	(0.059)	(0.048)	(0.072)	(0.078)	(22.799)	(180.358)	(0.080)	(0.037)	(0.248)	(0.134)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-Value of F Tests:												
$\beta_1+\beta_2+\beta_3=0$	0.063	0.404	0.794	0.827	0.297	0.599	0.518	0.045	0.876	0.944	0.709	0.401
$\beta_1+\beta_2+\beta_3=\beta_1$ *and* $\beta_1+\beta_2+\beta_3=\beta_2$	0.687	0.526	0.174	0.846	0.110	0.529	0.083	0.755	0.974	0.014	0.848	0.513
Control Avg	0.419	0.136	0.319	0.162	0.755	0.689	32.588	477.495	0.351	0.063	2.513	-0.094
N	1018	634	927	927	582	582	784	454	649	649	595	735

Standard errors clustered by meeting group and household. Of the 1,022 women, 256 were assigned the GSE treatment only, 252 assigned the promotion treatment only, 256 assigned both, and 258 assigned neither. Characteristics have fewer than 1,022 observations if not observed for the full sample at baseline.

Table 3: "First Stage" Effects of GSE Treatment

	(1)	(2)	(3)	(4)	(5)	(6)
	GSE Index:				Won Puzzle	Chose
	0 Week Endline	1 Week Endline	2 Week Endline	4 Month Endline	Practice (=1)	Puzzle (=1)
GSE Treat (=1)	0.274***	0.241***	0.207***	0.142**	0.056**	0.052**
	(0.079)	(0.073)	(0.065)	(0.064)	(0.023)	(0.026)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes
Control Avg	0.075	-0.044	0.023	0.171	0.740	0.620
N	592	782	798	750	791	791

Standard errors clustered by meeting group and household.

Table 4: "First Stage" Effects of Promotion

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Interest in Woman Enrolling (1-4)	Overall How Good Opportunity (1-4)	Pay Too Low, Ok, or Too High (1-3)	Hrs Too Long, Ok, or Too Short (1-3)	Stability of Work (1-4)	Views Opportunity As: Training Only (=1)	Employment Only (=1)	Both (=1)	Dist Too Far, Ok, or Too Close (1-3)	Center Facilities Good (1-4)	Women Get Along (1-4)	Supvrs Respect Women (1-4)	Women Safe (1-4)
Promo Treat (=1)	0.085	0.146	0.114*	0.101*	0.170	-0.030	-0.065	0.096*	0.005	0.193**	-0.024	-0.007	0.011
	(0.168)	(0.130)	(0.063)	(0.055)	(0.103)	(0.025)	(0.057)	(0.057)	(0.086)	(0.076)	(0.087)	(0.081)	(0.070)
Control Avg	2.486	3.243	1.522	1.613	3.362	0.077	0.503	0.420	1.818	3.549	3.565	3.607	3.707
N	377	393	379	384	342	361	361	361	378	356	366	358	358

Data come from the out-of-sample survey. Standard errors clustered by household. Whenever a family member was related to multiple eligible women (e.g. the mother-in-law of two eligible women), the family member was asked about interest in each woman enrolling separately and the outcome in column (1) is the average over all women.

Table 5: Employment

	(1)	(2)	(3)	(4)	(5)	(6)
	Enrolled (=1)		Worked for Income Last 2 Weeks (=1):			
			2 Week Endline		4 Month Endline	
GSE Treat (=1)	0.061*	0.058*	0.038	0.036	0.083**	0.089**
	(0.033)	(0.034)	(0.041)	(0.039)	(0.040)	(0.036)
Promo Treat (=1)	0.106***	0.118***	0.096**	0.113***	0.081*	0.094**
	(0.036)	(0.038)	(0.038)	(0.038)	(0.047)	(0.045)
GSE X Promo Treat (=1)	-0.142***	-0.151***	-0.090	-0.111**	-0.095	-0.105*
	(0.053)	(0.054)	(0.057)	(0.055)	(0.067)	(0.061)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Covariates	No	Yes	No	Yes	No	Yes
P-Value of F Tests:						
$\beta_1 + \beta_2 + \beta_3 = 0$	0.439	0.450	0.227	0.276	0.124	0.044
$\beta_1 + \beta_2 + \beta_3 = \beta_1$ *and* $\beta_1 + \beta_2 + \beta_3 = \beta_2$	0.097	0.033	0.253	0.057	0.954	0.930
Control Avg	0.198	0.198	0.218	0.218	0.232	0.232
N	1022	1022	813	813	793	793

Standard errors clustered by meeting group and household. Baseline covariates include all variables in Tables 1 and 2. Whenever a baseline covariate has missing values, an indicator for the covariate being missing is added to the regression and missing values are replaced with 0 in the version of the covariate added to the regression.

Table 6: Proposed Channels

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pre-Enrollment Interest (1-4):		Spending of Woman's Earnings,		Extent of Disagreement (1-4):		Post-Enrollment Interest (1-4):	
	Woman's Report	Family's Report	Woman Decides Alone (=1)	Woman Part of Decision (=1)	Woman's Report	Family's Report	Woman's Report	Family's Report
GSE Treat (=1)	0.167	0.223*			-0.380***	-0.304**	0.318***	0.106
	(0.113)	(0.131)			(0.116)	(0.138)	(0.123)	(0.134)
Promo Treat (=1)	-0.003	0.092	-0.093*	-0.083	-0.419***	-0.191	0.190*	0.103
	(0.122)	(0.127)	(0.051)	(0.055)	(0.117)	(0.129)	(0.112)	(0.123)
GSE X Promo Treat (=1)	-0.085	-0.121			0.637***	0.348*	-0.464**	-0.249
	(0.162)	(0.199)			(0.165)	(0.194)	(0.185)	(0.193)
Strata FE	Yes	Yes	n/a	n/a	Yes	Yes	Yes	Yes
P-Value of F Tests:								
$\beta_1 + \beta_2 + \beta_3 = 0$	0.498	0.116			0.173	0.274	0.709	0.763
$\beta_1 + \beta_2 + \beta_3 = \beta_1$ *and* $\beta_1 + \beta_2 + \beta_3 = \beta_2$	0.318	0.553			0.064	0.540	0.168	0.511
Control Avg	2.825	2.580	0.473	0.648	2.713	2.609	2.384	2.318
N	846	762	383	383	672	550	849	734

Data in columns (3) and (4) come from the out-of-sample survey. Standard errors clustered by household in columns (3) and (4), and by meeting group and household in columns (1), (2), and (5) - (8).

Table 7: Why the Internal Constraint?

	(1) GSE Index: 4 Month Endline	(2) Won Puzzle Practice (=1)	(3) Chose Puzzle (=1)
Given Job Offer (=1)	0.242**	-0.031	-0.031
	(0.120)	(0.055)	(0.060)
Strata FE	Yes (JO)	Yes (JO)	Yes (JO)
No Job Offer Avg	0.295	0.810	0.718
N	223	236	236

Standard errors clustered by household. Analyses restricted to the job offer experiment sample. "JO" strata denote strata used in the job offer experiment rather than strata used in the main experiment.

Figures

Figure 1: Timeline

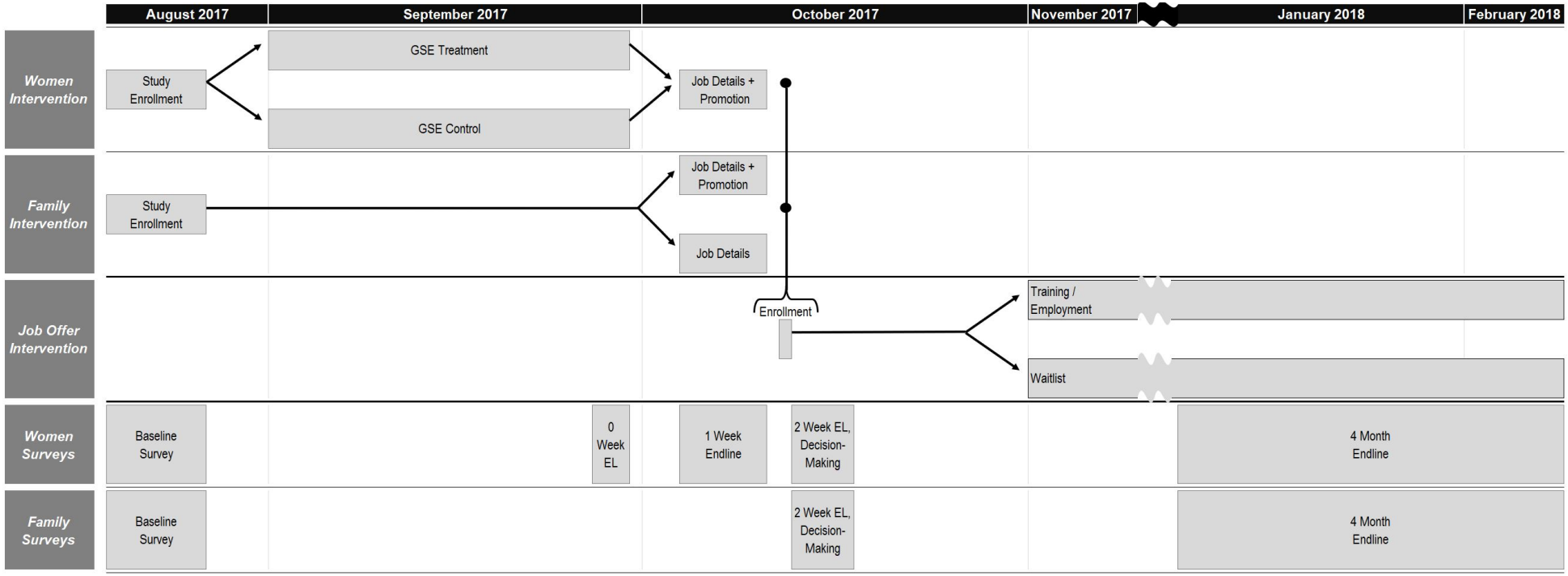


Figure 2: Effects on GSE Over Time

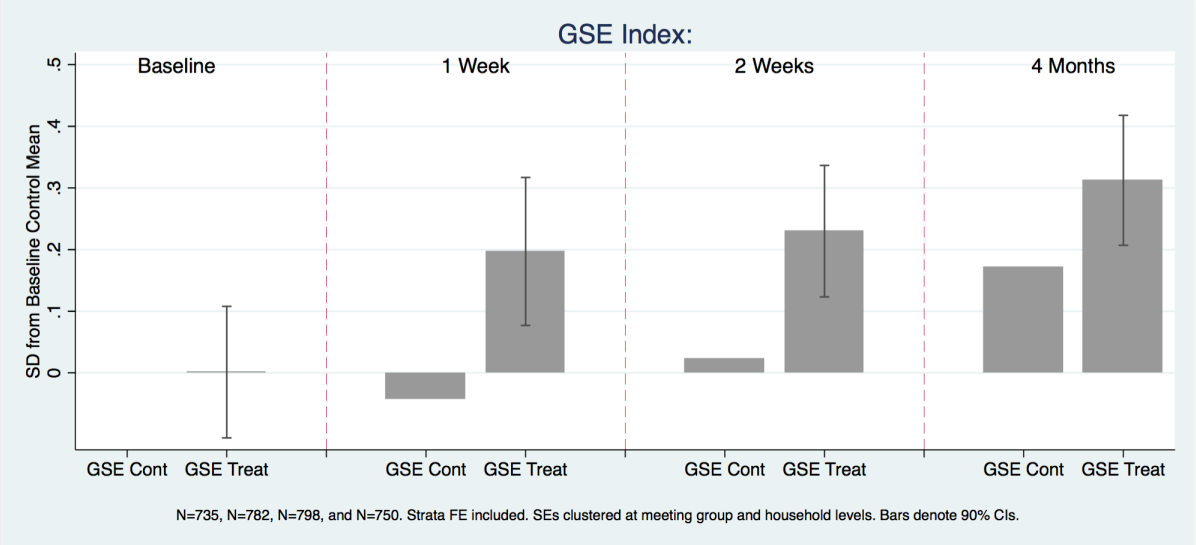


Figure 3: Effects on Employment Over Time

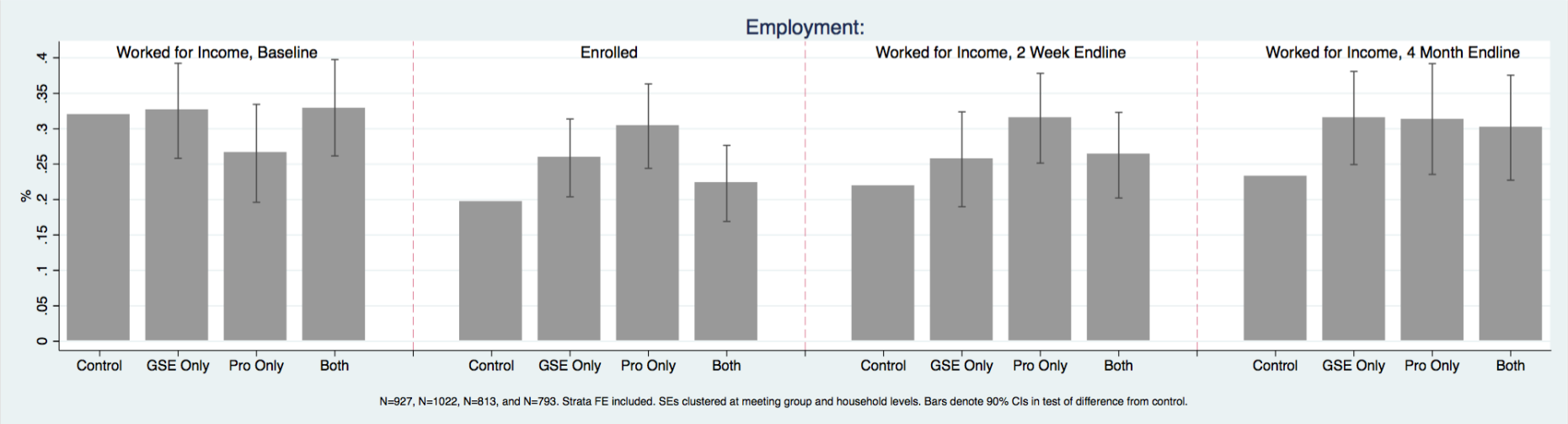
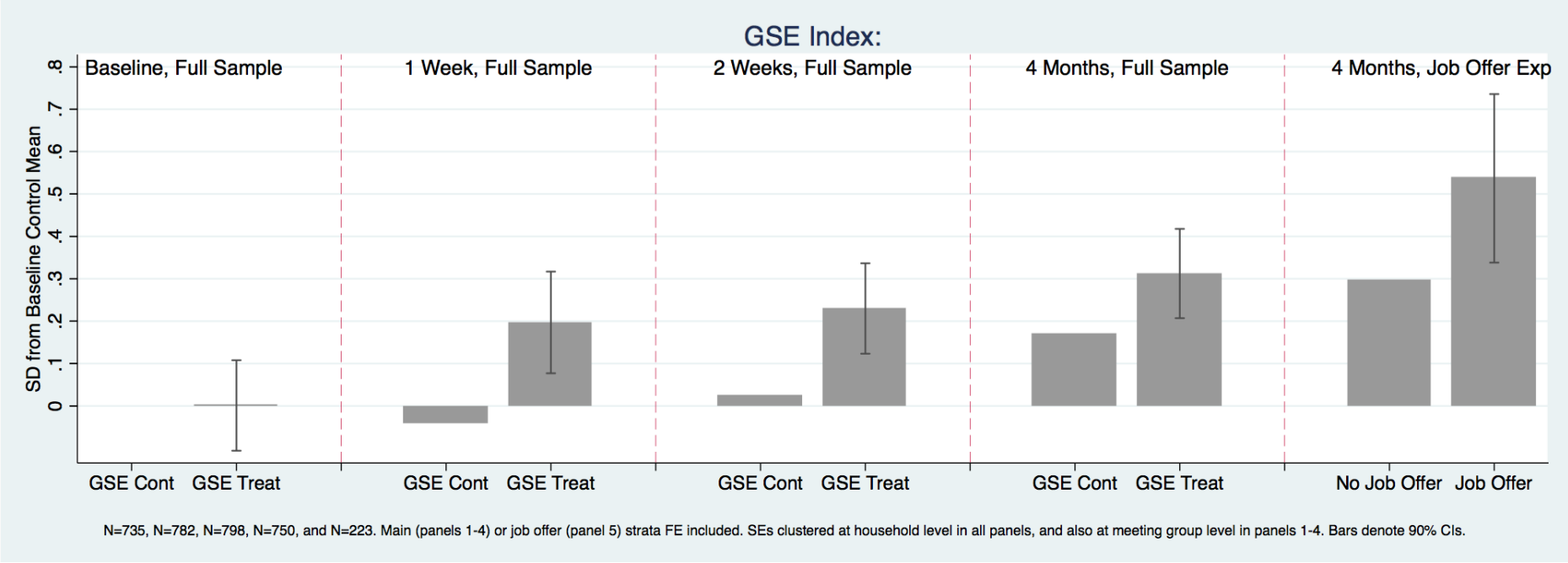


Figure 4: Job Offer GSE Effects in Perspective



Appendix Tables

Table A.1: Household Decision Rules

Household Type ($j \times i$)	Household Treatment Assignment: GSE Control, Promo Control	GSE Treatment, Promo Control	GSE Control, Promo Treatment	GSE Treatment, Promo Treatment
$L \times L$	$\gamma_L < k \Rightarrow$ No	$\gamma_L + \theta_L < k \Rightarrow$ No	$\gamma_L + \delta < k \Rightarrow$ No	$\gamma_L + \theta_L + \delta \lesseqgtr k \Rightarrow$ Maybe
$L \times H$	$\gamma_L < k \Rightarrow$ No	$\gamma_L + \theta_H > k \Rightarrow$ Yes	$\gamma_L + \delta < k \Rightarrow$ No	$\gamma_L + \theta_H + \delta > k \Rightarrow$ Yes
$H \times L$	$\gamma_H < k \Rightarrow$ No	$\gamma_H + \theta_L < k \Rightarrow$ No	$\gamma_H + \delta > k \Rightarrow$ Yes	$\gamma_H + \theta_L + \delta > k \Rightarrow$ Yes
$H \times H$	$\gamma_H < k \Rightarrow$ No	$\gamma_H + \theta_H > k \Rightarrow$ Yes	$\gamma_H + \delta > k \Rightarrow$ Yes	$\gamma_H + \theta_H + \delta > k \Rightarrow$ Yes

Table A.2: GSE Treatment and Control Session Content

Session	Treatment	Control
1	Introduction • Story: woman's GSE beliefs helped in building home • Discussion: introduction to GSE	Group Survey Topics: • Entertainment

2	Talents
	• Discussion: talents
	• Activity: identify our own talents
	• Activity: we can do things we think we cannot (tablet sketchpad task)
		Group Survey Topics:
		• Identification cards
		  • Access to
		  • Use of

3	Character Strengths • Discussion: character strengths • Activity: identify people in our lives with strengths • Activity: identify our own strengths	Group Survey Topics: • Cell phone use • Social interactions
4	Talents, Strengths, and Success • Activity: identify times we felt proud or successful • Activity: identify talents and strengths that led to our successes	Group Survey Topics: • Daily schedule • Sanitation

5	Goals
	• Activity: guided reflection
	• Story: woman pursued goal of learning to sew
	• Discussion: understanding goals
		Group Survey Topics:
		• Men's employment
		  • Daily work
		  • Migratory work
		  • Government schemes
		• Transportation facilities

6	Goal Planning
	• Activity: strategy for goal planning
	  • Overview of three-step strategy
	  • Visualize three-steps in last story
	  • Apply strategy to our goals, using worksheet
		Group Survey Topics:
		• Availability of health services
		• Utilization of health services
		• Childbearing and fertility
		• Illness
		• Veterinary care

7	Problem Solving • Story: woman overcame obstacles in agriculture • Discussion: problem-solving mindset • Activity: anticipate obstacles to our goals and brainstorm solutions	Group Survey Topics: • Livestock • Land • Loans
8	Putting It All Together • Story: girl set exam goal, made plan, and identified own abilities to use • Discussion: importance of recognizing abilities in pursuing goals • Activity: identify abilities to use to reach our goals	Group Survey Topics: • Schools • Voting
9	Conclusion • Discussion: summarize curriculum	Group Survey Topics: • Drawn from multiple topics above

Table A.3: Compliance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Attended (=1) GSE Treat or Control Meeting:									Family Member(s)
	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	Attended (=1) Promo Treat or Control Meeting
GSE Treat (=1)	0.035	0.040	0.008	-0.002	-0.026	-0.010	-0.029	-0.037	-0.017	0.010
	(0.024)	(0.027)	(0.025)	(0.028)	(0.026)	(0.028)	(0.026)	(0.028)	(0.028)	(0.036)
Promo Treat (=1)										-0.027
										(0.038)
GSE X Promo Treat (=1)										-0.012
										(0.053)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Avg	0.661	0.641	0.641	0.625	0.639	0.627	0.653	0.647	0.645	0.797
N	1022	1022	1022	1022	1022	1022	1022	1022	1022	1015

Standard errors clustered by meeting group and household. Column (10) includes only women that had family members to invite to the meeting.

Table A.4: Attrition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Woman Surveyed (=1):					Family Member(s)		
	0 Wk	1 Wk	2 Wk	4 Mo	4 Mo	Surveyed (=1):		
						2 Wk	4 Mo	4 Mo
GSE Treat (=1)	-0.019	0.036	0.051*	0.048		0.030	0.031	
	(0.027)	(0.028)	(0.029)	(0.035)		(0.038)	(0.035)	
Promo Treat (=1)		-0.012	-0.016	0.010		0.024	0.014	
		(0.035)	(0.038)	(0.037)		(0.040)	(0.037)	
GSE X Promo Treat (=1)		-0.015	-0.014	-0.050		-0.014	0.002	
		(0.044)	(0.049)	(0.051)		(0.054)	(0.051)	
Given Job Offer (=1)					-0.004			0.035
					(0.032)			(0.047)
Strata FE	Yes	Yes	Yes	Yes	Yes (JO)	Yes	Yes	Yes (JO)
Control Avg	0.645	0.845	0.829	0.767	0.917	0.734	0.742	0.831
N	1022	1022	1022	1022	256	1015	1015	254

Standard errors clustered by meeting group and household in columns (1)-(4) and (6)-(7), and by household in columns (5) and (8). Column (1) compares only the GSE treatment and control groups only because the promotion intervention had not yet taken place when the 0 week endline was administered. Columns (6)-(8) include only women that had family members to invite to be surveyed. Columns (5) and (8) include only women in the job offer experiment. "JO" strata denote strata used in the job offer experiment rather than strata used in the main experiment.

Table A.5: Employment by Sector, 2 Week Endline

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Worked for Income Last 2 Weeks (=1):									
	Agriculture on HH's Land	Agriculture off HH's Land	Husbandry of HH's Animals	Husbandry of Others' Animals	HH's Micro-Enterprise	Casual Non-Farm Labor	Employed by a Firm	Anganwadi Work	Teaching	Other Sector
GSE Treat (=1)	0.003	0.026	0.012	-0.001	0.014	0.030**	-0.012	-0.010	-0.001	0.020
	(0.024)	(0.018)	(0.022)	(0.009)	(0.019)	(0.014)	(0.010)	(0.009)	(0.006)	(0.015)
Promo Treat (=1)	0.021	0.026	0.040	-0.010	0.036**	0.006	-0.013	-0.010	0.000	0.026
	(0.028)	(0.020)	(0.025)	(0.007)	(0.017)	(0.013)	(0.009)	(0.011)	(0.007)	(0.018)
GSE X Promo Treat (=1)	0.019	-0.046	-0.034	0.007	-0.023	-0.033	0.017	0.006	-0.005	-0.033
	(0.038)	(0.029)	(0.035)	(0.010)	(0.027)	(0.021)	(0.014)	(0.012)	(0.008)	(0.025)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-Value of F Tests:										
$\beta_1 + \beta_2 + \beta_3 = 0$	0.131	0.787	0.445	0.592	0.114	0.836	0.377	0.082	0.210	0.356
$\beta_1 + \beta_2 + \beta_3 = \beta_1$ *and* $\beta_1 + \beta_2 + \beta_3 = \beta_2$	0.288	0.541	0.489	0.260	0.587	0.198	0.853	0.468	0.324	0.743
Control Avg	0.097	0.034	0.073	0.010	0.024	0.010	0.019	0.015	0.005	0.024
N	813	813	813	813	813	813	813	813	813	813

Standard errors clustered by meeting group and household. NREGA is not included in the table because no participants reported work for NREGA in the preceding two weeks.

Table A.6: Employment by Sector, 4 Month Endline

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Worked for Income Last 2 Weeks (=1):										
	Agriculture on HH's Land	Agriculture off HH's Land	Husbandry of HH's Animals	Husbandry of Others' Animals	HH's Micro-Enterprise	Casual Non-Farm Labor	Employed by a Firm	Partner Firm's Program	Anganwadi Work	Teaching	Other Sector
GSE Treat (=1)	0.004	0.027**	-0.020	0.000	0.006	0.009	0.015	0.016	0.003	0.002	0.021
	(0.018)	(0.013)	(0.019)	(0.002)	(0.018)	(0.007)	(0.018)	(0.025)	(0.011)	(0.007)	(0.013)
Promo Treat (=1)	-0.003	0.008	-0.003	-0.001	0.002	-0.004	0.021	0.037	-0.001	-0.000	0.003
	(0.026)	(0.012)	(0.025)	(0.001)	(0.019)	(0.003)	(0.021)	(0.029)	(0.009)	(0.007)	(0.014)
GSE X Promo Treat (=1)	0.015	-0.014	0.026	0.007	0.022	-0.000	-0.046*	-0.039	-0.008	-0.009	-0.033
	(0.035)	(0.021)	(0.033)	(0.007)	(0.028)	(0.008)	(0.027)	(0.044)	(0.014)	(0.009)	(0.020)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-Value of F Tests:											
$\beta_1 + \beta_2 + \beta_3 = 0$	0.430	0.148	0.896	0.253	0.136	0.431	0.461	0.635	0.475	0.240	0.418
$\beta_1 + \beta_2 + \beta_3 = \beta_1$ *and* $\beta_1 + \beta_2 + \beta_3 = \beta_2$	0.723	0.474	0.473	0.367	0.300	0.104	0.136	0.607	0.666	0.189	0.100
Control Avg	0.040	0.020	0.061	0.000	0.025	0.005	0.025	0.081	0.010	0.005	0.015
N	793	793	793	793	793	793	793	793	793	793	793

Standard errors clustered by meeting group and household. "Employed by a firm" excludes participation in the women's weaving program through the partner firm. NREGA is not included in the table because no participants reported work for NREGA in the preceding two weeks.

Table A.7: Days Worked and Earnings

	(1)	(2)	(3)	(4)	(5)	(6)
	Days Worked Last 2 Weeks:		Rs Earned Last 2 Weeks:		Inv Hyp Sine Rs Earned Last 2 Weeks	
	2 Week Endline	4 Month Endline	2 Week Endline	4 Month Endline	2 Week Endline	4 Month Endline
GSE Treat (=1)	0.270	0.147	8.814	5.567	0.219*	0.153
	(0.331)	(0.455)	(9.223)	(41.596)	(0.128)	(0.240)
Promo Treat (=1)	0.853**	0.498	27.598**	80.361	0.318**	0.478*
	(0.387)	(0.559)	(13.100)	(50.974)	(0.140)	(0.284)
GSE X Promo Treat (=1)	-0.586	-0.289	-18.913	-115.212	-0.377*	-0.513
	(0.555)	(0.798)	(18.880)	(72.709)	(0.221)	(0.422)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes
P-Value of F Tests:						
$\beta_1 + \beta_2 + \beta_3 = 0$	0.112	0.497	0.113	0.509	0.188	0.668
$\beta_1 + \beta_2 + \beta_3 = \beta_1$ *and* $\beta_1 + \beta_2 + \beta_3 = \beta_2$	0.290	0.777	0.247	0.047	0.427	0.312
Control Avg	1.177	2.418	12.634	159.668	0.207	1.022
N	755	770	715	757	715	757

Standard errors clustered by meeting group and household.

Table A.8: Effects on Enrollment in Endline Survey Subsamples

	(1)	(2)	(3)	(4)
	Enrolled (=1)			
GSE Treat (=1)	0.044	0.061	0.058	0.056
	(0.046)	(0.038)	(0.036)	(0.040)
Promo Treat (=1)	0.110**	0.111***	0.127***	0.132***
	(0.047)	(0.042)	(0.041)	(0.041)
GSE X Promo Treat (=1)	-0.155**	-0.149**	-0.165***	-0.162***
	(0.067)	(0.058)	(0.058)	(0.060)
Strata FE	Yes	Yes	Yes	Yes
P-Value of F Tests:				
$\beta_1 + \beta_2 + \beta_3 = 0$	0.984	0.528	0.600	0.507
$\beta_1 + \beta_2 + \beta_3 = \beta_1$ *and*				
$\beta_1 + \beta_2 + \beta_3 = \beta_2$	0.068	0.108	0.039	0.029
Control Avg	0.270	0.234	0.238	0.242
Sample	0 Week Endline	1 Week Endline	2 Week Endline	4 Month Endline
N	648	869	855	796

Standard errors clustered by meeting group and household. Women are included in a specification's sample if they completed all or part of the corresponding endline survey.

Table A.9: Women's Desire to Work

	(1) Pre-Enrollment Interest (1-4)	(2) Post-Enrollment Interest (1-4)	(3) Status/Prestige of Oppor-tunity (1-4)	(4) Num Days Wants to Work for Income Next Month	(5) Rs Wants to Earn Earn Next Month	(6) Wants Days or Rs Next Month > 0 (=1)
GSE Treat (=1)	0.125	0.092	-0.022	-0.313	-349.959	0.003
	(0.082)	(0.077)	(0.078)	(0.998)	(317.716)	(0.032)
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes
Control Avg	2.831	2.478	2.817	21.108	4051.446	0.767
N	846	849	697	538	473	574

Standard errors clustered by meeting group and household.

Table A.10: Experimenter Demand

	(1)	(2)	(3)	(4)
	Partner Firm:		Survey Team:	
	Involved in Implementing (1-4)	Wants Women to Enroll (1-4)	Involved in Implementing (1-4)	Wants Women to Enroll (1-4)
Promo Treat (=1)	0.122	-0.026	-0.172**	-0.147**
	(0.087)	(0.086)	(0.069)	(0.071)
Control Avg	3.517	3.603	3.789	3.745
N	315	316	322	318

Data come from the out-of-sample survey. Standard errors clustered by household.

Appendix Figures

Figure A.1: Distribution of Meeting Attendance by GSE Treatment Status

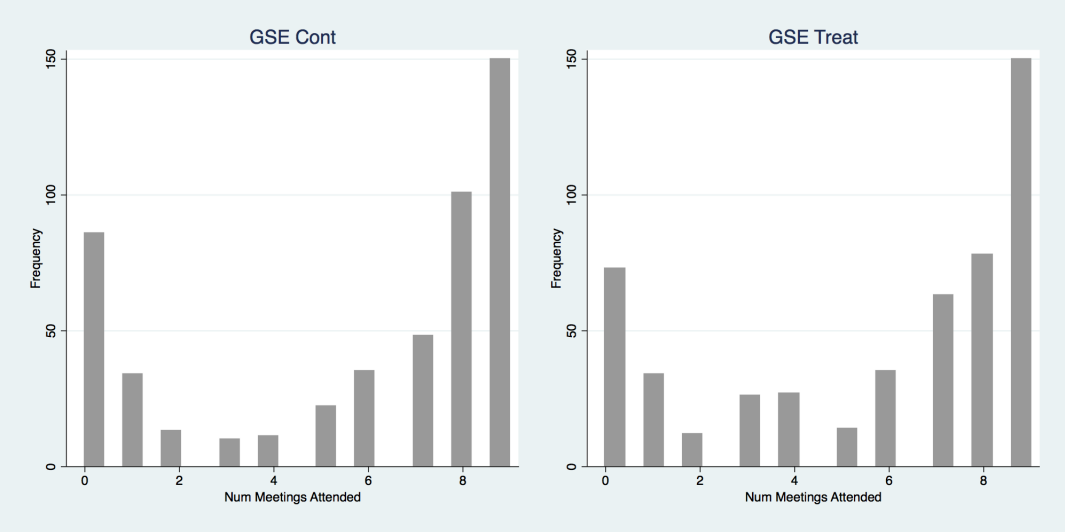


Figure A.2: Effects of GSE Intervention throughout GSE Distribution

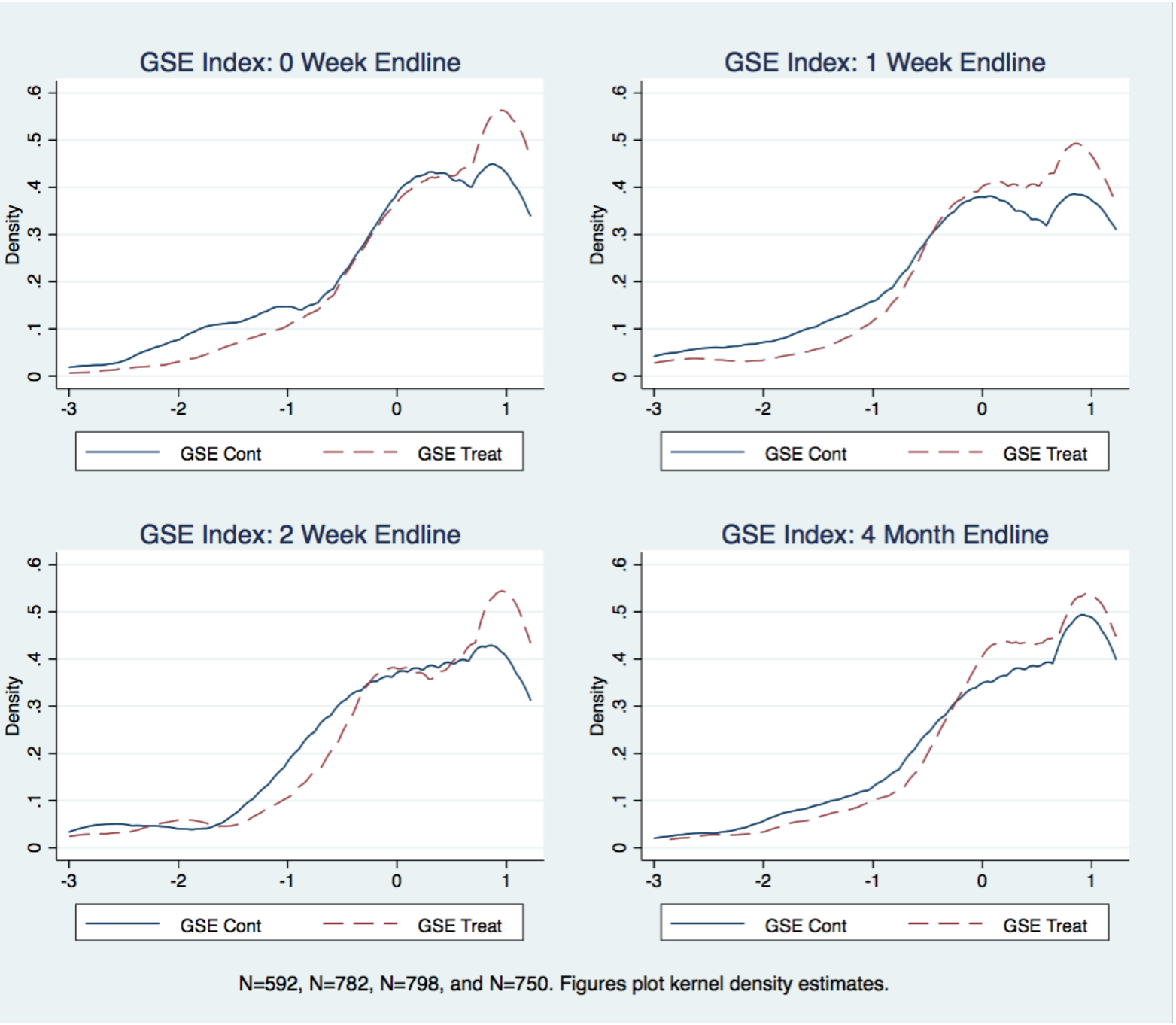


Figure A.3: Effects of Job Offer throughout GSE Distribution