

# Self-Help Groups and Women’s Employment in Rural India <sup>\*</sup>

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June 12, 2024

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## Abstract

This paper relies on the randomized roll-out of a women’s self-help group lending program in rural Bihar ([Hoffmann et al., 2021](#)), India to evaluate its impact on women’s market labor supply. I find that the impact differs starkly by caste – women from disadvantaged caste groups reduced their participation in agricultural wage labor; while those from privileged caste groups increase their participation in self-employment. These findings suggest that better access to finance reduces the need to sell labor to smooth income; but allows women to participate in more ‘suitable’ occupations.

**JEL Codes:** D14, G21, I38, O12, O16

**Keywords:** Group Savings and Lending

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<sup>\*</sup>I’m grateful to Vivian Hoffmann and Biju Rao for encouragement and useful conversations; and to Anjini Kochar, Ethan Ligon, Aprajit Mahajan, Jeremy Magruder, and seminar participants at the Center for Food Security and the Environment, Stanford University, PxD, NEUDC 2021, SEA 2021, WeFiDev, ASSA 2022, PacDev 2022 for valuable feedback and comments.

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# 1 Introduction

Gender gaps in the labor market are prevalent around the world, and women participate in the labor force at two-thirds the rate that men do (World Bank, 2019a,b).<sup>1</sup> Women’s participation in the labor force also varies widely — empirically, there is a ‘U-shaped’ relationship between a country’s GDP per capita and its female labor force participation rate (Boserup, 1970; Durand, 1975; Goldin, 1995; Mammen and Paxson, 2000; Heath and Jayachandran, 2018).<sup>2</sup> Both the lower labor force participation of women relative to men, and the variation in women’s participation rates, have been attributed to a lack of suitable opportunities, social norms, discrimination, more responsibilities at home and in care-work, and psychological constraints (Goldin, 1995; Mammen and Paxson, 2000; Altonji and Blank, 1999; McKelway, 2019). Even so, India appears to be an outlier — with lower female labor force participation rates than other countries at similar income levels (Fletcher et al., 2017), and lower than most of its South Asian neighbors (World Bank, 2019b). In fact, female labor force participation rates in India have seen a decline since 2005 (World Bank, 2019b), despite nearly a third of married women not in the labor force expressing an interest in working (Field et al., 2019).

This paper examines the role that financial access, in the context of women’s empowerment, plays in labor supply decisions. Patriarchal norms in India have historically led to restrictions on women’s activities (Srinivas, 1956) — particularly, participation in market-based work. The extent to which such restrictions exist varies across the country; and within a region, women’s labor supply is higher at the lower end of caste and wealth hierarchies (Eswaran et al., 2013). In this context, not only does direct access to finance (both savings and credit) allow women to accumulate resources themselves, but it also has the potential to empower them, and enable more autonomy in decision-making. With this dual-purpose, access to finance could impact women differentially across existing hierarchies. On the one hand, women who did not previously participate in market-work might accumulate resources and/or autonomy, enabling a foray into employment; while on the other, with additional resources, women who already did participate in the labor force as a coping strategy, might no longer need to.

To evaluate the impact that access to finance has on women’s labor supply, I exploit the randomized roll-out of the second phase of the Bihar Rural Livelihoods Mission, or *Jeevika* — a self-help group (SHG) program implemented by the government of the Indian state of Bihar. *Jeevika* was rolled-out in seven districts during this phase, and 180 panchayats<sup>3</sup> were randomly selected to be part of the evaluation (Hoffmann et al., 2021). Half of these were

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<sup>1</sup>World Bank — *World Development Indicators* data. Accessed on May 16th, 2020.  
<https://data.worldbank.org/indicator/SL.TLF.CACT.MA.ZS>  
<https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS>

<sup>2</sup>This relationship holds both across countries and over time within countries.

<sup>3</sup>A panchayat is a unit of local government, comprising 2-4 villages.

randomized into an early roll-out (or treatment) group, while the other half were in the late roll-out group, which was to receive access to the program after the evaluation concluded; and a total of 8,988 households were surveyed. The ‘treatment’ involved encouraging women to form or join self-help groups, through which they could engage in weekly savings and gain access to loans at much lower rates than the prevailing informal market interest rates.<sup>4</sup> In addition, women in SHGs were led through a curriculum on basic literacy, numeracy and women’s empowerment.

This analysis presents three sets of findings, building on Hoffmann et al. (2021) — where the authors highlight the impact that *Jeevika* has had on the informal credit market. First, since it is women who primarily access program benefits, one might expect corresponding improvements in measures of women’s empowerment. However, this does not appear to be the case. While only few women in the study sample had the most say in decision making relating to borrowing and labor force participation, a large number already had some say; and the program does not impact these measures. Women in treatment areas are, however, 12.4 percentage points more likely to be able to sign their names, and 3 percentage points more likely to read signs.

Second, the program had mixed effects on labor supply. Women from privileged caste households in treatment areas were 8 percent more likely to participate in the labor force.<sup>5</sup> This represents a modest increase in labor force participation for these women, and appears to have been driven by an increase in self-employment and salaried work. Among marginalized (i.e., *Dalit* and *Adivasi*) households, on the other hand, both men and women reduce their labor force participation — specifically in agricultural labor, where 12 percent fewer men and 7 percent fewer women participated in treatment villages when compared to control villages.<sup>6,7</sup> Correlational evidence indicates that the decline in participation in agricultural labor is larger for households that increased their savings, while the increase in self-employment is larger for households which borrowed from SHGs. Finally, accompanying the decline in agricultural labor supply was a 17 percent increase in agricultural labor wages for men and a 12 percent increase for women.

These results contribute to three main strands of literature. First, this paper provides exper-

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<sup>4</sup>Loans through *Jeevika* accrue interest at 2 percent per month, while modal informal market interest rates at baseline were 5 percent per month.

<sup>5</sup>This is a 3.66 percentage points increase in labor force participation, when 45 percent of women in the control group participated in the labor force.

<sup>6</sup>This is a 4.31 percentage point decline in participation in agricultural labor for men, where 35 percent of men in the control group participated in agricultural labor; and a 3.22 percentage point decline in participation in agricultural labor for women, where 46.79 percent of women in the control group participated in agricultural labor

<sup>7</sup>In this paper, marginalized households are those belonging to historically marginalized and oppressed caste groups (*Dalit*) or indigenous tribes (*Adivasi*). As designated in the Constitution of India, official parlance categorizes these caste groups as scheduled castes (SC), and tribes as scheduled tribes (ST). Privileged households refer to those not belonging to these groups.

imental evidence on the impact of SHG based credit interventions on labor market outcomes. Government-led SHG programs have had varying degrees of success, and differential impacts on household outcomes. SHG programs with a credit component have significantly lowered households' high-cost debt (Datta, 2015; Khanna et al., 2015), and even lowered interest rates in informal credit markets (?). Households participating in such programs have seen improved food security and nutrition (Deininger and Liu, 2013; Datta, 2015), increased participation in skilled employment (Khanna et al., 2015), improvements in asset holdings (Khanna et al., 2015; Datta, 2015) and increased women's participation in household decisions and civic life (Desai and Joshi, 2014). Most studies that look at these outcomes, however, find no impact on household incomes or consumption.

SHG-interventions often involve savings and credit components, and in this respect, their functioning is similar to that of many microfinance institutions (MFIs). In India, in particular, MFIs often employ a self-help group structure to implement their lending initiatives. This paper also contributes to the vast literature on the impacts of access to group-based lending (Karlan et al., 2017; Ksoll et al., 2016; Angelucci et al., 2015; Attanasio et al., 2015; Augsburg et al., 2015; Banerjee et al., 2015a; Crépon et al., 2015; Tarozzi et al., 2015). Broadly, access to microfinance leads to large increases in the take-up of credit, but has limited impacts on welfare in the short to medium run on average, with effects varying by the type of household (Banerjee et al., 2015b; Meager, 2019). While some evidence points to an increase in women's empowerment (Karlan et al., 2017), other evaluations find no such evidence (Banerjee et al., 2015a); and in some cases, households see shifts to self-employment and improvements in business outcomes (Attanasio et al., 2015; Augsburg et al., 2015; Banerjee et al., 2015a; Crépon et al., 2015; Karlan et al., 2017). However, household income and overall consumption are not typically affected. This paper focuses on a rural program that specifically targets women from disadvantaged groups, and adds to this body of evidence by demonstrating that access to credit and savings potentially has differential labor market impacts across household types. In addition, the finding that women from privileged households increase participation in self-employment complements similar findings in urban Indian contexts (Banerjee et al., 2015a).

Second, this paper contributes to the extensive evidence on the determinants of women's participation in market-based work. Women's work is often linked to social norms, and women's empowerment. In contexts where women's labor force participation is low, existing evidence suggests that social norms dictate men's willingness to let their wives join the labor force (Bursztyn et al., 2018; Bernhardt et al., 2018), and when men's beliefs are revised, their willingness increases (Bursztyn et al., 2018). Women also increase their labor supply when they are empowered — either when they are able to exert more control over earned income (Field et al., 2019), unearned income (Heath and Tan) or resources in general (Almas et al., 2018). They also do so when their generalized self-efficacy increases, or when external constraints decrease (McKelway, 2019). An increase in suitable labor market opportunities

also increases women’s labor supply, and in the longer run delays marriage and causes women to want fewer children (Jensen, 2012). Here, I focus on the link between access to finance and employment; as well as access to finance and empowerment — though empowerment does not appear to intermediate labor market impacts in the time-span considered.

Finally, this paper contributes to the literature on the relationship between income risk and labor supply in rural households. Rural households in developing countries that face more risk are more likely to participate in labor markets (Rose, 2001; Ito and Kurosaki, 2009); and use labor supply to smooth consumption when savings or credit alone are unable to do so (Kochar, 1999; Fink et al., 2014). On the one hand, a lack of credit leads to more inelastic labor supply and exacerbates productivity risk (Jayachandran, 2006); and on the other hand reductions in credit could reduce labor demand and hence employment (Breza and Kinnan, 2018). Closely related to the analysis in this paper, Fink et al. (2014) find that when households randomly received credit, they sell less off-farm labor, consume more, and local farming wages increase; while Dupas et al. (2019) find that when workers have greater cash needs, they work more. Adding to this, I find that both women and men from disadvantaged households reduce agricultural labor supply when they have improved access to credit and savings, suggesting that labor supply continues to play a role in household coping strategies.

## 2 Background

In this section, we provide information on the Self Help Group intervention we will be studying and about Bihar, the context where it was implemented.

### 2.1 Setting

Women’s labor force participation in India has been on the decline since 2005 (World Bank, 2019b, , Figure Figure 1) despite steady economic growth. For women in India, participation in market-based work appears to be driven by push factors at lower levels of education,<sup>8</sup> and pull factors at the higher end (Klasen and Pieters, 2012; Andres et al., 2017). At the lower end of this spectrum in rural areas, employment is driven by necessity, and is primarily in the farm sector. A collapse in farm jobs, with no suitable alternatives is one factor driving the decline in women’s labor force participation (Chatterjee et al., 2015). At the same time, there have also been increases in men’s incomes, and in women’s education levels, leading women to drop out of market-based work (Agarwal, 2017; Bhargava, 2018; Andres et al., 2017) — possibly due to a rise in more educated women’s returns to home production, relative to their returns in the labor market (Afridi et al., 2016). At the other end of the spectrum, many women not in the labor force would like to work, but have trouble matching with suitable opportunities (Fletcher et al., 2017).

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<sup>8</sup>Education is correlated with income, landholding and caste.

At present, India has amongst the lowest female labor force participation rates in the world<sup>9</sup> — lower than all its South Asian neighbors. In 2011-12,<sup>10</sup> India’s rural female labor force participation rate was 28.8 percent (NSS, 2012), but this varied widely across the country — with Bihar having a rate of 6 percent.<sup>11</sup> In addition, while 35.5 percent of rural women belonging to historically disadvantaged scheduled castes or scheduled tribes participated in the labor force, only 25.8 percent of women from other caste groups participated. Women from disadvantaged groups were less educated, more likely to work in agriculture, and their households were less likely to own land. Women from more privileged groups, on the other hand, tended to work in non-farm or salaried jobs if they worked at all (NSS, 2012). Overall, around 22 percent of the Indian population lived below the poverty line and the national literacy rate was 74.04 percent. Bihar fared worse than the national average on both measures, with the lowest literacy rate of all states in India,<sup>12</sup> and a third of its population — a total of 32 million individuals — living below the poverty line (World Bank, 2017).

## 2.2 SHG Interventions

Self-help group based provision of credit has been part of poverty reduction strategies in Afghanistan, Bangladesh, and Sri Lanka (?); and began in India in the early 1990s. This strategy was adopted by India’s Ministry of Rural Development, and implemented in various states. In Bihar, this was through the Bihar Rural Livelihoods Mission or ‘Jeevika’, which was designed to target women in rural poor households, and build their social capital, leverage credit from formal financial institutions, and increase local capacity (World Bank, 2017).

## 3 Study Design

### 3.1 Sample and Randomization

In 2006, the first phase of *Jeevika* was launched in six high poverty districts in Bihar (World Bank, 2017).<sup>13</sup> Following the success of the first phase, the program was to expand to 60 additional blocks in these and other districts<sup>14</sup> in the second phase in 2012 (Figure Figure 2), aiming to reach a cumulative total of 150 million women (World Bank, 2017). The roll-out of this phase was randomized across 180 panchayats in 16 blocks of the 7 districts, with

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<sup>9</sup>India’s female labor force participation rate was 23 percent overall in 2019 according to the World Bank’s *World Development Indicators* data.

<sup>10</sup>This is start year of this study.

<sup>11</sup>The NSS records principal activity status based on the activity a majority of time in the preceding was spent on. This differs from the definition employed in the *Jeevika* survey — which asks if an individual works in any productive activity or earns income in cash/kind from outside.

<sup>12</sup>This is according to the Indian Census, 2011.

<sup>13</sup>Gaya, Khagaria, Madhubani, Muzaffarpur, Nalanda and Purnia out of 38 total districts in Bihar

<sup>14</sup>Gaya, Nalanda, Madhubani, Muzaffarpur, Saharsa, Supaul, Madhepura

one or two villages in each study panchayat randomly selected for data collection. Primary impacts of this second phase roll-out are evaluated in ?.

Sampling of *Dalit/Adivasi* (SC/ST) and non-*Dalit/Adivasi* (non-SC/ST) households was stratified, with the sample in each village comprising 70 percent *Dalit/Adivasi* and 30 percent non-*Dalit/Adivasi* households.<sup>15</sup> In each sampled village, *tolas* (or hamlets) where *Dalit/Adivasi* households formed a majority were identified through focus group discussions, and households were selected following a random walk. If the target for *Dalit/Adivasi* households was not met in that particular *tola*, the remaining *Dalit/Adivasi* households were selected from other *tolas*. This strategy was employed to mirror *Jeevika*’s strategy “for identifying the target population of poor women for recruitment” (?). The baseline survey was conducted between July and October, 2011, and a total of 8988 households were surveyed across 333 villages. Randomization of panchayats into early and late roll-out groups was stratified by block and the mean outstanding high-cost debt<sup>16</sup> at the panchayat level in 2011.

### 3.2 *Jeevika*

Once a panchayat had access to *Jeevika*, women were mobilized to form self-help groups (SHGs) of between 10 and 15 women. SHGs were federated into village organizations (VOs), which were in turn federated into larger cluster-level federations (CLFs). SHGs held weekly meetings, and members were led through a curriculum on women’s empowerment, basic literacy and numeracy (?). Members were encouraged to save, and had to save a minimum of ₹2 (0.04 USD) per week in a personal savings account held by the group. Once women consistently saved with the SHG for approximately 3 months, SHGs became eligible to borrow up to ₹50,000 (1,073 USD) from the VO they were a part of, at 1 percent per month. Members of each SHG were collectively liable for these VO loans.<sup>17</sup> Individual members of the SHGs could borrow from their group’s corpus of funds at 2 percent per month.<sup>18,19</sup> Access to *Jeevika* was rolled out in treatment panchayats between January and April in 2012, and the endline survey was conducted between July and September, 2014.

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<sup>15</sup> *Dalits* are individuals from historically marginalized communities (jatis) officially designated as Scheduled Castes (SC) in the Constitution of India, while *Adivasis* are individuals who belong to indigenous tribes, officially designated as Scheduled Tribes (ST) in the Constitution of India

<sup>16</sup> Debt costing 4 percent per month or over.

<sup>17</sup> Since it is a loan the SHG as a whole has taken from the VO.

<sup>18</sup> 24 percent per year

<sup>19</sup> “Over the longer term, *Jeevika* is also meant to deliver other development interventions and livelihoods training to SHG members, however these activities were not implemented in the study area during the period spanned by this study.” (?)



### 3.3 Data

Data are from a household level survey, a women’s survey administered to one woman in each household, a general village level survey, and a women’s village level survey — at the baseline (in 2011) and endline (in 2014). Relevant to this paper, household surveys collected data on participation in self-help groups, household debt, individual member livelihoods, assets and consumption; women’s surveys collected data on women’s decision making, and aspirations for their daughters; and village surveys collected data on village level casual labor wages.<sup>20</sup>

### 3.4 Baseline Characteristics and Balance

The phase of Jeevika analyzed here targeted some of the poorest parts of Bihar. As seen in Table [Table B1](#), around a third of households belonged to historically disadvantaged scheduled castes or scheduled tribes (i.e., *Dalits* or *Adivasis*). The other two-thirds also include the extremely backward castes, and other backward castes, apart from the most privileged caste groups. Around 45 percent of households owned any land; and *Dalit/Adivasi* households were less likely to do so (Table [Table 1](#)). Only 17 percent of *Dalit/Adivasi* households owned any land, as opposed to 58 percent of other households. In an environment of limited overall material prosperity, *Dalit/Adivasi* households held fewer assets, and consumed less. On average, in 2011, a household belonging to this disadvantaged group had a monthly consumption per adult equivalent of ₹100 less than more privileged households, for whom this was ₹830 — this amounted to \$15.5 for *Dalit/Adivasi* households, compared to \$17.7 for other households in 2011. While this region also had a high level of indebtedness in 2011, *Dalit/Adivasi* households were 4 percentage points more likely to have debt, had more loans per household, and faced higher interest rates (65.9 percent per year, as opposed to 58.44 percent per year). These households, however, had lower outstanding debt — \$84.68 lower than other households.<sup>21</sup>

When it comes to women’s standing in their households, Table [Table 1](#) demonstrates that most women in the study sample *already* participated in decision-making to some extent to begin with — over three-fourths of women had a say in decisions about their labor supply, and over 85 percent of women had a say in decisions dealing with household borrowing. In both cases, this was higher for women from households belonging to scheduled castes or scheduled tribes than for other households. In addition, while over two-thirds of women preferred that their daughters participate in market-based work, this was lower for women from *Dalit/Adivasi* households. For women who did want their daughters to work, very few were opposed to their working after marriage.

Table [Table 2](#) looks at market based work across castes. Since the study sample consists

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<sup>20</sup>Wage rates do not vary within a village

<sup>21</sup>*Dalit/Adivasi* households had \$ 213.83 or ₹10,050 of outstanding debt; while other households had \$ 298.51 or ₹14,030 of outstanding debt.



of poorer households, we see that almost 63 percent of women between the ages of 15 and 70 work for some part of a year. This number is much higher than estimates from the National Sample Survey in 2011-12 for these districts in Bihar.<sup>22</sup> There are two possible reasons for this — first, sample villages have a higher proportion of poor households, since *Jeevika* targets poor households; second, the definition of labor force participation in the NSS survey requires that an individual be engaged in work for most of the year, while this survey requires that an individual be engaged in work for any part of the year. However, women from scheduled caste or scheduled tribe households are 21 percentage points more likely to participate in the labor force than women from other households.

Very few women ever work outside the village, or in animal husbandry, self-employment, non-agricultural labor, salaried work. But, when compared, women from *Dalit/Adivasi* households are more likely to work outside the village or participate in non-agricultural labor than their counterparts from other households. Most women work in the farm sector, and of them, more women from *Dalit/Adivasi* households are engaged in agricultural labor rather than cultivation (60 percent versus 23 percent), while women from other households were more likely to be engaged in cultivation than agricultural labor (30 percent versus 23 percent).

Overall, 88 percent of men between the ages of 15 and 70 participate in the labor force.<sup>23</sup> Men work in all occupations at higher rates than women do; and around half of all men work outside the village. While men from *Dalit/Adivasi* households are more likely than their counterparts from other households to be working outside the village, similar to patterns for women, they are less likely to be engaged in self-employment, salaried work or cultivation.

To make sure that the program’s randomization strategy resulted in comparable treatment and control groups, I compute normalized differences (Imbens and Rubin, 2015) for each variable.<sup>24</sup> These are presented in Table B1 along with randomization inference p-values<sup>25</sup> (Fisher, 1935; Rosenbaum, 2002) for all normalized differences. While we do see imbalance at baseline in certain outcomes of interest, reassuringly, none of the normalized differences exceed the 0.25 cut-off, above which linear regression methods are sensitive to specifications (Imbens and Wooldridge, 2009). To check robustness, I also present results from simple difference and difference-in-differences specifications in Appendix B.3; and unweighted results in Appendix B.4.<sup>26</sup>

<sup>22</sup>LFP for women in these seven districts is 10 percent as per the NSS definition.

<sup>23</sup>93 percent of men in these districts participate in the labor force in the NSS data.

<sup>24</sup>Following Imbens and Rubin (2015), normalized differences are defined as  $\hat{\Delta}_{ct} = \frac{\bar{x}_t - \bar{x}_c}{\sqrt{(s_t^2 + s_c^2)/2}}$ , where  $\bar{x}_i$  is the sub-sample mean and  $s_i^2$  is the sub-sample standard deviation, for the treatment or control group. This is a scale-free measure of differences in covariate values, and the difference in means is estimated through a linear regression with controls for stratification variables.

<sup>25</sup>I implement Heß (2017) in Stata.

<sup>26</sup>As specified in ? — the difference-in-differences specification over-corrects for baseline differences, and the simple difference model under-corrects for baseline differences, and these results might be considered bounds on true treatment effects (Frison and Pocock, 1992).

## 4 Empirical Strategy

The primary evaluation of the randomized roll-out of *Jeevika*’s second phase is presented in ?; and I follow the same empirical strategy.<sup>27</sup> ? focus on the impacts of *Jeevika* on household credit, consumption and asset holdings, on the informal credit market, and on women’s empowerment. In this paper, I estimate the following ANCOVA specifications to test the intent-to-treat impact of the program on labor market outcomes:

$$Y_{h,v,p,2014} = \beta_0 + \beta_1 \text{JEEVIKA}_p + \beta_2 Y_{h,v,p,2011} + \rho X_{h,v,p} + \mu_s + \varepsilon_{h,v,p} \quad (1)$$

$$Y_{i,h,v,p,2014} = \beta_0 + \beta_1 \text{JEEVIKA}_p + \beta_2 Y_{h,v,p,2011} + \rho X_{h,v,p} + \mu_s + \varepsilon_{h,v,p} \quad (2)$$

Here, an observation is either at the household level,  $h$ , or individual-level,  $i, h$ , in a village  $v$ , in panchayat,  $p$ .  $Y_{i,h,v,p,2014}$  or  $Y_{h,v,p,2014}$  is the outcome of interest for a household or individual, while  $Y_{i,h,v,p,2011}$  or  $Y_{h,v,p,2011}$  is the value of the outcome of interest at the baseline;  $\text{JEEVIKA}_p$  is an indicator for the random assignment of the panchayat to the early-rollout group;  $\mu_s$  is a vector of strata dummies; and  $X_{h,v,p}$  is a set of baseline covariates, specified in the project’s pre-analysis plan.<sup>28</sup>

Since sampling of households was stratified by caste, I follow ?, and use inverse probability of sampling weights for each household within a caste-group, re-weighted to sum to one at the village level in order to re-constitute the caste composition of a village. Analyses on the entire sample are thus weighted to represent the average impact in a village. Sub-sample analyses for each caste-group, on the other hand, are unweighted. Huber-White clustering of standard errors at the panchayat level is employed in all household-level specifications; and two-way clustering (at the household and panchayat levels) is employed for outcomes at the individual-level.<sup>29</sup>

## 5 Risk Sharing and SHG: A Conceptual Framework

## 6 Results

### 6.1 Program take-up, savings and credit

I begin by looking at the first-order effects of access to *Jeevika* on program take up, savings, household debt, and borrowing in Table 3 (and Table B9). As described extensively in ?, two years after the program rolled-out in treatment areas, treated households

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<sup>27</sup>This is also laid out in the project’s Pre-Analysis Plan, <https://www.socialscisearch.org/trials/570>

<sup>28</sup>Baseline controls are: self-help group participation, outstanding high-cost debt, average interest rate on household loans, productive asset index, consumption asset index, housing index, real monthly consumption per adult equivalent, access to entitlements, proportion of women in household who work, women’s decision making index, women’s collective action index, aspirations for daughter’s education, women’s mobility index, landlessness.

<sup>29</sup>I use the `reghdfe` package in Stata (Correia, 2016)

were 46 percentage points more likely to have a member in a self-help group than control households, where 8.24 percent of households had SHG members (column 1, panel A, Table [Table 3](#)). This effect was more pronounced for *Dalit/Adivasi* households (column 1, panel C, Table [Table 3](#)), for whom the treatment effect was 54 percentage points, as opposed to other households, for whom the effect was 44 percentage points (column 1, panel B, Table [Table 3](#)). This demonstrates the success of *Jeevika*’s recruitment process, which targeted poor women, particularly those from *Dalit/Adivasi* households. Correspondingly, 30 percent of households overall, and 39 percent of *Dalit/Adivasi* households, in treated areas borrowed from self-help groups (column 2).

With access to *Jeevika*, more households accumulated savings (column 2, Table [Table 3](#)), with this effect, again, being more pronounced for *Dalit/Adivasi* households. Overall, 73 percent of households in treated sample villages had savings at the endline, as opposed to 47 percent of households in control villages. Increased savings, and loans from self-help groups (column 3, Table [Table 3](#)), helped households reduce borrowing from informal lenders (column 4, Table [Table 3](#)), while increasing the incidence of borrowing overall (column 5, Table [Table 3](#)). Households in treated areas were 5 percentage points less likely to borrow from informal moneylenders (and borrowed ₹3,710 less, on average, in real terms), even as 74 percent of households in control areas took informal loans (while borrowing ₹21,210, on average, in real terms). This was in an environment where overall indebtedness increased — with borrowing having increased by 4 percentage points in the control group from 2011 to 2014; and overall debt having gone up by approximately ₹10,000 in real terms in both treated and control groups.<sup>30</sup> The program also reduced the interest burden that households faced overall; and reduced rates that informal lenders charged through a competitive effect (?).

## 6.2 Women’s empowerment

While one of *Jeevika*’s mandates was to provide women (and through them, their households), with access to finance, another mandate was to empower women — through basic literacy, basic numeracy, and empowerment curricula. Table [Table 3](#) demonstrated the financial impacts of *Jeevika*, and Table [Table 4](#) turns to its empowerment effects (with alternate specifications in Table [Table B10](#)). The training on signature literacy, and reading standard signs/sign posts was moderately successful — 12 percentage points more women in treatment areas could sign their names (compared to 37 percent of women in control areas; column 2, Table [Table 4](#)), and 3 percentage points more women could read signs or sign posts (compared to 19 percent of women in control areas; column 3, Table [Table 4](#)).

Accompanying these impacts on signature literacy and numeracy, was no significant impact on decision-making or views on employment. Women in treated villages were no more likely than women in control villages to have had a say in decisions relating to their labor supply

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<sup>30</sup>All real ₹values are in 2011 INR and ₹10,000 is \$212 in 2011 USD.

or borrowing, nor did they have differential preferences over their daughters' participation in market-based work (columns 4, 5, 6, Table [Table 4](#)). However, this should be interpreted in a context where a large share of women *already* had some say to begin with. In 2014, 88 percent of women in control villages had a say in decisions relating to their labor supply, and 92 percent of women in control villages had a say in borrowing decisions. In addition, 73 percent of women in control areas were of the opinion that their daughters could work. Hence, *Jeevika*'s ability to move the needle on these measures might have been limited.

### 6.3 Labor supply

With large effects on household finance, and muted effects on women's empowerment, *Jeevika* could well have impacted the local labor market. In 2014, 52 percent of women and 81 percent of men in the control group participated in the labor force (columns 1, 2; Table [Table 5](#)).<sup>31</sup> This was lower than in 2011, when 63 percent of women, and 88 percent of men, did so across both groups (Table [Table B1](#)). This decline was driven by a fall in participation in agricultural labor across the board — 60 percent of women from *Dalit/Adivasi* households, and 23 percent of women from other households participated in agricultural labor in 2011 (Table [Table B1](#)), while 47 percent of women from *Dalit/Adivasi* households and 12 percent of women from other households did so in 2014 in the control group (column 6, Table [Table 6](#)). Similarly, for men, while 63 percent of men from *Dalit/Adivasi* households, and 31 percent of men from other households performed agricultural labor in 2011 (Table [Table B1](#)), only 35 percent and 10 percent respectively did so in 2014 in the control group (column 5, Table [Table 6](#)).

In the context of this decline over time, *Jeevika* had differential impacts on women from *Dalit/Adivasi* households vis-à-vis those from other households (Table [Table 5](#), Table [Table B11](#)). Women from treated households were 2.45 percentage points more likely to participate in the labor force (column 2, Table [Table 5](#), significant at the 90 percent confidence level). This was driven solely by women from non-*Dalit/Adivasi* households (column 2, panel B, Table [Table 5](#)). Women from *Dalit/Adivasi* households, on the other hand, reduced their labor force participation (column 2, panel C, Table [Table 5](#)). Breaking this down by occupation type (Table [Table 6](#), Table [Table B12](#)), we see that women from *Dalit/Adivasi* households in treated villages were 7 percent less likely to be engaged in agricultural labor than in control villages (column 6, panel C, Table [Table 6](#)), while their participation in other occupations remained no different. Women from non-*Dalit/Adivasi* households, on the other hand, were more likely to participate in self-employment or salaried employment. However, this increase in participation was over a small base — only 2 percent and 1 percent of women from non-*Dalit/Adivasi* households in control villages were self-employed or in salaried employment, as opposed to 3 percent and 2 percent among their counterparts in treated villages (columns 10 and 12, panel B, Table [Table 6](#)). Their participation in other occupations was no different. Interestingly, *Jeevika* also reduced participation in agricultural labor for men from

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<sup>31</sup>Among men and women between 15 and 70 years of age.

*Dalit/Adivasi* households (column 1, Table [Table 5](#), Table [Table B11](#); column 5, Table [Table 6](#), Table [Table B12](#)).<sup>32</sup>

## 6.4 Casual Labor Wages

In the rural Indian context, markets for casual wage labor in agriculture are localized, and there is usually a gender-specific prevailing wage for each task in a village ([Bliss and Stern, 1982](#); [Dr ze and Mukherjee, 1989](#); [Kaur, 2019](#)). Thus, with substantial changes in the labor supply for casual wage agricultural labor, we might expect there to be an impact on wages in this sector. In this section, I look at impacts on casual labor wages. Wage data are from the village-survey, which included a component on the ‘going’ daily wages in the *Kharif*, *Rabi*, and *Zaid* seasons.<sup>33</sup>

Typically, women’s casual labor wages are lower than those for men ([NSS, 2012](#); [Kaur, 2019](#); [Mahajan, 2017](#)). This is true for both agricultural and non-agricultural wages in the study sample (Figure [Figure 3](#)). On average, wages in both sectors increased in real terms between 2011 and 2014 (Figures [Figure 3](#), [Figure 4](#)). At baseline, men’s non-agricultural casual labor wages were ₹33 lower than agricultural wages on average, and those of women were ₹20 lower.

Table [Table 7](#) (and Table [Table B13](#)) shows that *Jeevika* increased agricultural wages for both men and women (columns 1, 2). Accompanying the 12 percent and 7 percent decline in agricultural labor participation for men and women respectively, wages for men across seasons went up by 17 percent and those for women went up by 12 percent (Table [Table 7](#)). These changes also appear to have widened the gender-gap in agricultural labor wages. The increase in agricultural wages could have resulted from the decrease in supply, a change in worker composition or an improvement in productivity due to an increase in consumption and nutrition ([Fink et al., 2014](#)). I find no evidence for increased food consumption (Table [Table B4](#)), so this is unlikely to be a channel through which wages increase. However, given the data, it is not possible to distinguish between whether the increase in wages comes from the decrease in labor supply alone, or in combination with a change in worker composition. Assuming that the program had no impact on the demand for agricultural labor, these changes imply a labor demand elasticity of -0.71 for men and -0.57 for women.<sup>34</sup> There appear to be no changes in non-agricultural wages, which might be expected given no changes in the supply of non-agricultural casual wage labor for men or women.

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<sup>32</sup>Men reduce their participation in animal husbandry as well. However, fewer than 1 percent of men participate in animal husbandry in the control group at endline.

<sup>33</sup>*Kharif* is the autumn harvest, *Rabi* is the spring harvest, and *Zaid* is the summer harvest. *Kharif* and *Rabi* are the main growing seasons, with *Rabi* enjoying the highest acreage in Bihar.

<sup>34</sup>There is no significant impact on either men’s or women’s participation in cultivation; and it is unlikely that productivity (for instance, due to rainfall shocks) are differential across treatment and control villages.

Table 1: Baseline Characteristics Across Caste Groups

	Means			Difference
	Obs	<i>Dalit/Adivasi</i>	Non- <i>Dalit/Adivasi</i>	in Means
<b><i>Household Characteristics</i></b>				
Owns Land	8988	17%	58%	-0.40*** (0.01)
Household size	8988	5.88	6.12	-0.24*** (0.07)
Female HH Head	8988	18%	11%	0.07*** (0.01)
Productive Assets (Filmer-Pritchett Index, Normalized <sup>35</sup> )	8988	-0.28	0.09	-0.37*** (0.03)
Consumption Assets (Filmer-Pritchett Index, Normalized)	8988	-0.40	0.20	-0.60*** (0.03)
Housing (Filmer-Pritchett Index, Normalized)	8988	-0.10	0.04	-0.13*** (0.04)
Monthly Consumption (Rs 000, per adult equivalent)	8988	0.73	0.83	-0.09*** (0.01)
-----				
Any Outstanding Debt	8988	86%	82%	0.04*** (0.01)
No. of Loans	8988	2.03	1.90	0.12*** (0.04)
Outsanding Debt (Rs 000)	8988	10.05	14.03	-3.98*** (0.53)
Informal Interest Rate (%, HH average)	6389	5.49	4.87	0.62*** (0.06)
<b><i>Women's Empowerment</i></b>				
Any say in labor decisions?	8899	83%	71%	0.12*** (0.02)
Any say in borrowing decisions?	8899	88%	85%	0.03** (0.01)
Should daughter work?	5144	69%	76%	-0.07***

<sup>35</sup>The construction of this index follows [Filmer and Pritchett \(2001\)](#). Here, the first principal component from a principal components analysis of a set of assets is normalized to have a mean of zero and a variance of one.

				(0.02)
Daughter should not work after marriage	3638	7%	5%	0.02
				(0.01)

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 2: Baseline Labor Force Participation Across Caste Groups

	Means			Difference in Means
	Obs	<i>Dalit/Adivasi</i>	Non- <i>Dalit/Adivasi</i>	
<i>Women</i>				
Labor Force Participation	13078	77%	56%	0.21*** (0.02)
Work outside village	13078	4%	3%	0.01*** (0.00)
Self-Employment	13078	1%	1%	-0.00 (0.00)
Cultivation	13078	20%	30%	-0.10*** (0.01)
Agricultural Labor	13078	60%	23%	0.37*** (0.01)
Animal Husbandry	13078	4%	7%	-0.03*** (0.01)
Non-Agricultural Labor	13078	5%	2%	0.03*** (0.00)
Salaried Work	13078	1%	1%	-0.00 (0.00)
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<i>Men</i>				
Labor Force Participation	14396	90%	86%	0.04*** (0.01)
Works outside village	14396	60%	44%	0.15*** (0.01)
Self-Employment	14396	4%	8%	-0.04** (0.01)
Cultivation	14396	23%	44%	-0.21*** (0.01)
Agricultural Labor	14396	63%	31%	0.32*** (0.01)
Animal Husbandry	14396	1%	1%	-0.00*



Non-Agricultural Labor	14396	49%	30%	(0.00) 0.19*** (0.01)
Salaried Work	14396	11%	13%	-0.02** (0.01)

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 3: Program Take-up and Household Borrowing

	SHG Member? (%)	Any Savings? (%)	Any loans taken? (%)			Outstanding Debt (’000 Rs.)			Interest Rate (%)
	(1)	(2)	SHG (3)	Informal (4)	All (5)	SHG (6)	Informal (7)	All (8)	(9)
<b>A: Overall Effects</b>									
<i>Jeevika</i>	46.59*** (1.66)	26.02*** (1.91)	28.31*** (1.27)	-5.11*** (1.40)	3.40*** (1.29)	1.95*** (0.10)	-3.71*** (0.75)	-1.96** (0.87)	-0.70*** (0.07)
Obs	8851	8987	8987	8987	8987	8987	8987	8987	6805
Clusters	179	179	179	179	179	179	179	179	179
Mean	8.24	46.70	1.80	74.07	75.64	0.11	21.21	24.21	5.27
<b>B: Effect on non-<i>Dalit</i>/<i>Adivasi</i> households</b>									
<i>Jeevika</i>	44.33*** (1.87)	23.73*** (2.42)	26.29*** (1.56)	-3.84** (1.86)	3.82** (1.85)	1.98*** (0.14)	-3.62*** (0.94)	-2.40** (1.11)	-0.47*** (0.07)
Obs	2487	2525	2525	2525	2525	2525	2525	2525	1679
Clusters	174	174	174	174	174	174	174	174	173
Mean	7.01	49.73	1.49	69.41	71.45	0.11	22.87	27.45	4.76
<b>C: Effect on <i>Dalit</i>/<i>Adivasi</i> households</b>									
<i>Jeevika</i>	53.80*** (1.67)	30.20*** (1.72)	36.81*** (1.33)	-6.20*** (1.13)	3.60*** (0.88)	2.26*** (0.11)	-2.97*** (0.50)	-0.67 (0.55)	-1.09*** (0.08)
Obs	6364	6462	6462	6462	6462	6462	6462	6462	5126
Clusters	178	178	178	178	178	178	178	178	177
Mean	11.70	44.68	2.31	81.55	82.91	0.15	16.04	16.88	6.00

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, and an indicator of treatment status. Panel A presents results from full-sample weighted regressions. Weights are inverse probability of sampling weights that are re-weighted to sum to one at the village level in order to re-constitute the caste composition of the village. Panel B has results on the non-*Dalit*/*Adivasi* sub-sample, without sampling weights. Panel C has results on the *Dalit*/*Adivasi* sub-sample, without sampling weights. All specifications control for strata dummies and baseline controls. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4: Women's Empowerment

	Works Outside	Signature	Read Signs	Any Say in Decisions? (%)		Daughter Work
	(%)	(%)	(%)	Labor	Borrow	(%)
	(1)	(2)	(3)	(4)	(5)	(6)
<b>A: Overall Impact of <i>Jeevika</i></b>						
<i>Jeevika</i>	0.47* (0.26)	12.37*** (1.18)	3.10*** (0.81)	0.18 (1.49)	-0.48 (1.75)	-1.53 (2.41)
Obs	13376	8671	8671	8671	8671	3857
Clusters	179	179	179	179	179	179
Mean	1.45	37.20	19.32	88.20	92.12	73.35
<b>B: Impact of <i>Jeevika</i> on non-<i>Dalit</i>/<i>Adivasi</i> households</b>						
<i>Jeevika</i>	0.46 (0.29)	10.17*** (1.45)	2.64** (1.12)	-0.28 (1.75)	-0.31 (2.05)	-0.48 (3.35)
Obs	4048	2431	2431	2431	2431	890
Clusters	174	174	174	174	174	171
Mean	0.97	40.96	23.28	85.97	92.30	73.77
<b>C: Impact of <i>Jeevika</i> on <i>Dalit</i>/<i>Adivasi</i> households</b>						
<i>Jeevika</i>	-0.31 (0.36)	14.75*** (0.86)	2.38*** (0.60)	-1.48 (0.91)	-0.11 (1.26)	-3.75** (1.80)
Obs	9328	6240	6240	6240	6240	2967
Clusters	178	178	178	178	178	178
Mean	2.78	27.31	9.60	92.11	91.91	70.50

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, and an indicator of treatment status. Panel A presents results from full-sample weighted regressions. Weights are inverse probability of sampling weights that are re-weighted to sum to one at the village level in order to re-constitute the caste composition of the village. Panel B has results on the non-*Dalit*/*Adivasi* sub-sample, without sampling weights. Panel C has results on the SC-ST sub-sample, without sampling weights. All specifications control for strata dummies and baseline controls. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5: Labor Force Participation

	Labor Force Participation (%)		Agri Participation (%)		Non-Agri Participation (%)	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
<b>A: Overall Impact of <i>Jeevika</i></b>						
<i>Jeevika</i>	0.23 (0.98)	2.45* (1.34)	-0.61 (1.44)	1.12 (1.24)	2.13* (1.28)	0.85 (0.55)
Obs	14479	13376	14479	13376	14479	13376
Clusters	179	179	179	179	179	179
Mean	80.76	52.03	48.30	46.83	41.58	6.18
<b>B: Impact of <i>Jeevika</i> on non-<i>Dalit</i>/<i>Adivasi</i> households</b>						
<i>Jeevika</i>	1.40 (1.26)	3.66* (1.87)	2.03 (1.67)	2.22 (1.75)	1.17 (1.45)	1.22* (0.69)
Obs	4410	4048	4410	4048	4410	4048
Clusters	174	174	174	174	174	174
Mean	79.01	44.93	45.79	40.17	40.08	5.09
<b>C: Impact of <i>Jeevika</i> on <i>Dalit</i>/<i>Adivasi</i> households</b>						
<i>Jeevika</i>	-1.33** (0.65)	-2.07** (0.90)	-3.66** (1.69)	-2.36** (1.04)	1.59 (1.28)	-0.15 (0.69)
Obs	10069	9328	10069	9328	10069	9328
Clusters	178	178	178	178	178	178
Mean	85.44	71.26	53.22	65.59	45.42	7.85

Standard errors clustered at the panchayat and household level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, and an indicator of treatment status. Panel A presents results from full-sample weighted regressions. Weights are inverse probability of sampling weights that are re-weighted to sum to one at the village level in order to re-constitute the caste composition of the village. Panel B has results on the non-*Dalit*/*Adivasi* sub-sample, without sampling weights. Panel C has results on the SC-ST sub-sample, without sampling weights. All specifications control for strata dummies and baseline controls.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 6: Participation by Occupation Type

	Cultivation		Animal Husbandry		Agri Labor		Non-Agri Labor		Self Employment		Salaried Employment	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>A: Overall Impact of Jeevika</b>												
<i>Jeevika</i>	1.49 (1.26)	1.11 (1.21)	-0.39*** (0.11)	-0.60** (0.30)	-2.32** (1.17)	-0.11 (0.85)	1.31 (1.06)	0.37 (0.35)	-0.47 (0.56)	0.68** (0.33)	1.70* (0.99)	0.51** (0.25)
Obs	14479	13376	14479	13376	14479	13376	14479	13376	14479	13376	14479	13376
Number of clusters	179	179	179	179	179	179	179	179	179	179	179	179
Mean	31.18	25.43	0.58	1.12	18.14	21.84	25.27	1.93	6.94	1.79	10.06	1.35
<b>B: Impact of Jeevika on non-Dalit/Adivasi households</b>												
<i>Jeevika</i>	1.38 (1.64)	0.63 (1.72)	-0.32** (0.14)	-0.40 (0.34)	0.59 (1.31)	1.48 (0.96)	0.21 (1.21)	0.01 (0.33)	-0.17 (0.79)	0.85** (0.40)	1.99* (1.13)	0.93*** (0.30)
Obs	4410	4048	4410	4048	4410	4048	4410	4048	4410	4048	4410	4048
Number of clusters	174	174	174	174	174	174	174	174	174	174	174	174
Mean	36.76	29.02	0.49	1.16	9.92	11.60	22.01	0.87	8.64	1.84	9.61	1.21
<b>C: Impact of Jeevika on Dalit/Adivasi households</b>												
<i>Jeevika</i>	0.66 (0.92)	0.86 (0.91)	-0.19* (0.11)	-0.24 (0.21)	-4.31*** (1.61)	-3.22*** (1.02)	0.69 (1.21)	0.25 (0.57)	0.07 (0.39)	-0.23 (0.22)	0.69 (1.01)	0.01 (0.24)
Obs	10069	9328	10069	9328	10069	9328	10069	9328	10069	9328	10069	9328
Number of clusters	178	178	178	178	178	178	178	178	178	178	178	178
Mean	19.18	19.40	0.50	0.77	35.04	46.79	33.09	4.15	3.44	1.60	10.31	1.37

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, and an indicator of treatment status. Panel A presents results from full-sample weighted regressions. Weights are inverse probability of sampling weights that are re-weighted to sum to one at the village level in order to re-constitute the caste composition of the village. Panel B has results on the non-Dalit/Adivasi sub-sample, without sampling weights. Panel C has results on the SC-ST sub-sample, without sampling weights. All specifications control for strata dummies and baseline controls.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 7: Casual Labor Wages

	Agricultural			Non-Agricultural		
	ln (real ₹)			ln (real ₹)		
	Men	Women	Pooled	Men	Women	Pooled
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Jeevika</i>	0.17*** (0.05)	0.12** (0.05)	0.20*** (0.05)	0.02 (0.03)	0.10 (0.10)	0.04 (0.03)
Female			-0.15*** (0.05)			-0.13* (0.07)
<i>Jeevika</i> × Female			-0.09* (0.06)			0.12 (0.09)
Obs	618	598	1216	991	331	1322
Clusters	166	161	166	179	90	179
Mean	₹105.04	₹80.67	₹105.04	₹157.13	₹112.79	₹157.13

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, and an indicator of treatment status. Regressions in columns 3 and 6, in addition, include a dummy for female wages, and the interaction between a female indicator and treatment status

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 7 Discussion and Conclusion

While *Jeevika* significantly affected the finances of rural households, its impact on women’s empowerment was muted. As a result, the program had heterogenous effects on women’s labor supply across caste groups. Women from non-*Dalit/Adivasi* households tend to participate in labor markets at far lower rates than women from *Dalit/Adivasi* households. This is true across India, and is far starker in regions with stronger patriarchal norms. Bihar is one such state, where status concerns dictate not just women’s participation in market-based work, but also the types of work that are deemed appropriate for them to participate in (Eswaran et al., 2013). In this context, it is promising that access to *Jeevika* increased labor force participation amongst women from more privileged households by 8 percent. This effect, unsurprisingly, was driven by women engaging in self-employment or salaried work — both potentially more conducive to ‘preserving status’ than casual wage labor, where women might work outside of homes or villages.

Women from *Dalit/Adivasi* households, on the other hand, decreased labor supply. They

participated in the labor force at far higher rates (71 percent, as opposed to 45 percent for women from other households in the control group), and did so mainly in agricultural labor. *Jeevika* resulted in 7 percent fewer women participating in agricultural labor, and in a 3 percent decline in labor force participation amongst women from *Dalit/Adivasi* households. As a result, women from *Dalit/Adivasi* households largely dropped out of the labor force, rather than re-allocating their labor elsewhere in market-based work. This change is on the extensive margin, and presumably includes some re-allocation by women on the intensive margin as well. Accompanying this, men from *Dalit/Adivasi* households also reduced agricultural wage labor, and 1 percent fewer men participated in the labor force at all. The impacts for men and women, taken together, suggest a household level change in the need for market-work — possibly, a reduction in the need for labor supply as a risk-coping mechanism. However, while 4 percentage points fewer men participated in agricultural labor, only 3 percentage points fewer women did so. These changes in labor supply at the household level also led to market level changes, increasing agricultural casual labor wages for both women and men. The larger relative change in labor supply for men led to a larger increases in wages. Men’s wages went up by 17 percent as opposed to 12 percent for women’s wages. As a result, the gender-wage gap in agricultural labor also increased — and this might imply a reduction in women’s relative market bargaining power.

Increasing women’s access to financial resources is believed to improve women’s empowerment, and provide them with resources for market-activity. Higher women’s participation in market-based work, in turn, is seen as an indicator of women’s empowerment, and a means for households to improve their material well-being. As a result, programs such as *Jeevika* often target women through a mix of household finance, livelihoods and empowerment components as part of poverty reduction strategies. This paper demonstrates that while such programs have beneficial impacts on the household as a unit, they have mixed effects on women’s labor supply, as households with different levels of privilege respond differentially. In addition, they also distort local labor markets, impacting wages, wage-gaps and possibly relative market-bargaining power.

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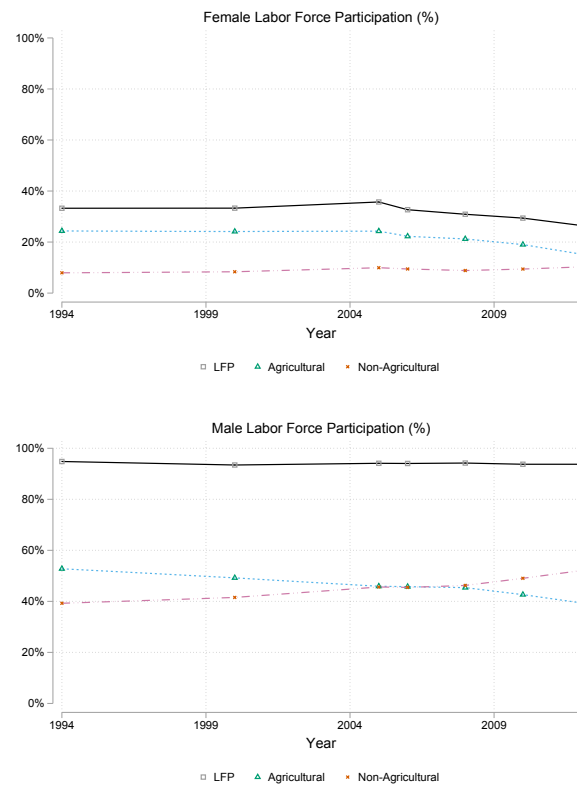
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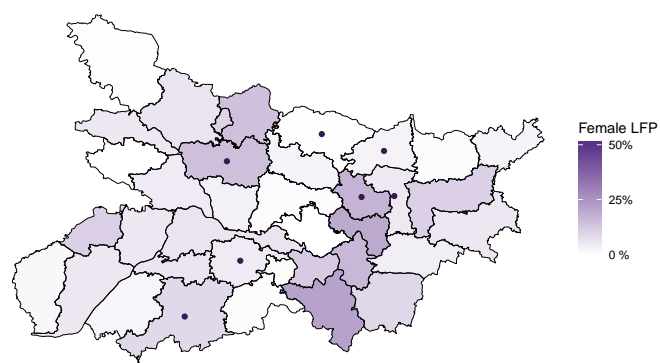
# A Figures

Figure 1: Labor Force Participation in India



Data: NSS Employment-Unemployment Survey, 2011-2012

Figure 2: Study Districts in Bihar



District FLFP computed from NSS data for 2011-2012

Figure 3: Wages at Baseline

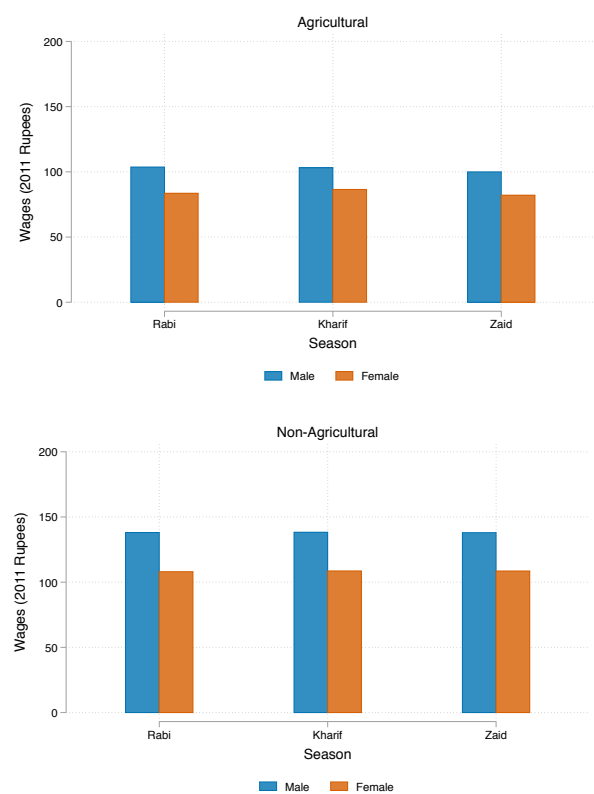
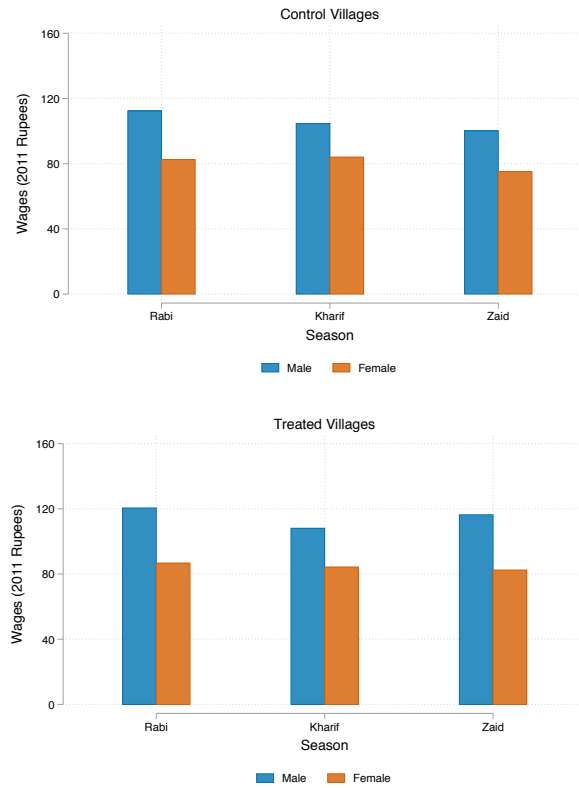


Figure 4: Wages at Endline

## Agricultural



## Non-Agricultural

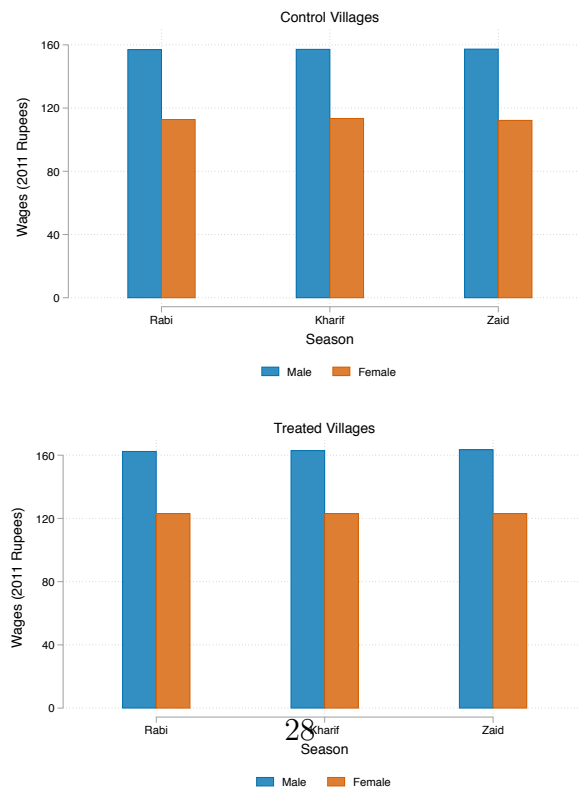


Figure 5: *Jeevika's* Phased Roll-out and the Experimental Sample

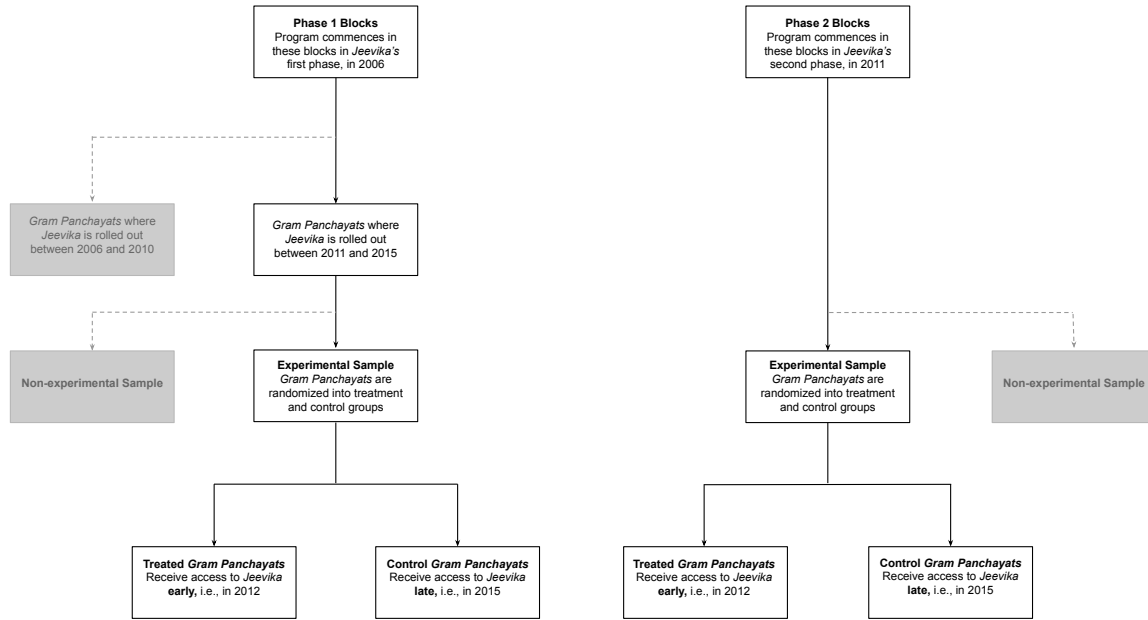
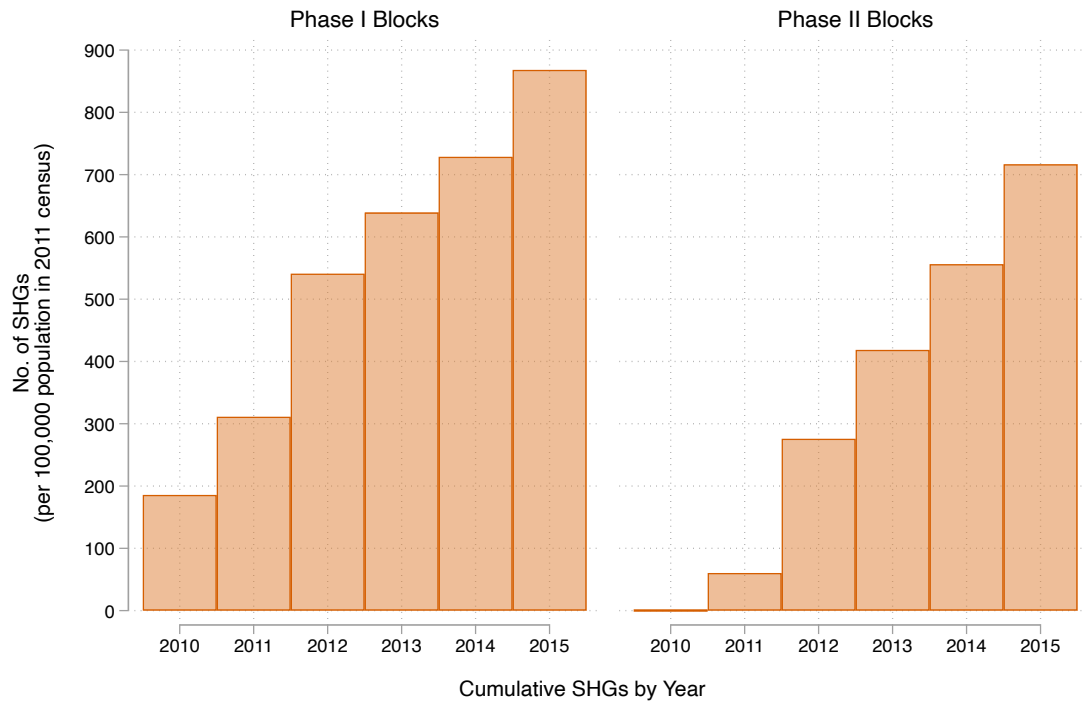


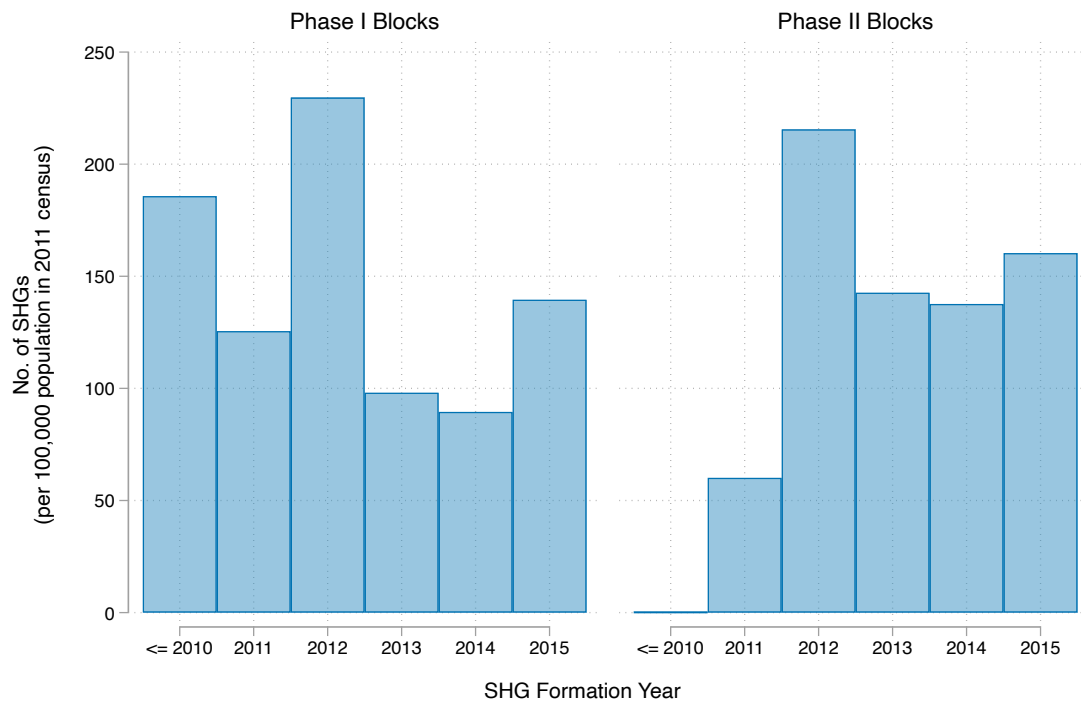


Figure 6: Cumulative No. of SHG



Source: *Jeevika* MIS data

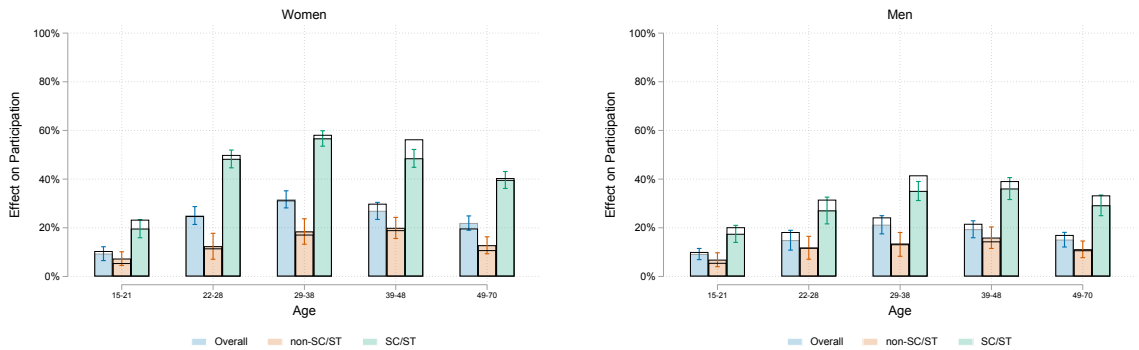
Figure 7: SHGs Formed in Each Year



Source: *Jeevika* MIS data

B Additional Figures

Agricultural Labor



Self-Employment

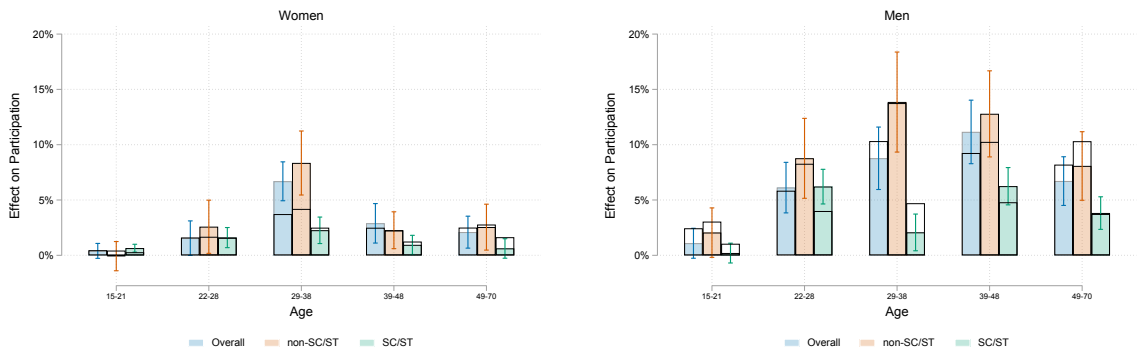


Figure 8: Labor Force Participation by Age

## C Additional Tables

Table B1: Summary Statistics and Randomization Balance at Baseline

	Means			Normalized Differences	RI p-value
	Obs	Control	Treatment		
Household Characteristics					
Dalit/Adivasi.	8988	32%	32%	-0.01	[0.877]
Land	8988	45%	44%	-0.02	[0.648]
HH Size	8988	6.05	6.00	-0.03	[0.311]
Female HH Head	8988	14%	13%	-0.04	[0.296]
SHG Member?	8988	4%	6%	0.10	[0.035]
Any Savings?	8988	38%	42%	0.08	[0.153]
Real Outstanding Debt	8988	13.39	12.16	-0.04	[0.207]
Productive Assets	8988	0.00	-0.05	-0.05	[0.184]
Consumption Assets	8988	0.00	0.02	0.03	[0.575]
Housing	8988	0.00	-0.02	-0.00	[0.955]
Consumption	8988	0.80	0.80	0.00	[0.967]
Attrition	8988	3%	3%	0.01	[0.763]
Men					
Labor Force Participation	14396	87%	89%	0.02	[0.498]
Self-Employment	14396	6%	7%	-0.04	[0.485]
Cultivation	14396	30%	27%	-0.04	[0.452]
Animal Husbandry	14396	2%	1%	-0.03	[0.474]
Agricultural Labor	14396	24%	26%	0.06	[0.249]
Non-Agricultural Labor	14396	27%	29%	0.05	[0.398]
Salaried Work	14396	12%	11%	-0.04	[0.469]
Works Outside Village	14396	48%	51%	0.03	[0.482]
Women					
Labor Force Participation	13078	63%	63%	-0.02	[0.794]
Self-Employment	13078	2%	1%	0.00	[0.960]
Cultivation	13078	24%	23%	-0.02	[0.707]
Animal Husbandry	13078	7%	6%	-0.02	[0.658]
Agricultural Labor	13078	29%	32%	0.03	[0.627]
Non-Agricultural Labor	13078	3%	2%	-0.04	[0.311]
Salaried Work	13078	1%	1%	0.00	[0.959]
Works Outside Village	13078	3%	3%	-0.02	[0.495]
-----					
Labor Say	8899	76%	74%	-0.03	[0.657]
Borrow Say	8899	87%	84%	-0.08	[0.360]
Daughter Work	5144	74%	73%	-0.01	[0.859]

Daughter Not Work After Marriage	3638	5%	7%	0.09	[0.334]
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### Non-Agricultural Wages

#### *Men*

Kharif	324	₹135.00	₹141.18	0.20	[0.135]
Rabi	321	₹134.88	₹141.75	0.22	[0.112]
Zaid	317	₹134.88	₹141.15	0.19	[0.170]

---

#### *Women*

Kharif	159	₹103.89	₹112.36	0.24	[0.203]
Rabi	158	₹104.75	₹112.73	0.22	[0.216]
Zaid	155	₹104.26	₹113.31	0.25	[0.173]

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### Agricultural Wages

#### *Men*

Kharif	244	₹103.66	₹103.69	-0.16	[0.285]
Rabi	292	₹104.90	₹101.40	-0.14	[0.197]
Zaid	219	₹103.23	₹96.70	-0.12	[0.459]

---

#### *Women*

Kharif	240	₹84.30	₹82.86	-0.16	[0.258]
Rabi	283	₹85.69	₹87.31	-0.01	[0.906]
Zaid	218	₹83.60	₹80.56	-0.11	[0.497]

---

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B2: Change in Work Participation and Borrowing from SHGs

	Cultivation		Animal Husbandry		Agri Labor		Non-Agri Labor		Self Employment		Salaried Employment	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>A: Overall Effects</b>												
Time	2.51 (1.83)	0.29 (1.60)	-1.01*** (0.26)	-5.24*** (0.79)	-7.95*** (1.58)	-8.72*** (1.32)	-1.22 (2.00)	0.38 (0.48)	-0.23 (0.79)	0.72 (0.54)	0.89 (1.79)	0.47 (0.59)
SHG Loan	-7.13*** (2.30)	-1.26 (1.74)	-0.16 (0.45)	0.02 (1.04)	3.27* (1.83)	8.08*** (2.33)	8.03*** (2.16)	-0.48 (0.49)	-1.08 (1.03)	-0.63 (0.50)	-2.75** (1.31)	-0.96* (0.52)
Time × SHG Loan	4.75* (2.53)	6.77*** (2.27)	-0.15 (0.49)	-0.47 (1.10)	-1.62 (2.31)	-0.52 (2.13)	-3.18 (3.01)	1.05 (0.82)	1.36 (1.34)	1.20 (0.97)	1.05 (1.86)	0.17 (0.66)
Obs Clusters	14307 89	13132 89	14307 89	13132 89	14307 89	13132 89	14307 89	13132 89	14307 89	13132 89	14307 89	13132 89
Mean	27.28	22.89	1.25	5.95	25.68	32.18	28.88	1.81	6.75	1.44	10.86	1.29
<b>B: Effect on non-<i>Dalit</i>/<i>Adivasi</i> households</b>												
Time	2.35 (1.99)	-1.01 (1.88)	-0.91*** (0.28)	-5.28*** (0.88)	-7.18*** (2.26)	-7.17*** (1.61)	-1.91 (1.69)	-0.51 (0.48)	-0.28 (1.03)	0.23 (0.45)	0.48 (1.78)	0.95* (0.48)
SHG Loan	-6.87** (3.14)	-0.55 (2.72)	-0.08 (0.53)	1.97 (1.49)	0.79 (2.42)	3.76 (2.66)	7.72*** (2.44)	0.03 (0.91)	0.04 (1.62)	-0.31 (0.80)	-1.50 (1.79)	-0.75 (0.48)
Time × SHG Loan	5.00 (3.33)	7.64** (3.12)	-0.21 (0.57)	-2.31 (1.55)	-0.24 (3.37)	-0.15 (2.38)	-3.73 (3.20)	0.10 (1.01)	1.74 (2.19)	2.44* (1.32)	0.42 (2.25)	-0.34 (0.75)
Obs Clusters	4303 86	3928 86	4303 86	3928 86	4303 86	3928 86	4303 86	3928 86	4303 86	3928 86	4303 86	3928 86
Mean	32.32	25.66	1.21	6.44	18.96	20.61	25.38	1.60	8.48	1.75	11.32	0.98
<b>C: Effect on <i>Dalit</i>/<i>Adivasi</i> households</b>												
Time	3.92*** (1.28)	3.23** (1.27)	-0.57** (0.24)	-3.05*** (0.56)	-9.99*** (1.70)	-10.38*** (1.54)	-1.32 (1.93)	1.30 (0.88)	0.16 (0.48)	0.12 (0.29)	-0.38 (1.45)	0.07 (0.28)
SHG Loan	-2.84** (1.16)	-1.44 (1.12)	-0.05 (0.27)	-0.36 (0.64)	1.39 (1.80)	3.71* (1.95)	3.43** (1.66)	-1.24** (0.52)	-1.06* (0.60)	-1.19*** (0.39)	-2.91** (1.11)	-0.43 (0.39)
Time × SHG Loan	2.09 (1.62)	2.86* (1.61)	-0.03 (0.34)	-0.06 (0.67)	-2.42 (2.38)	-0.95 (1.99)	0.24 (2.42)	1.00 (1.11)	-0.32 (0.67)	0.22 (0.36)	3.51** (1.53)	0.72* (0.43)
Obs Clusters	10004 89	9204 89	10004 89	9204 89	10004 89	9204 89	10004 89	9204 89	10004 89	9204 89	10004 89	9204 89
Mean	14.60	15.52	0.87	3.63	41.17	55.29	36.14	2.68	3.56	1.14	10.50	1.23

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from a linear regression of each outcome on an indicator for post-period, an indicator having borrowed from a SHG, and the interaction of the two — using the pooled treated sample. Panel A presents results from full-sample weighted regressions. Weights are inverse probability of sampling weights that are re-weighted to sum to one at the village level in order to re-constitute the caste composition of the village. Panel B has results on the non-*Dalit*/*Adivasi* sub-sample, without sampling weights. Panel C has results on the SC-ST sub-sample, without sampling weights. All specifications control for strata dummies and baseline controls. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B3: Change in Work Participation and Savings through SHGs

	Cultivation		Animal Husbandry		Agri Labor		Non-Agri Labor		Self Employment		Salaried Employment	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>A: Overall Effects</b>												
Time	0.80 (2.03)	-2.92 (1.92)	-1.04*** (0.31)	-4.74*** (0.84)	-5.23*** (1.78)	-7.30*** (1.58)	-1.06 (2.67)	0.48 (0.55)	-0.47 (0.89)	1.00 (0.74)	0.74 (2.20)	0.26 (0.80)
Any Savings?	-7.28*** (2.12)	-3.24* (1.87)	-0.02 (0.39)	1.12 (1.03)	7.77*** (2.02)	10.65*** (2.28)	7.84*** (2.21)	0.39 (0.50)	-1.13 (1.10)	0.20 (0.49)	-2.48 (1.52)	-1.13* (0.59)
Time × Any Savings?	5.95** (2.53)	9.91*** (2.25)	-0.03 (0.45)	-1.24 (1.08)	-6.30*** (2.14)	-3.14 (2.03)	-2.11 (3.39)	0.35 (0.80)	1.20 (1.24)	0.10 (0.91)	0.88 (2.27)	0.51 (0.83)
Obs Clusters	14309 89	13133 89	14309 89	13133 89	14309 89	13133 89	14309 89	13133 89	14309 89	13133 89	14309 89	13133 89
Mean	27.29	22.89	1.26	5.95	25.68	32.18	28.88	1.81	6.75	1.44	10.86	1.29
<b>B: Effect on non-<i>Dalit</i>/<i>Adivasi</i> households</b>												
Time	-0.30 (2.08)	-4.21* (2.25)	-0.86*** (0.30)	-4.48*** (0.93)	-5.47** (2.46)	-6.38*** (1.90)	-1.18 (1.99)	-0.34 (0.54)	-0.27 (1.18)	0.45 (0.50)	0.36 (1.99)	0.63 (0.50)
Any Savings?	-6.83*** (2.56)	-3.18 (2.38)	0.25 (0.46)	2.60* (1.34)	4.74** (2.32)	7.10*** (2.24)	6.96*** (2.26)	0.77 (0.60)	-0.16 (1.35)	0.54 (0.66)	-0.88 (1.72)	-0.87* (0.46)
Time × Any Savings?	8.45*** (2.93)	10.96*** (2.82)	-0.23 (0.54)	-2.93** (1.32)	-3.89 (2.86)	-1.83 (2.24)	-3.59 (3.07)	-0.33 (0.74)	0.91 (1.68)	0.80 (0.94)	0.48 (2.19)	0.53 (0.60)
Obs Clusters	4303 86	3928 86	4303 86	3928 86	4303 86	3928 86	4303 86	3928 86	4303 86	3928 86	4303 86	3928 86
Mean	32.32	25.66	1.21	6.44	18.96	20.61	25.38	1.60	8.48	1.75	11.32	0.98
<b>C: Effect on <i>Dalit</i>/<i>Adivasi</i> households</b>												
Time	1.72 (1.48)	-0.05 (1.31)	-0.48 (0.32)	-3.00*** (0.55)	-7.54*** (1.96)	-7.37*** (1.84)	-0.70 (2.35)	1.96 (1.26)	-0.32 (0.64)	0.19 (0.36)	-0.52 (1.67)	0.49 (0.39)
Any Savings?	-3.76*** (1.41)	-3.44*** (1.23)	0.14 (0.32)	0.08 (0.55)	2.91 (1.87)	6.92*** (2.15)	5.02*** (1.88)	-0.45 (0.65)	-1.51** (0.70)	-1.09** (0.49)	-2.82** (1.34)	-0.76* (0.40)
Time × Any Savings?	4.76*** (1.78)	6.92*** (1.62)	-0.19 (0.37)	-0.13 (0.57)	-5.35** (2.12)	-5.44** (2.14)	-0.90 (2.54)	-0.49 (1.37)	0.60 (0.82)	0.02 (0.38)	2.24 (1.66)	-0.24 (0.45)
Obs Clusters	10006 89	9205 89	10006 89	9205 89	10006 89	9205 89	10006 89	9205 89	10006 89	9205 89	10006 89	9205 89
Mean	14.61	15.54	0.89	3.63	41.16	55.27	36.14	2.68	3.56	1.14	10.49	1.23

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from a linear regression of each outcome on an indicator for post-period, an indicator having saved with a SHG, and the interaction of the two — using the pooled treated sample. Panel A presents results from full-sample weighted regressions. Weights are inverse probability of sampling weights that are re-weighted to sum to one at the village level in order to re-constitute the caste composition of the village. Panel B has results on the non-*Dalit*/*Adivasi* sub-sample, without sampling weights. Panel C has results on the SC-ST sub-sample, without sampling weights. All specifications control for strata dummies and baseline controls. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table B4: Consumption and Assets

	Assets			Consumption Expenditure		
	Cons	Prod	House	'000 ₹ per Adult Equivalent		
				Total	Food	Nutritious Food
	(1)	(2)	(3)	(4)	(5)	(6)
<b>A: Overall Impact of <i>Jeevika</i></b>						
<i>Jeevika</i>	0.04 (0.03)	-0.02 (0.02)	-0.01 (0.02)	0.00 (0.02)	0.00 (0.01)	-0.00 (0.00)
Obs	8987	8987	8987	8987	8987	8987
Clusters	179	179	179	179	179	179
Mean	0.00	-0.00	-0.00	1.12	0.72	0.19
<b>B: Impact of <i>Jeevika</i> on non-<i>Dalit</i>/<i>Adivasi</i> households</b>						
<i>Jeevika</i>	0.01 (0.04)	-0.06* (0.03)	-0.03 (0.03)	-0.01 (0.03)	-0.01 (0.02)	-0.00 (0.01)
Obs	2525	2525	2525	2525	2525	2525
Clusters	174	174	174	174	174	174
Mean	0.22	0.12	0.10	1.20	0.75	0.20
<b>C: Impact of <i>Jeevika</i> on <i>Dalit</i>/<i>Adivasi</i> households</b>						
<i>Jeevika</i>	0.08*** (0.02)	0.01 (0.01)	0.02 (0.02)	0.01 (0.02)	0.01 (0.02)	0.00 (0.00)
Obs	6462	6462	6462	6462	6462	6462
Clusters	178	178	178	178	178	178
Mean	-0.38	-0.21	-0.21	1.00	0.68	0.18

Standard errors clustered at the panchayat and household level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, and an indicator of treatment status. Panel A presents results from full-sample weighted regressions. Weights are inverse probability of sampling weights that are re-weighted to sum to one at the village level in order to re-constitute the caste composition of the village. Panel B has results on the non-*Dalit*/*Adivasi* sub-sample, without sampling weights. Panel C has results on the *Dalit*/*Adivasi* sub-sample, without sampling weights. All specifications control for strata dummies and baseline controls. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B5: Program Take-up and Household Borrowing

	SHG Member?	Any Savings?	Any loans taken? (%)			Outstanding Debt (‘000 Rs.)			Interest Rate
	(%)	(%)	SHG	Informal	All	SHG	Informal	All	(%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Jeevika</i>	43.71*** (2.32)	23.38*** (2.77)	25.09*** (1.90)	-3.83* (2.17)	3.33 (2.23)	1.92*** (0.17)	-3.26*** (1.14)	-2.31* (1.30)	-0.53*** (0.10)
<i>Dalit/Adivasi</i>	0.82 (1.51)	0.57 (2.44)	-1.33 (0.96)	4.27** (1.90)	4.02** (1.90)	-0.01 (0.08)	-4.14*** (1.14)	-5.30*** (1.30)	0.74*** (0.10)
<i>Jeevika</i> $\times$ <i>Dalit/Adivasi</i>	9.95*** (2.52)	6.78** (2.88)	11.53*** (2.11)	-2.50 (2.48)	0.04 (2.50)	0.34 (0.20)	0.37 (1.44)	1.79 (1.62)	-0.56*** (0.13)
Obs	8851	8987	8987	8987	8987	8987	8987	8987	6805
Clusters	179	179	179	179	179	179	179	179	179
Mean	7.01	49.73	1.49	69.41	71.45	0.11	22.87	27.45	4.76

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, an indicator of treatment status, an indicator of caste status and the interaction between the two — with inverse probability of sampling weights. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B6: Women's Empowerment

	Works Outside	Signature	Read Signs	Any Say in Decisions? (%)		Daughter Work
	(%)	(%)	(%)	Labor	Borrow	(%)
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Jeevika</i>	0.58 (0.41)	10.53*** (1.68)	3.05** (1.38)	3.08 (2.65)	2.93 (2.90)	0.80 (3.51)
<i>Dalit/Adivasi</i>	1.20*** (0.40)	-3.28** (1.49)	-0.49 (1.29)	6.20*** (2.14)	2.79 (2.15)	0.33 (2.66)
<i>Jeevika</i> $\times$ <i>Dalit/Adivasi</i>	-0.84 (0.61)	4.47** (1.98)	-0.58 (1.69)	-5.01* (2.99)	-3.86 (2.92)	-4.53 (3.83)
Obs	13376	8671	8671	8671	8671	3857
Clusters	179	179	179	179	179	179
Mean	1.45	37.20	19.32	88.20	92.12	73.35

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, an indicator of treatment status, an indicator of caste status and the interaction between the two — with inverse probability of sampling weights. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B7: Labor Force Participation

	Labor Force Participation (%)		Agri Participation (%)		Non-Agri Participation (%)	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Jeevika</i>	2.70 (1.71)	3.05 (2.42)	2.65 (2.03)	1.37 (2.27)	3.05 (2.02)	1.70* (0.91)
<i>Dalit/Adivasi</i>	4.75*** (1.47)	16.47*** (1.75)	7.97*** (1.68)	14.31*** (1.72)	1.24 (1.78)	3.19*** (0.93)
<i>Jeevika</i> $\times$ <i>Dalit/Adivasi</i>	-4.32** (1.85)	-5.74** (2.63)	-6.48*** (2.34)	-4.11 (2.62)	-1.65 (2.44)	-2.08* (1.23)
Obs	14479	13376	14479	13376	14479	13376
Clusters	179	179	179	179	179	179
Mean	80.76	52.03	48.30	46.83	41.58	6.18

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, an indicator of treatment status, an indicator of caste status and the interaction between the two — with inverse probability of sampling weights. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B8: Participation by Occupation Type

	Cultivation		Animal Husbandry		Agri Labor		Non-Agri Labor		Self Employment		Salaried Employment	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Jeevika</i>	1.67 (1.96)	0.74 (2.12)	-0.26 (0.17)	-0.30 (0.36)	0.67 (1.65)	0.42 (1.41)	1.02 (1.73)	0.13 (0.59)	0.30 (0.96)	0.78* (0.47)	2.64** (1.23)	1.00*** (0.36)
<i>Dalit/Adivasi</i>	-2.81** (1.42)	-1.45 (1.74)	-0.09 (0.24)	-0.18 (0.32)	11.54*** (1.36)	15.50*** (1.50)	3.24* (1.78)	2.31*** (0.61)	-3.84*** (0.81)	0.04 (0.40)	2.82** (1.22)	0.74* (0.39)
<i>Jeevika</i> $\times$ <i>Dalit/Adivasi</i>	-1.12 (2.12)	-0.27 (2.41)	0.07 (0.22)	0.01 (0.41)	-5.07** (2.13)	-3.62* (2.01)	-0.19 (2.29)	0.03 (0.84)	-0.45 (1.11)	-1.10* (0.59)	-1.97 (1.56)	-0.98* (0.53)
Obs	14479	13376	14479	13376	14479	13376	14479	13376	14479	13376	14479	13376
Clusters	179	179	179	179	179	179	179	179	179	179	179	179
Mean	31.18	25.43	0.58	1.12	18.14	21.84	25.27	1.93	6.94	1.79	10.06	1.35

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an ANCOVA specification — linear regressions of each outcome on its value at baseline, an indicator of treatment status, an indicator of caste status and the interaction between the two — with inverse probability of sampling weights.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B9: Program Take-up and Household Borrowing

	SHG Member? (%)	Any Savings? (%)	Any loans taken? (%)			Outstanding Debt (‘000 Rs.)			Interest Rate (%)
	(1)	(2)	SHG (3)	Informal (4)	All (5)	SHG (6)	Informal (7)	All (8)	(9)
<b>Panel A: Simple Differences</b>									
Overall Impact	46.59*** (1.66)	26.02*** (1.91)	28.36*** (1.28)	-5.14*** (1.41)	3.36** (1.29)	1.95*** (0.10)	-3.66*** (0.75)	-2.04** (0.88)	-0.70*** (0.07)
Impact on non- <i>Dalit/Adivasi</i> HHs	44.33*** (1.87)	23.73*** (2.42)	26.31*** (1.56)	-3.76** (1.87)	3.93** (1.85)	1.99*** (0.14)	-3.54*** (0.92)	-2.51** (1.12)	-0.47*** (0.07)
Impact on <i>Dalit/Adivasi</i> HHs	53.80*** (1.67)	30.20*** (1.72)	36.82*** (1.33)	-6.24*** (1.13)	3.57*** (0.88)	2.26*** (0.11)	-2.99*** (0.50)	-0.70 (0.54)	-1.09*** (0.08)
<b>Panel B: Difference-in-Differences</b>									
Overall Impact	44.63*** (2.47)	23.04*** (3.86)	27.27*** (1.71)	-5.49* (2.11)	3.18 (2.06)	1.82*** (0.14)	-3.43** (1.20)	-1.11 (1.30)	-0.77*** (0.12)
Impact on non- <i>Dalit/Adivasi</i> HHs	43.91*** (2.53)	21.38*** (4.68)	24.41*** (2.03)	-5.57 (2.97)	2.36 (2.88)	1.81*** (0.19)	-3.54* (1.49)	-1.93 (1.61)	-0.47*** (0.11)
Impact on <i>Dalit/Adivasi</i> HHs	50.97*** (3.00)	27.24*** (3.71)	36.29*** (1.95)	-7.81*** (1.60)	1.81 (1.59)	2.26*** (0.16)	-2.58** (0.77)	-0.23 (0.83)	-1.21*** (0.15)

Standard errors clustered at the panchayat level shown in parentheses. Coefficients in Panel A are from a simple difference specification, with baseline controls and strata dummies. Coefficients in Panel B are from a difference-in-differences specification with household fixed effects. Pooled overall regressions are weighted using inverse probability of sampling weights. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B10: Women's Empowerment

	Works Outside	Signature	Read Signs	Any Say in Decisions? (%)		Daughter Work
	(%)	(%)	(%)	Labor	Borrow	(%)
	(1)	(2)	(3)	(4)	(5)	(6)
<b>A: Simple Differences</b>						
Overall Impact	-0.08 (0.27)	14.11*** (0.98)	3.12*** (0.69)	-0.47 (1.24)	0.17 (1.64)	-2.53 (1.73)
Impact on non- <i>Dalit/Adivasi</i> HHs	0.46 (0.28)	10.58*** (1.80)	3.08** (1.36)	-0.28 (1.77)	-0.55 (2.06)	-0.56 (3.31)
Impact on <i>Dalit/Adivasi</i> HHs	-0.41 (0.38)	14.87*** (0.99)	2.69*** (0.67)	-1.49 (0.92)	-0.10 (1.26)	-3.64** (1.76)
<b>Panel B: Difference-in-Differences</b>						
Overall Impact	0.88 (0.54)	13.00*** (1.38)	1.79* (0.92)	-0.87 (1.97)	0.32 (2.41)	-0.62 (3.47)
Impact on non- <i>Dalit/Adivasi</i> HHs	0.19 (0.67)	10.06*** (1.94)	1.90 (1.66)	-1.95 (3.61)	2.78 (3.50)	7.20 (5.66)
Impact on <i>Dalit/Adivasi</i> HHs	1.18* (0.70)	14.06*** (1.57)	1.65 (1.07)	-0.44 (1.98)	-0.72 (2.43)	-2.91 (3.78)

Standard errors clustered at the panchayat level shown in parentheses. Coefficients in Panel A are from a simple difference specification, with baseline controls and strata dummies. Coefficients in Panel B are from a difference-in-differences specification with household fixed effects. Pooled overall regressions are weighted using inverse probability of sampling weights. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B11: Labor Force Participation

	Labor Force Participation (%)		Agri Participation (%)		Non-Agri Participation (%)	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: Simple Differences</b>						
Overall Impact	0.92 (1.29)	2.43* (1.35)	-0.25 (1.48)	1.45 (1.26)	2.09 (1.37)	0.63 (0.56)
Impact on non- <i>Dalit/Adivasi</i> HHs	2.38 (1.50)	3.67* (1.89)	2.67 (1.69)	2.56 (1.79)	1.21 (1.56)	1.08 (0.68)
Impact on <i>Dalit/Adivasi</i> HHs	-1.43** (0.64)	-2.14** (0.91)	-3.55** (1.73)	-2.11** (1.04)	1.63 (1.31)	-0.53 (0.74)
<b>Panel B: Difference-in-Differences</b>						
Overall Impact	-0.50 (1.18)	1.89 (2.25)	-1.40 (2.47)	-1.30 (2.18)	2.71 (2.20)	3.05** (1.37)
Impact on non- <i>Dalit/Adivasi</i> HHs	-0.75 (1.58)	3.12 (2.83)	-0.52 (2.77)	-0.76 (2.71)	1.74 (2.38)	3.75** (1.55)
Impact on <i>Dalit/Adivasi</i> HHs	-0.06 (0.98)	-0.45 (1.59)	-3.11 (2.61)	-2.14 (1.78)	1.84 (2.24)	1.70 (1.20)

Standard errors clustered at the panchayat level shown in parentheses. Coefficients in Panel A are from a simple difference specification, with baseline controls and strata dummies.

Coefficients in Panel B are from a difference-in-differences specification with household fixed effects. Pooled overall regressions are weighted using inverse probability of sampling weights.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table B12: Participation by Occupation Type

	Cultivation		Animal Husbandry		Agri Labor		Non-Agri Labor		Self Employment		Salaried Employment	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>A: Simple Differences</b>												
Overall Impact	1.41 (1.29)	1.01 (1.21)	-0.39*** (0.11)	-0.61** (0.30)	-2.08* (1.18)	0.26 (0.87)	1.48 (1.08)	0.30 (0.37)	-0.61 (0.58)	0.55 (0.33)	1.65* (1.00)	0.50** (0.23)
Impact on non-Dalit/ <i>Adivasi</i> HHs	1.38 (1.67)	0.75 (1.75)	-0.32*** (0.14)	-0.41 (0.33)	0.84 (1.31)	1.64* (0.97)	0.55 (1.25)	0.01 (0.32)	-0.29 (0.83)	0.79* (0.41)	1.84 (1.14)	0.77** (0.30)
Impact on Dalit/ <i>Adivasi</i> HHs	0.98 (0.99)	1.15 (0.97)	-0.20* (0.11)	-0.23 (0.21)	-4.17** (1.67)	-2.89** (1.12)	1.15 (1.28)	0.15 (0.63)	-0.04 (0.40)	-0.38 (0.25)	0.82 (1.03)	0.09 (0.24)
<b>Panel B: Difference-in-Differences</b>												
Overall Impact	1.82 (2.01)	0.85 (2.02)	0.09 (0.42)	0.39 (1.04)	-3.11 (1.94)	-2.03 (1.61)	-0.87 (2.32)	1.29** (0.61)	-0.31 (0.97)	1.14* (0.61)	3.95** (1.94)	0.36 (0.56)
Impact on non-Dalit/ <i>Adivasi</i> HHs	0.72 (2.46)	-0.74 (2.69)	0.20 (0.47)	1.42 (1.22)	-1.01 (2.42)	0.06 (2.00)	-2.23 (2.24)	0.24 (0.62)	-0.51 (1.25)	1.00 (0.69)	5.06*** (1.91)	1.06** (0.50)
Impact on Dalit/ <i>Adivasi</i> HHs	1.13 (1.60)	1.20 (1.59)	0.16 (0.29)	0.13 (0.70)	-4.03* (2.25)	-3.06* (1.82)	-0.74 (2.46)	1.66* (0.93)	0.84 (0.61)	-0.07 (0.33)	1.03 (1.85)	-0.07 (0.38)

Standard errors clustered at the panchayat level shown in parentheses. Coefficients in Panel A are from a simple difference specification, with baseline controls and strata dummies. Coefficients in Panel B are from a difference-in-differences specification with household fixed effects. Pooled overall regressions are weighted using inverse probability of sampling weights. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B13: Casual Labor Wages

	Agricultural			Non-Agricultural		
	ln (real ₹)			ln (real ₹)		
	Men	Women	Pooled	Men	Women	Pooled
	(1)	(2)	(3)	(4)	(5)	(6)
<b>A: Simple Differences</b>						
<i>Jeevika</i>	0.18*** (0.06)	0.12** (0.06)	0.21*** (0.06)	0.07* (0.04)	0.22** (0.10)	0.10** (0.04)
Female			-0.20*** (0.04)			-0.34*** (0.07)
<i>Jeevika</i> × Female			-0.12** (0.06)			0.08 (0.09)
<b>Panel B: Difference-in-Differences</b>						
<i>Jeevika</i>	0.15* (0.08)	0.06 (0.08)	0.15* (0.08)	-0.01 (0.04)	-0.03 (0.10)	-0.01 (0.04)
Female			-0.26*** (0.04)			-0.37*** (0.06)
<i>Jeevika</i> × Female			-0.07 (0.07)			-0.03 (0.08)

Standard errors clustered at the panchayat level shown in parentheses. Coefficients in Panel A are from a simple difference specification, with baseline controls and strata dummies; while coefficients in Panel B are from a difference-in-differences specification with panchayat fixed effects. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B14: Program Take-up and Household Borrowing

	SHG	Any	Any loans taken?			Outstanding Debt			Interest
	Member?	Savings?	(%)			('000 Rs.)			Rate
	(%)	(%)	SHG	Informal	All	SHG	Informal	All	(%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Jeevika</i>	50.81*** (1.55)	28.22*** (1.67)	33.33*** (1.22)	-5.65*** (1.05)	3.33*** (0.91)	2.16*** (0.10)	-2.96*** (0.43)	-0.99** (0.48)	-0.95*** (0.07)
Obs	8851	8987	8987	8987	8987	8987	8987	8987	6805
Clusters	179	179	179	179	179	179	179	179	179
Mean	7.01	49.73	1.49	69.41	71.45	0.11	22.87	27.45	4.76

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an unweighted ANCOVA specification. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B15: Women's Empowerment

	Works	Signature	Read Signs	Any Say in		Daughter
	Outside			Decisions? (%)		Work
	(%)	(%)	(%)	Labor	Borrow	(%)
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Jeevika</i>	-0.01 (0.26)	13.73*** (0.80)	2.63*** (0.54)	-0.50 (1.21)	0.17 (1.59)	-2.63 (1.75)
Obs	13376	8671	8671	8671	8671	3857
Clusters	179	179	179	179	179	179
Mean	1.45	37.20	19.32	88.20	92.12	73.35

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an unweighted ANCOVA specification. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B16: Labor Force Participation

	Labor Force Participation (%)		Agri Participation (%)		Non-Agri Participation (%)	
	Men	Women	Men	Women	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Jeevika</i>	-0.29 (0.84)	-0.93 (1.08)	-1.84 (1.47)	-1.48 (1.06)	1.91* (1.15)	0.25 (0.54)
Obs	14479	13376	14479	13376	14479	13376
Clusters	179	179	179	179	179	179
Mean	80.76	52.03	48.30	46.83	41.58	6.18

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an unweighted ANCOVA specification. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B17: Participation by Occupation Type

Cultivation		Animal Husbandry		Agri Labor		Non-Agri Labor		Self Employment		Salaried Employment		
Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
<i>Jeevika</i>	0.90	0.55	-0.21**	-0.30	-2.84**	-2.09***	0.88	0.15	-0.01	0.02	1.28	0.32**
	(0.97)	(0.94)	(0.09)	(0.20)	(1.33)	(0.80)	(1.00)	(0.43)	(0.41)	(0.20)	(0.83)	(0.16)
Obs	14479	13376	14479	13376	14479	13376	14479	13376	14479	13376	14479	13376
Clusters	179	179	179	179	179	179	179	179	179	179	179	179
Mean	31.18	25.43	0.58	1.12	18.14	21.84	25.27	1.93	6.94	1.79	10.06	1.35

Standard errors clustered at the panchayat level shown in parentheses. Coefficients are from an unweighted ANCOVA specification.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## D Data Appendix

This section describes the construction of the main variables used in the paper. Data comes from (1) household and village surveys conducted in 2011 and 2014 by [Hoffmann et al. \(2021\)](#); (2) SHG surveys conducted in 2019; (3) India’s 2011 census; (4) *Jeevika*’s Management Information System (MIS).

***Village Risk Sharing*** is constructed using data from the [Hoffmann et al. \(2021\)](#) study’s household consumption survey module. The constructed outcome is the village-level variance of the change in the log of real monthly per capita consumption expenditure (MPCE in 2011 rupees) between the baseline in 2011 and endline in 2014. The constructed outcome is winsorized at 1% and 99%. The 2011 and 2014 surveys rely on the same consumption module which includes questions relating to consumption of food items including cereals, pulses, edible oils, fruits, vegetables, meat, eggs, dairy and other goods (soap, detergent, etc) with 30 day recall; and education and medical expenses, clothing and bedding expenses with 1 year recall.

Village-level variance of the change in the log of MPCE is computed using sampling weights, and without using sampling weights for the entire village sample. In addition, the variance is computed for the sub-samples of: (1) the *Dalit/Adivasi* population in the village; (2) the non-*Dalit/Adivasi* population in the village. The measures for sub-populations are constructed without relying on sampling weights.

As described in the paper, since household sampling is stratified, with 70% of sample households being *Dalit* or *Adivasi*, and 30% being non-*Dalit/Adivasi*, the [Hoffmann et al. \(2021\)](#) study team used village level data on the number of households to construct inverse probability of sampling weights to re-constitute the caste composition of each village. These sampling weights were normalized to sum to one at the village level so that each village is given equal weight in the analysis.

***Program Scale*** prior to the study period is the total number of SHGs formed in a block by 2011. This variable is constructed using the formation date for each SHG in the MIS data, which contains details on the universe of all SHGs formed under the *Jeevika* program in Bihar. The main specifications in this paper use a quadratic function of program scale (i.e., program scale and program scale squared).

***Accumulated SHG Savings*** refers to the total savings accumulated by all SHGs in a village by the start of 2015, constructed as follows:

$$\text{Accumulated Savings} = \sum_{\text{SHGs creation}} \sum_{2015} \text{Annual Savings per member} \times \text{No. of members in the SHG}$$

In each village, the mean annual prescribed SHG savings per member is computed from the 2019 SHG survey data set. The 2019 SHG survey spans 265 out of the 333 study villages in the original evaluation, with 252 villages having at least 1 SHG with completed surveys. In each of these villages, between 1 and 7 SHGs were surveyed (median of 6). 95% of SHGs in the sample had prescribed monthly savings of ₹40 or annual savings of ₹480. For villages in the original study sample, without data from the 2019 SHG survey, annual savings per member is imputed using the mean at the *Gram Panchayat* level, and when absent, the mean at the block level.

The total number of SHGs in 2015 and the number of SHG members in each SHG are obtained from the MIS data. The number of SHG members in each SHG are from 2018, the year the MIS data was obtained.