Impact Evaluation Framework and Results: Odisha Rural Livelihoods Project[1]

Executive Summary

1. Introduction

Participatory livelihoods projects are a popular model for anti-poverty projects in India. Such projects are implemented in several states of India through various partners – that include the national government, state governments, and donor funded programs. Based on the idea that multiple interventions are needed to address the multiple causes of poverty, the typical livelihoods project deploys some form of community or citizen involvement to implement this set of multiple interventions. Taken together, these Self-Help Group (SHG) centered interventions – that always include household targeted programs that involve credit, livelihoods support, investments in institution building, and at times seek to improve access to public services – define a multi-dimensional approach to improving household welfare and reducing poverty. The empirical evidence on whether these projects did in fact create better livelihoods and employment and improve the economic and social welfare of households was however largely unclear, despite the investment of significant public resources in the latter for over two decades (Mansuri and Rao,2013).

Designing rigorous impact evaluations for such demand driven and multi- dimensional projects is also often challenging, as the core intervention of creating networks of SHGs often has a long implementation history. This makes the task of designing a rigorous impact evaluation- which requires a scientifically valid "control" or comparison group that is as similar as possible to the project or "treatment" area- difficult. The TRIPTI program, which is implemented by the state government of Orissa with assistance from the World Bank, was launched in 2009 and provided the opportunity to design a rigorous evaluation. In particular, the selection of TRIPTI project area, which was based on objective and verifiable selection criterion, could be used to identify a valid

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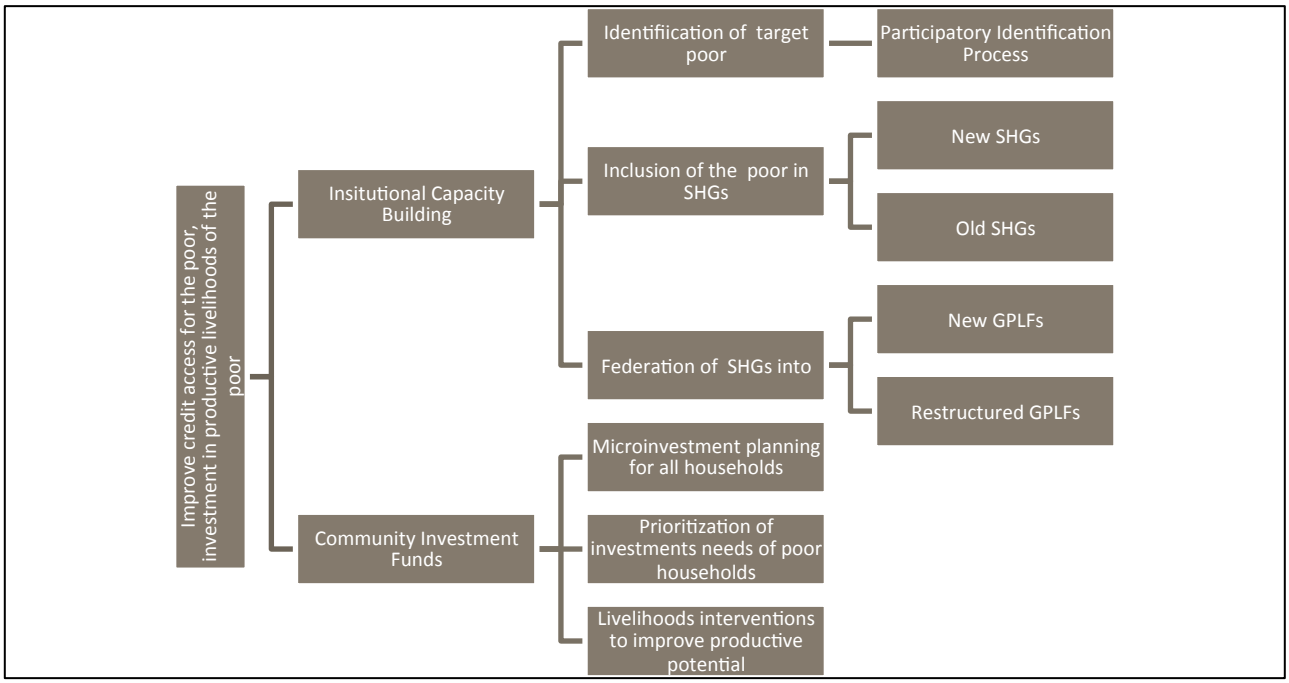
control group. This evaluation was designed jointly by TRIPTI and the World Bank's Social Observatory team.

2. Project Intervention

While the Government of Orissa had initiated a formal SHG program with its Mission Sakthi in 2001, it was acknowledged that there remained challenges of exclusion of the poor from these SHGs along with the ability of these SHGs to sustainably reduce debt and to support diversification in livelihoods portfolios (World Bank, 2009). TRIPTI was designed to address these challenges of inclusion, and limited productive potential. Therefore this evaluation measures the impact of this project on the target population it sought to affect by oversampling SC and ST households, which are the identifiably disadvantaged and more likely to be poor (and therefore more likely to form the target population of the project) at the baseline.

It was intended that TRIPTIs inclusion mandates would be met through the process of forming new SHGs and Gram Panchayat Level Federations (GPLFs), and restructuring old ones. Project-provided Community Investment Funds were designed to improve credit access and to promote the productive use of these funds. These funds were to be utilized by GPLFs based on a detailed micro investment plan (MIP) for each household, prioritized based on the credit needs of the poor, and linked to livelihood interventions. A stylized theory of change, through which TRIPTIs interventions aimed to improve access of the poor to credit, and to improve their productive potential, is depicted in the figure below.



This evaluation of TRIPTI therefore **assesses the impacts of this project on the economic and social welfare of targeted households**- as measured by access to credit, savings, indebtedness, livelihoods, consumption expenditures, and asset portfolios- over a three-year period from 2011-2014.

3. Evaluation Design

This evaluation was designed in 2011 after the project areas were chosen, which meant that a "gold standard" impact evaluation with a Randomized Control Trial method was not feasible. The selection rule for project areas however allowed for the next best available tool **of Regression Discontinuity Design (See box)**. Using this design, the difference in difference approach, which measures the change in outcomes between project or "treatment" and comparable non-project or "control" areas over the evaluation time period can be used to evaluate the impact the project.

Selection of TRIPTI Blocks	Selection of Evaluation Blocks	Selection of GPs, Villages and Households

• In each TRIPTI district, 4 blocks were to be chosen for project "treatment" using a "backwardness" selection rule
• All blocks were given a score that gave weightage to block level development indices (Ghadei Committee Index), SHG coverage, total population and SC/ST Populations
• Program blocks then ranked in descending order of scores, and the 4 blocks with highest backwardness score wee chosen for the program
	• In each district, the non-program or "control" block was chosen to the block that had the closest score to the last of the 4 program blocks
	• A pair of blocks- one program or "treatment" block, and non-program or "control" blocks) were chosen to be part of the evaluation sample in every district
		• Treatment is universal at the level of the block, which implies that at sub-block units, or Gram Panchayats (GPs) receive TRIPTIs interventions.
		  • 4 GPs randomly chosen in each block
		  • 2 vilages randomly chosen in each GP
		• All targeted households in a TRIPTI GP are *eligible TRIPTI* interventions
		  • 15 households randonly chosen in each village
		  • Oversampling of SC/ST housholds to proxy for target housholds

4. Evaluation Data

The data used in this evaluation come from two surveys commissioned by TRIPTI with technical assistance from the World Bank. An independent survey firm implemented both surveys. The baseline survey was completed before the initiation of TRIPTI in the evaluation sample area, between September-November 2011; and the follow up survey was implemented over the same month in 2014. This data therefore covers a 3-year period during which TRIPTI was in operation.

The data collected focused on four modules. A general household module collected data on household consumption expenditures (following the same format as India's National Sample Surveys that are used to measure poverty); and detailed information on the livelihoods portfolio and debt profile of households. A woman's module was also administered to an adult married woman in each household. This module measured different metrics of women's empowerment; and included questions on decision-making within the household, and on women's participation in local public action. Two focus group discussions with the village in general, and women in the villages separately were also implemented in order to understand key elements related to local politics and civic action. In addition, a GPLF survey module- that covered 58 project Gram Panchayats - was implemented during the follow up survey.

As part of this evaluation, **data** was to be collected from a sample of **3000 households** selected at random from these **160 villages** twice: once before the launch of project interventions in these **80 GPs** at baseline (2011), and once at the end of the project. Due to some missing data, the **baseline survey included in the end a total of 2875 households** and the **end line survey included a total of 2,874 households**. The working sample is the total set of these households with reliable data. In each round of the survey, **each household is linked to village-level data** from that round.

5. Results Summary

- **Households in TRIPTI areas reported higher SHG membership compared to non TRIPTI areas**. There was a 22% increase in SHG membership in TRIPTI areas compared to non-TRIPTI areas. This increase was additional to an already high baseline value of 67.9% SHG membership in project areas and 74.2% membership in control areas

- **With this increased membership in SHGs, households in TRIPTI areas were less dependent on informal sources of credit, more likely to rely on SHGs for savings, and more likely to save.** They were 7.7% more likely to report borrowing from formal or institutional sources of credit. These institutional sources of credit include SHG or bank loans; and exclude high-cost loans that come from moneylenders or relatives. About one quarter of households in treatment and control areas reported access to these formal credit sources at baseline.

- **Improved access to cheaper credit however did not translate into improved economic welfare of households**, as measured by increases in household consumption expenditures or assets.

- **Despite no overall increases in household expenditures, TRIPTI households report larger expenditures on healthcare** (303 INR more per capita per month compared to non TRIPTI areas), and **a larger share of household expenditures towards women and children's goods** (2 per cent more than in non TRIPTI areas). At baseline, households in TRIPTI areas reported an expenditure of 839 INR per capita on health care, and a 3% share of expenditures on children and women's goods.

- **There was no change in the livelihood portfolios of households in TRIPTI areas.** These households however report working 2 more days on the National Rural Employment Guarantee Scheme compared to households in non-program areas; and women in these households report working 1.8 days more on this card than in non-TRIPTI areas. It should also be noted that the baseline value for participation are very low (less than 2 days) for both households, and women in these households.

- **TRIPTI also had an impact on some measures of women's empowerment.** While empowering women was not an explicit goal for TRIPTI, individual empowerment effects are now fairly well established in evaluations of women centered SHG interventions (see for instance Cartwright et al., 2006, Banerjee et al., 2013; Khandekar & Pitt, 1998; Datta, 2013; Khanna et al 2013); and there is also evidence that suggests that these types of programs can empower women in the private and public spheres. (Sanyal, 2009, Blattman et al., 2011)). **Notably, TRIPTI's impacts on credit access also improved mobility of women in terms of being able to independently go to SHG meetings and banks.** Women in TRIPTI areas were 17.8% more likely to go alone to an SHG meeting and 5.3% more likely visit a bank alone. This is however conditioned on them seeking permission to do so. We find that these women are 28.1% more likely to seek permission before leaving the house in general, 17.3% more likely to seek permission to go SHG meetings, and 8.5% more likely to seek permission to visit a bank. **However, this improved mobility related to credit services did not translate into a more general improvement in** women's individual empowerment as measured by their more general mobility outside the house, or by their input into **decision-making within the household.**

- **TRIPTI also empowered women in the public sphere.** More women in TRIPTI areas report that they are likely to pursue local public problems that relate to domestic violence and alcoholism (5.6%), the functioning of the Public Distribution System (4.9%) and with mid-day meals served in schools (5.1%). An index of willingness to act on these problems was higher by 8.1 percent in project areas. We also see a 12.8 percent greater increase in an index of willingness of women to pursue institutional responses to these community problems in TRIPTI areas.

TRIPTI: Technical Impact Evaluation Report

Shareen Joshi, Georgetown University
Nethra Palaniswamy, World Bank
Vijayendra Rao, World Bank

1. Introduction

Investments in participatory poverty reduction projects have been driven by the hope that greater engagement with local actors will lead to faster and more equitable development. These participatory projects typically involve the local provision of basic public services, decentralized provision of small-scale infrastructure, and citizen engagement in service delivery. More recently, community based livelihood programs, which focus more directly on increasing income and employment, have also become an important component of large scale poverty reduction programs; and there is some evidence that projects with larger livelihood components (such as credit and skills interventions) perform better than other participatory projects, at least in the short run (Mansuri & Rao, 2012). This participatory livelihoods based approach to development is currently being implemented in several states of India through state government implemented projects. It is also the central platform of the Government of India's six billion USD National Rural Livelihoods Mission, which is expected to reach 600,000 villages over the next decade (World Bank, 2011). Whether these interventions do in fact create better livelihoods and employment and improve the economic and social welfare of the households is, however, still an open empirical question. Given the scale of the investment in this approach, from donors and governments, it is critical to understand the potential of these projects to improve social and economic welfare.

Against this background, we use Regression Discontinuity Design (RDD) methods to evaluate the impact of a participatory livelihoods project in India, the Odisha Rural Livelihoods Project that is also known as TRIPTI. This evaluation is also one of three such evaluations that are currently on going in three different states of India (Bihar, Orissa, and Tamil Nadu). Evaluating these large-scale

interventions across different states of India - that have very different socio-economic contexts- can therefore speak to the external validity of results, and therefore reliably inform project learning.

Given the focus of TRIPTI on credit, livelihoods, and productive capacities we evaluate the impact of these program components on the economic welfare of households, as measured by access to credit, savings, indebtedness, livelihoods, consumption expenditures, and asset portfolios.
We find that TRIPTI has first order impacts on increasing SHG membership, and improving access to credit. Second order impacts that translate improved credit access to household economic welfare, as measured by conventional measures of consumption expenditures and household assets are however not observed. While there is no significant impact on the level of consumption expenditures, we find a significant shift in the composition of these expenditures towards healthcare, and towards women and children in TRIPTI project areas. Improved credit access also improved mobility of women in terms of being able to independently go to SHG meetings and banks. This improved mobility related to credit services however did not translate into a more general improvement in women's individual empowerment as measured by their more general mobility outside the house, or by their input into decision-making within the household. We see some evidence of improvement on women's reported willingness to act on local civic problems, and to pursue institutional action on these problems.

The rest of this report is organized as follows. Section 2 provides background on livelihoods focused CDD projects, describes the TRIPTI project intervention, and it lays out the main hypothesis. Sections 3 and 4 present our estimation strategy and data. Section 5 presents our key results, and section 6 concludes.

2. Background

Livelihoods interventions in India are complex, and multi-sectoral, and are often implemented in collaboration with different government line ministries. The core intervention of such projects facilitates participation in women's groups that focus on credit and savings. Credit and savings are,

however, the first of several interventions that follow. Almost all livelihoods projects include a strong training component, which supports a wide array of productive activities that include productivity improving investments, private transfers and marketing support. Several projects also implement a set of agriculture, food security, and health and nutrition related interventions.

TRIPTI, which was launched in 2009, is a World Bank assisted project implemented by Odisha Livelihood Mission (OLM). The OLM is an independent society that is housed in the Panchayati Raj Department of the Government of Odisha. TRIPTI was implemented in ten coastal (and relatively better of) districts of Orissa, which had hitherto received fewer externally aided projects compared to other districts in this state. Implemented in 38 blocks within these districts, TRIPTI aimed to reach out to 1010 Gram Panchayats and 30,000 self groups. While the Government of Orissa had initiated a formal SHG program its Mission Sakthi in 2001, it was acknowledged there remained challenges of exclusion of the poor from these SHGs along with the ability of these SHGs to sustainably reduce debt and to support diversification in livelihoods portfolios. (World Bank, 2009). TRIPTI was designed to address these challenges of inclusion, and limited productive potential.

TRIPTI was designed to be inclusive, and the core target population for the project was identified through a participatory identification process. This identification was based on a Situational Analysis, which collected basic information for a census of households in each village on demographics, assets, and livelihoods; and then used a participatory process to classify households into four groups. These groups were the “Extremely Poor and Vulnerable”, “Poor”, “Manageable” and “Well off”. The project then adopted a three-pronged strategy to enhance the productive potential of the poor. First, it invested in processes that empower the poor through building the institutional capacity of Community Based Organizations. At the core of this process of institution building lies the creation and strengthening of community level institutions or Self Help Groups (SHGs) at the level of the village. As part of this process, SHGs were aggregated into federations at the level of the Gram Panchayat (GPLF) and Blocks; trained in the management of group-based lending and a need-based prioritization of resource allocation within the federation; and linked with services that were provided by the public and private sectors in order to improve their productive potential. Second, the project attempted to improve the access of the poor to

credit through the provision of SHG grants called the Community Investment Funds (CIFs). It was intended that these CIFs would be used to meet the investment needs of its target poor, and that these needs would be identified through a facilitated process of micro investment planning. Third, the project linked these community funds with livelihoods interventions that focused on improving productivity. Finally, it was also envisaged that building peoples institutions of the poor would enable them to negotiate and bargain with market actors for better economic gains, and to subsequently negotiate with service providers (government, private sector, and civil society) for better service delivery.

Within each project district, the program covered the 4 least developed blocks. These TRIPTI or project blocks were chosen using a combination of objective poverty related criteria, as well as other factors that were to reflect the state of SHG penetration in and overall development of the block. In particular, program blocks were chosen on the basis of a 'backwardness' score, that weighted the following variables: (i) the population of the historically disadvantaged social groups – the Scheduled Castes and Tribes (SCs and STs) (double weight), (ii) the total population, (iii) the number of SHGs that had passed a rating and (ii) a composite development index [2] (double weight). All Gram Panchayat's (GPs) within a block were eligible to receive the program, and the take-up of the program was universal. Within each GP, all target households were considered to be eligible to receive program benefits.

Using data from our sample of GPLFs (collected at end line), we describe what this credit-centered intervention looks like in an average GP. GPLFs and SHGS under TRIPTI were of two types: those that were restructured under TRIPTI to fulfill inclusion mandates, and those that were formed under the project. The end line survey administered a brief survey to 58 GPLFs that were in the evaluation sample. 35 GPLFs had existed before TRIPTI started it activities, and were only restructured, and the remaining 23 GPLFs were started by TRIPTI. 60.6% of the members in restructured GPLFs were from the target poor and EPVG categories (2.6%); and 73.7% of members

[2] Computes from census data, this index was based on the the following variables: Density of population per Sq Km of area, percent of agriculture workers to total male workers, net area sown per agriculture worker, percent of net irrigated area to net area sown, percent of cropping intensity, percent literate, nmber of priary schools per one lakh population, percent of villages electrified, percent of problem villages provided with safe drinking water, number of medical institutions per lakh of population.

in the new GPLF s were from these categories (See Tables 1,2). About half all of SHGs (51% for old and 47% for new) report having completed their micro investment planning (MIP) processes. 28% of new SHGs and 69% of old SHGs were also linked to institutional sources of credit.

Given the focus of TRIPTI on credit, livelihoods, and productive capacities we evaluate the impact of these program components on the economic welfare of households, as measured by access to credit, savings, indebtedness, livelihoods, consumption expenditures, and asset portfolios. While the outcomes that we measure in this evaluation relate to Project Development Objectives (PDOs) that are specified in the official Project Appraisal Document (PAD), we cannot always use direct PAD indicators for these outcomes. This is because these indicators often focus on outputs rather than their intended outcomes. Outputs are typically measured through monitoring systems; and connection between outcomes and outputs in developing country contexts is often weak and tenuous. In addition measures like income cannot be accurately measured in the rural, developing country contexts. Impacts, therefore, are assessed on final outcomes that are observed at the household and community levels; and they are measured using standard welfare measures (for example, consumption measures are used to measure income poverty). Since the data that we use were collected explicitly for this evaluation, our surveys were designed to measure outcomes that the project sought to affect. To identify appropriate measures for these outcomes, we draw on findings and hypotheses in the literature that have been used to articulate theories of change for very similar interventions elsewhere.

Hypotheses on the individual empowerment effects are now fairly well established in evaluations of women centered SHG interventions (see for instance Cartwright et al., 2006, Banerjee et al., 2013; Khandekar & Pitt, 1998; Datta, 2013; Khanna et al 2013); and there is also evidence that suggests that these types of programs can empower women in the private and public spheres. (Sanyal, 2009, Blattman et al., 2011)). This evaluation of TRIPTI will therefore assess both the effect of the project on (i) household welfare, as measured by household indebtedness, livelihoods portfolios and consumption expenditures and (ii) women's empowerment within the household, and their participation local public action. The main indicators we examine are as presented in Table 5. Note that to limit the number of outcomes, we collapse many indicators in the survey into index form.

The impacts of CDD projects tend to vary across different socio-economic groups. This then suggests that there is a need to look at heterogeneous impacts, especially for social groups that are specifically targeted by the project (see for instance Chen et al., 2008; Deininger & Liu, 2009). We therefore also examine the heterogeneous effects of TRIPTI on two target groups that can be identified: the Scheduled Castes (SC) and Scheduled Tribes.

3. Evaluation Design and Identification strategy

This evaluation is based on a Regression Discontinuity Design (RDD) framework that exploits the program assignment rule in order to create a counterfactual or a scientifically valid non-project (control) group. The evaluation itself was designed in 2011, two years after the initiation of TRIPTI. Due to a phased roll out, the project had not started activities in more than 10% of its project area at this time; and areas where activities had commenced were dispersed in a few villages, across all project blocks.

The identification strategy relies on the program assignment rules that were used to identify TRIPTI's program blocks. In particular, it was decided that the 4 least developed blocks in each of the 10 districts would receive the intervention; and that a scoring criterion would be used to rank and choose these blocks from within the district. These scores – which are outlined in section 2 above and based on a set of indicators that measure human development indicators, delivery of health and education services, SC/ST population, total population, and SHG presence- therefore determined the assignment of blocks to the program (treatment block). Treatment and control blocks were determined as follows:

a. The program selection rules were based on objective, verifiable criterion. The selection procedure is outline below.
b. In each of the 10 districts where TRIPTI was to be operational, 4 blocks were to be chosen for treatment at the inception of the program
c. These blocks were to be chosen based on a measure of backwardness, or disadvantage.

d. The backwardness measure or criterion (which included block level development indices, total population and SC/ST Populations which were aggregated into an overall weighted block-level score) assigned backwardness scores to each block in chosen districts.
e. Program blocks then ranked in descending order of scores (with the highest score indicating the least developed block), and the 4 blocks with highest backwardness score wee chosen for the program.

This selection rule allows the possibility for a RDD design. Specifically, within each district, the non-program blocks that were chosen to be part of the evaluation sample were those that had the closest score to the program block with the lowest score (ie the last program block that was selected). In each of the 10 TRIPTI districts therefore, a pair of blocks- one block which was selected from the program (program or "treatment" blocks), and one block that was not selected for the program (non-program or "control" blocks) were chosen to be part of the evaluation sample.

Based on this selection procedure, 10 block pairs (20 blocks) where each pair had one treatment block and one control block were chosen into the evaluation. Treatment is universal at the level of the block, which implies that at sub-block units, or Gram Panchayats (GPs) receive TRIPTIs interventions. At the household level, since all households in a TRIPTI GP are ex-ante are eligible for PVP's credit, livelihood and empowerment interventions a household is considered 'intended for treatment' if it is in the project area. In addition, since TRIPTI explicitly targets the poor, who are overwhelmingly drawn from the Scheduled Caste and the Schedule Tribe groups, SC and ST households are systematically oversampled in every village in order to in order to accurately estimate the impact of this project.

We estimate the impact of the program using unconditional and conditional difference-in-differences specifications. These are as follows:

$$Y_{ihvdt} = \beta_0 + \beta_1 Treat_v + \beta_2 After_t + \beta_3 Treat_v \times After_t + D_d + \varepsilon_{ihvdt} \quad (1)$$

$$Y_{ihvdt} = \beta_0 + \beta_1 Treat_v + \beta_2 After_t + \beta_3 Treat_v * After_t + \beta_4 X_{ihvt} + D_d + \varepsilon_{ihvdt} \quad (2)$$

In equations (1) and (2), Y_{ihvdt} is an outcome variable for individual *i* in household *h* in village *v* and district *d.* The index *t* indexes time, i.e. whether the individual was observed during the baseline or end line surveys. $Treat_v$ is a dummy variable that takes value 1 if village v is a TRIPTI village, and 0 otherwise. The coefficient $\beta_1$measures pre-program differences between treatment and control areas prior to the start of the program. $After_t$ is a dummy variable that takes value 1 if the individual is interviewed in the endline survey, and 0 otherwise. β_2 measures the trend of the outcome variable between the start and end of the program. The interaction term, $Treat_v \times After_t$, is the interaction term that captures the intent-to-treat impact of the program. β_3 is thus the coefficient that measures program impact on the targeted population. D_d is a district-level fixed effect. All errors are clustered at the village level.

In equation (2) , X_{ihvt} is a vector of control variables. We include a variety of control variables for individual, household and village characteristics. These include age, a dummy for literacy, a dummy for SC status, a dummy for ST status, household size, the average age of the household, a dummy for landownership, the number of Sahis in the village, the population of the village, male agricultural wages, female agricultural wages and a dummy for the incidence of a natural disaster in the village in the preceding year. The interaction term, $Treat_v \times After_t$, is the interaction term that captures the intent-to-treat impact of the program, after we control for a variety of confounding factors.

We also run an Analysis of Covariance (ANCOVA), which involves controlling for the baseline (lagged) value of the outcome variable in the regression. ANCOVA estimates can have more power than the difference-in-differences when the level of autocorrelation between baseline and end line outcomes is low. These estimates are likely to be important for certain kinds of outcomes like household expenditures and women's empowerment.

Results of estimation of equation (1) and (2) are presented in and Tables 5 and 6. ANCOVA estimates are in Table 7 and Table 8.

4. Data

Our data come from two surveys commissioned by TRIPTI with technical assistance from the World Bank. An independent survey firm implemented both surveys. Data was collected from households in matched block pairs (one treatment and one control) from all 10 TRIPTI districts. The baseline survey was completed before the initiation of TRIPTI in the evaluation sample area, between September-November 2011; and the follow up survey was implemented over the same month in 2014. Out data therefore cover a 3-year period during which TRIPTI was in operation.

In each matched block pair, 15 GPs were sampled at random; and 2 villages were chosen at random within each GP. In single and two village GPs, all villages were sampled. In each village, the household questionnaire was administered to 15 households. Details on this sample are presented in table 1.

The general household module included an NSS type consumption module, and detailed information on the livelihoods portfolio and debt profile of households. In addition, a woman's module was administered to an adult married woman in each household. This module measured different metrics of women's empowerment, included questions on decision making within the household, and on women's participation in local public action. We also administered focus group discussions with the village in general, and women in the villages separately understand key elements related to local politics and collective action.

Due to some missing data, the baseline survey included a total of 2875 households[3] and the end line survey included a total of 2,874 households.[4] Our working sample is the total set of these

[3] The survey originally included 2,909 households, but 34 households were dropped because they were duplicates and 552 households were dropped because they were from GPs that were not part of the formal evaluation. These 20 GPs were chosen at random from the GPs that have entered the program already. Exclusion of these GPs was necessary to eliminate potential biases (for convenience, proximity to district capitals, quality of infrastructure etc) that could underlie their selection in the first phase of the SA.

[4] The survey originally included 2949 households, but 75 households were dropped because they were duplicates. 2 additional households were dropped because they were not in the baseline. An additional 571 households were dropped

households. In each round of the survey, each household is linked to village-level data from that round.[5] SC/ST households were oversampled as mentioned in the previous section, and they comprise a third of the sample in both TRIPTI and non-TRIPTI areas.

Table 4 displays baseline values, for key outcomes of interest. At baseline, 67.8% of households in project areas reported being SHG members compared to 74.3 % in non-project areas. 35% of households in project areas, and 31.4% in treatment also relied on SHGs for savings. Around 40% in both areas worked on their own land in the Kharif season, and 20% did so in the dry Rabi season. Agricultural labor was reported for roughly one-fifth of households in both seasons. Causal or unskilled labor was the next most important occupation, employing 44.1% of project and 37.5% non-project households at baseline. About two-thirds of the household budget was spent on food items , and a similar proportion of households had outstanding loans at this time. In both project and non-project areas, the most accessed government programs were pensions (30%) and the housing subsidy associated with Indira Awas Yojana (over 20%).

Table 4 shows that the baseline values are not significantly different across treatment and control for most variables. The variables that are not balanced reflect the slightly better off initial conditions in these non-project blocks. Our main outcomes of interest are however not statistically different at baseline.

5. Results

Our results indicate that TRIPTI has been successful in increasing SHG membership, and improving access to credit. Access to credit is measured by improved access to formal credit, and by a higher likelihood of outstanding loans. Though we find no significant differences in consumption expenditures, we find that proportion of expenditures reported by households in TRIPTI areas on healthcare, and on women and children's goods increased. Improved credit access also improved mobility of women in terms of being able to independently go to SHG meetings and banks. While we do not find more general evidence of increased agency of women within the household,

because they were from GPs that were not intended to be used in the formal evaluation of the program due to the prior presence of SHGs in the villages. These villages were included in the data collection sample for tracking purposes.

[5] 8 villages in the baseline household survey were not surveyed in the village-level survey.

women in TRIPTI areas are more likely to report taking action on some public problems, and to pursue institutional responses to these problems. We do not find any evidence of heterogeneous effects on SC and ST households[6].

We discuss the effects of TRIPTI on credit access, economic welfare, and empowerment effects in greater detail below. All results and magnitudes reported here are based on statistical significance at conventional levels in the ANCOVA specifications (table 7,8). The results are however consistent in magnitude and direction across both the specifications.

We also present a set of results that instrument for treatment by using SHG membership as an Instrumental variable in table 9. While noting that this is a weak instrument, because the first stage IV is *not significant*, these results are presented as the only defensible way of estimating impact on SHG members rather than on the average intended to treat household in TRIPTI program areas. When SHG membership is used as an instrument for program treatment (in the second stage), the results are entirely consistent with the results from the DID and ANCOVA estimates that use the intent to treat effect. The only variable that assumes significance under IV, but not under the other estimates is the likelihood of a household cultivating its own land in the rabi season. Given the weakness of the instrument itself, this additional finding has to be interpreted with caution.

5.1 Credit and Economic Welfare

Overall, we find that TRIPTI had first order impacts on access to credit. Households in TRIPTI areas were 7.7% more likely to report borrowing from formal or institutional credit sources, and 5% more likely to have an outstanding loans. This access to credit has come alongside a 21% increase in SHG membership in treatment areas relative to the control areas. TRIPTI households are also 2.7% more likely to save, and they are 15.5% more likely to report a reliance on SHGs as savings mechanism after the project intervention.

[6] In the interest of making the tables succinct, these results not reported here. They can be made available upon request.

Our results on improvement in the economic welfare are modest. On standard measures of consumption poverty (as measured by per capita food and non-food expenditures), and assets we find no significant differences between project and non-project areas. The composition of these expenditures are however different. In particular, households in program areas report significantly higher expenditure on healthcare per capita (303 INR more per capita per month). Households in TRIPTI areas also report a higher fraction of total budget spent on women and children's goods (2%).

There are no observable effects of TRIPTI on livelihood patterns. Households in program areas however report working 2 more days on the National Rural Employment Guarantee Scheme compared to households in non-program areas. The 100 days of work that can be accessed under this scheme is a household level entitlement that can be accessed by male or female members. In TRIPTI areas we find that women report working 1.8 days more on this card than in non TRIPTI areas. It should also be noted that the baseline value for participation are very low (less than 2 days) for both households, and women in these households.

5.2 Women's Empowerment

Our results on women's empowerment, as measured by their mobility outside the household, seem to be restricted to TRIPTI (and credit) focused activities. In particular, women in TRIPTI area are 17.8% more likely to go alone to an SHG meeting and 5.3% more likely visit a bank alone. This is however conditioned on them seeking permission to do so. We find that these women are 28.1% more likely to seek permission before leaving the house in general, 17.3% more likely to seek permission to go SHG meetings, and 8.5% more likely to seek permission to visit a bank. We find no effects on women's role into household decision-making. Decision-making is measured through an index of women's input into a set of intra-household decisions.

We also see some results on the reported likelihood of public action. In particular, we find that more women TRIPTI areas report that they are likely to pursue local public problems that relate to domestic violence and alcoholism (5.6%), the functioning of the Public Distribution System(4.9%) and with mid day meals served in schools (5.1%). An index of willingness to act on these problems

was higher by 8.1 points. We also see a 12.8-point increase in an index of willingness to pursue institutional responses to these community problems.

6. Discussion

This impact evaluation is one of a set of five evaluations in the World Bank's portfolio of livelihoods focussed CDD projects in India. The two evaluations that are complete used retrospective propensity score methods to assess the first phase of livelihoods focussed participatory projects in Bihar(the Jeevika project) and Tamil Nadu(the PVP project). These first phases covered a span of 5-6 years. While methodologically weaker than the evaluation gold standard of Randomized Control Trials and the second-best of RDD based evaluations, both these evaluations find significant effects on debt reduction, women's mobility and agency in intra household decisions. They also find evidence of women's participation in public action where these projects are linked to local governments, and some evidence on a shift in livelihoods portfolios (Datta, 2014, Khanna et al, 2015).

This evaluation of the Odisha Rural Livelihoods Project, which covers a three-year period, finds first order effects of improved participation in SHGs and access to credit with modest impacts. We also find results on some metrics of women's agency. In particular, we find evidence of a greater fraction of expenditure of women and children's goods, alongside some improvements in women's mobility. These improvement in mobility are however restricted in scope to activities that relate to credit access (going to SHG meetings, and visiting banks). We also find some evidence of a greater willingness to report problems in local service delivery; and a significant increase in willingness to pursue institutional action on these community problems.

Two similar evaluations, which focus on the second (and larger) phase of project operations, are currently ongoing. In Bihar, the Jeevika project is being evaluated using a RCT with mixed methods; and in Tamil Nadu, the PVP project is being evaluated using a RDD. Together, these 6 evaluations of large-scale interventions across different states of India - that have very different socio-economic contexts- can speak to the external validity of these results, and therefore reliably inform learning on the impacts of the portfolio of World Bank assisted livelihoods projects in India.

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TABLES AND FIGURES

TABLE 1: EVALUATION FRAMEWORK- INTENDED

	TREATMENT BLOCKS	CONTROL BLOCKS	TOTAL
Number of blocks	10	10	20
Number of VPs per block	4	4	80
Number of Villages per VP	2	2	160
Number of Households per village	15	15	2400

TABLE 2: INCLUSION IN GPLF

VULNERABILITY CATEGORY	GPLF MEMBERS		GPLF LEADERS	
	Before TRIPTI	**After TRIPTI**	**Before TRIPTI**	**After TRIPTI**
EPVG	2.6	1.7	5.4	2.9
Poor	58	72	3.1	4.3
Very Poor	2.4	0	0.17	0
Manageable/ Well-off	37	27	42	24

Table 3: BANK LINKAGE AND MIP COMPLETION

TYPE OF SHG	AVERAGE % OF SHGs IN CLF THAT ARE BANK LINKED	AVERAGE % OF SHGS IN CLF THAT HAVE COMPLETED MIP
Old SHGs	69	51
New SHGs	26	47

Table 4: TEST OF BALANCE BETWEEN TREATMENT AND CONTROL AREAS

	TREATMENT		CONTROL			
	N	Mean	N	Mean	Difference	P Value
Household has a sewing machine	1152	0.0304	1189	0.0378	-0.00746	0.320
Household has a kerosene stove	1152	0.203	1189	0.246	-0.0425	0.0139
Household has jewelry	1152	0.385	1189	0.394	-0.00903	0.654
Household has a mobile phone	1152	0.538	1189	0.537	0.000768	0.970
Expenses per-capita: Total (monthly)	1004	2410.7	1756	3006.4	-595.8	0.0185
Expenses per-capita: Food (monthly)	1035	1912.6	1808	2410.4	-497.8	0.0400
Expenses per-capita: Non-Food (monthly)	1004	439.0	1756	524.7	-85.63	0.000735
Expenses per woman on adult women's goods (annual)	999	759.7	1716	815.4	-55.61	0.0844
Expenses per child on children's goods (annual)	1004	167.5	1756	199.0	-31.54	0.0795
Expenses per capita: healthcare (annual)	1004	839.6	1756	948.0	-108.5	0.126
Fraction of household budget for food	1024	0.627	1800	0.615	0.0115	0.140
Fraction of household budget for women and child goods	1024	0.0307	1800	0.0312	-0.000564	0.571
Fraction of household budget on social expenses	1024	0.0615	1800	0.0736	-0.0122	0.0118
Expenditure on informal payments	1025	60.01	1800	45.57	14.44	0.215
Cultivate own land: Kharif	1127	0.431	1653	0.411	0.0205	0.283
Cultivate own land: Rabi	1127	0.215	1653	0.231	-0.0164	0.310
Agricultural labor: Kharif	1127	0.215	1653	0.221	-0.00669	0.676
Agricultural labor: Rabi	1127	0.211	1653	0.190	0.0212	0.169
Non-farm business: Kharif	1127	0.0692	1653	0.0702	-0.000965	0.922
Non-farm business: Rabi	1127	0.0710	1653	0.0768	-0.00585	0.565
Number of days worked on job card	1025	1.049	1801	0.715	0.334	0.183
Number of days woman is paid on job card	1025	1.464	1801	1.289	0.176	0.656
Household performs any casual labor	1153	0.441	1955	0.375	0.0657	0.000303
Household performs any skilled labor	1153	0.149	1955	0.123	0.0264	0.0359
Any one in the household has any outstanding loans	1055	0.614	1825	0.622	-0.00770	0.682
Total loans (Rs.)	1055	18846.5	1825	21863.2	-3016.8	0.140
Any institutional loans	1055	0.250	1825	0.210	0.0398	0.0137
Savings	1055	0.978	1825	0.964	0.0138	0.0380
Rely on SHG for savings	1055	0.350	1825	0.313	0.0363	0.0452
Belong to an SHG	1152	0.679	1613	0.742	-0.0633	0.000273
Benefit from SGSY	1055	0.00569	1825	0.00384	0.00185	0.475
Benefit from ICDS	1055	0.0645	1825	0.0723	-0.00787	0.423
Benefit from pension	1055	0.287	1825	0.301	-0.0136	0.441
Benefit from scholarship	1055	0.0190	1825	0.0132	0.00581	0.221
Annapurna	1152	0.0191	1189	0.0227	-0.00361	0.542

IndiraAwas2011	1152	0.233	1189	0.219	0.0140	0.419
Woman needs permission to leave home: shop	1025	0.265	1801	0.224	0.0416	0.0126
Woman needs permission to leave home: health center	1025	0.820	1801	0.820	0.000943	0.950
Woman needs permission to leave home: visit friend/relative	1025	0.860	1801	0.856	0.00485	0.723
Woman needs permission to leave home: Panchayat	1025	0.0322	1801	0.0339	-0.00167	0.811
Woman needs permission to leave home: SHG	1025	0.185	1801	0.193	-0.00730	0.634
Woman needs permission to leave home: Bank	1025	0.152	1801	0.156	-0.00383	0.787
Woman goes alone: store	1025	0.415	1801	0.397	0.0176	0.358
Woman goes alone: health center	1025	0.301	1801	0.275	0.0266	0.132
Woman goes alone: visit friend/relative	1025	0.358	1801	0.299	0.0588	0.00128
Woman goes alone: Panchayat	1025	0.0380	1801	0.0328	0.00529	0.460
Woman goes alone: SHG	1025	0.325	1801	0.300	0.0245	0.176
Woman goes alone: Bank	1025	0.113	1801	0.0905	0.0227	0.0522
SC	1152	0.255	1189	0.268	-0.0131	0.472
ST	1152	0.0807	1189	0.0572	0.0235	0.0245
SC participant in SHG	1152	0.172	1189	0.166	0.00619	0.689
ST participant in SHG	1152	0.0503	1189	0.0479	0.00241	0.788
HH Size	1035	5.212	1808	4.981	0.230	0.0146
Literate (Signs Name)	1025	0.650	1801	0.683	-0.0332	0.0710
Own Plot	1152	0.898	1189	0.901	-0.00319	0.798
BPL	1152	0.464	1189	0.445	0.0195	0.344
Number of sahis in village	1048	4.445	1128	5.580	-1.135	5.19e-09
Number of households in village	1048	171.3	1128	201.6	-30.24	0.000254
Fraction of sahi households pucca	944	0.307	1113	0.425	-0.117	9.89e-33
Male agricultural wages	1092	125.1	1143	124.8	0.316	0.810
Any recent natural disaster	1092	0.685	1143	0.710	-0.0246	0.207
Observations	3108					

TABLE 5: DFFERENCE IN DIFFRENCE ESTIMATES- UNCONDITIONAL

		Treatment X After		Treatment village		After		Constant
(1)	**Household has a sewing machine**	0.007	(0.010)	-0.007	(0.008)	0.001	(0.007)	0.038***
(2)	**Household has a kerosene stove**	0.074***	(0.028)	-0.043*	(0.025)	0.130***	(0.020)	0.246***
(3)	**Household has jewelry**	0.002	(0.034)	-0.008	(0.028)	-0.381***	(0.024)	0.394***
(4)	**Household has a mobile phone**	-0.015	(0.024)	0.000	(0.026)	0.254***	(0.018)	0.538***
(5)	**Expenses per-capita: Total (monthly)**	-232.628	(434.880)	147.831	(309.722)	390.307	(312.109)	2365.339***
(6)	**Expenses per-capita: Food (monthly)**	-250.617	(414.495)	144.118	(300.247)	312.882	(296.820)	1827.247***
(7)	**Expenses per-capita: Non-Food (monthly)**	44.230	(51.330)	-36.024	(32.072)	148.694***	(35.689)	478.487***
(8)	**Expenses per woman on adult women's goods (annual)**	8.969	(101.250)	27.094	(45.692)	173.986***	(63.289)	730.125***
(9)	**Expenses per child on children's goods (annual)**	124.982**	(53.092)	-57.780**	(26.078)	181.536***	(28.455)	219.437***
(10)	**Expenses per capita: healthcare (annual)**	255.927*	(142.888)	7.744	(76.229)	-203.254***	(77.567)	830.367***
(11)	**Fraction of household budget for food**	-0.029*	(0.016)	0.019*	(0.011)	0.090***	(0.010)	0.611***
(12)	**Fraction of household budget for women and child goods**	0.005**	(0.002)	-0.002	(0.001)	-0.011***	(0.001)	0.033***
(13)	**Fraction of household budget on social expenses**	0.016**	(0.007)	-0.012**	(0.006)	0.008	(0.005)	0.072***
(14)	**Expenditure on informal payments**	8.200	(45.864)	23.203*	(13.029)	-0.060	(8.914)	34.693***
(15)	**Cultivate own land: Kharif**	-0.017	(0.028)	0.044	(0.029)	-0.022	(0.019)	0.386***
(16)	**Cultivate own land: Rabi**	0.049	(0.032)	-0.031	(0.022)	-0.024	(0.021)	0.244***
(17)	**Agricultural labor: Kharif**	0.005	(0.030)	0.004	(0.024)	-0.064***	(0.022)	0.209***

(18)	**Agricultural labor: Rabi**	-0.041	(0.028)	0.051**	(0.023)	-0.049***	(0.018)	0.160***
(19)	**Non-farm business: Kharif**	-0.001	(0.016)	-0.005	(0.014)	-0.061***	(0.011)	0.074***
(20)	**Non-farm business: Rabi**	0.005	(0.016)	-0.011	(0.014)	-0.068***	(0.012)	0.082***
(21)	**Number of days worked on job card**	1.917***	(0.665)	0.186	(0.429)	-0.371	(0.369)	0.799**
(22)	**Number of days woman is paid on job card**	1.555*	(0.831)	0.132	(0.481)	0.256	(0.499)	1.222***
(23)	**Household performs any casual labor**	-0.030	(0.033)	0.032	(0.027)	-0.051**	(0.022)	0.408***
(24)	**Household performs any skilled labor**	0.012	(0.027)	-0.004	(0.018)	0.169***	(0.018)	0.153***
(25)	**Any one in the household has any outstanding loans**	0.060*	(0.032)	-0.006	(0.025)	0.120***	(0.023)	0.619***
(26)	**Total loans (Rs.)**	10910.990**	(4830.082)	-5915.214**	(2771.762)	9989.416***	(3545.059)	24553.803**
(27)	**Any institutional loans**	0.065**	(0.026)	0.027	(0.022)	0.133***	(0.019)	0.216***
(28)	**Savings**	0.001	(0.014)	0.023**	(0.010)	0.004	(0.011)	0.957***
(29)	**Rely on SHG for savings**	0.152***	(0.029)	0.072***	(0.026)	0.015	(0.017)	0.283***
(30)	**Belong to an SHG**	0.207***	(0.051)	0.024	(0.035)	-0.325***	(0.033)	0.653***
(31)	**Would report to institution: Alcoholism**	0.102***	(0.033)	-0.040*	(0.023)	-0.067***	(0.024)	0.281***
(32)	**Would report to institution: Dealer shop is closed**	0.003	(0.034)	0.046**	(0.022)	-0.025	(0.023)	0.236***
(33)	**Would report to institution: Midday meal problems**	0.031	(0.033)	0.026	(0.021)	-0.037	(0.023)	0.261***
(34)	**Woman needs permission to leave home: Panchayat**	0.018	(0.014)	0.001	(0.008)	0.029***	(0.008)	0.029***
(35)	**Woman needs permission to leave home: SHG**	0.168***	(0.029)	0.012	(0.021)	0.047***	(0.018)	0.177***
(36)	**Woman needs permission to leave home: Bank**	0.084***	(0.027)	0.007	(0.019)	0.020	(0.017)	0.144***
(37)	**Woman goes alone: Panchayat**	-0.007	(0.015)	0.008	(0.009)	0.048***	(0.010)	0.028***
(38)	**Woman goes alone: SHG**	0.142***	(0.029)	0.044*	(0.025)	-0.001	(0.018)	0.284***
(39)	**Woman goes alone: Bank**	0.035	(0.024)	0.019	(0.017)	0.046***	(0.016)	0.093***

(40)	**Index: Need permission to leave the home**	0.233***	(0.077)	0.067	(0.054)	-0.075	(0.045)	-0.065*
(41)	**Index: Willingness to act on community problems**	-0.068	(0.083)	0.169***	(0.054)	0.014	(0.060)	-0.067*
(42)	**Index: Institutional responses to community problems**	0.062	(0.075)	0.072	(0.045)	-0.056	(0.054)	-0.007
(43)	**Index: Willingness to use SHG to act on community problems**	0.006	(0.093)	0.025	(0.055)	-0.025	(0.061)	0.017
(44)	**Index: Freedom to visit alone**	0.044	(0.070)	0.097*	(0.057)	-0.009	(0.043)	-0.054
(45)	**Index: Civic Action**	0.093	(0.068)	-0.084	(0.052)	-0.046	(0.049)	0.039
(46)	**Index: Reliance on government programs**	0.031	(0.049)	0.035	(0.057)	-0.009	(0.034)	-0.020
(47)	**Index: Input in household decision making**	-0.046	(0.081)	0.055	(0.056)	0.042	(0.059)	-0.046

Table 6: DFFERENCE IN DIFFRENCE ESTIMATES-CONDITIONAL

		Treatment X After		R-squared	N
(1)	**Household has a sewing machine**	0.014	(0.011)	0.017	4266
(2)	**Household has a kerosene stove**	0.059*	(0.031)	0.139	4266
(3)	**Household has jewelry**	-0.005	(0.035)	0.327	4266
(4)	**Household has a mobile phone**	-0.040	(0.026)	0.199	4266
(5)	**Expenses per-capita: Total (monthly)**	-461.358	(431.409)	0.064	4075
(6)	**Expenses per-capita: Food (monthly)**	-483.900	(418.012)	0.058	4264
(7)	**Expenses per-capita: Non-Food (monthly)**	14.664	(49.919)	0.059	4075
(8)	**Expenses per woman on adult women's goods (annual)**	21.498	(105.950)	0.074	4186
(9)	**Expenses per child on children's goods (annual)**	142.695**	(55.286)	0.056	4238
(10)	**Expenses per capita: healthcare (annual)**	307.396**	(151.323)	0.026	4246
(11)	**Fraction of household budget for food**	-0.032**	(0.015)	0.153	4047
(12)	**Fraction of household budget for women and child goods**	0.005**	(0.002)	0.099	4047
(13)	**Fraction of household budget on social expenses**	0.014**	(0.007)	0.086	4047
(14)	**Expenditure on informal payments**	8.308	(43.360)	0.007	4244
(15)	**Cultivate own land: Kharif**	-0.022	(0.032)	0.077	4225
(16)	**Cultivate own land: Rabi**	0.079**	(0.033)	0.050	4225
(17)	**Agricultural labor: Kharif**	0.026	(0.031)	0.103	4225
(18)	**Agricultural labor: Rabi**	-0.024	(0.028)	0.088	4225
(19)	**Non-farm business: Kharif**	0.006	(0.016)	0.060	4225
(20)	**Non-farm business: Rabi**	0.013	(0.016)	0.063	4225
(21)	**Number of days worked on job card**	2.122***	(0.689)	0.035	4266
(22)	**Number of days woman is paid on job card**	1.857**	(0.862)	0.026	4266
(23)	**Household performs any casual labor**	-0.054	(0.034)	0.109	4266
(24)	**Household performs any skilled labor**	0.004	(0.028)	0.082	4266
(25)	**Any one in the household has any outstanding loans**	0.095***	(0.031)	0.094	4265
(26)	**Total loans (Rs.)**	10070.896**	(4973.387)	0.040	4255
(27)	**Any institutional loans**	0.085***	(0.027)	0.110	4265
(28)	**Savings**	0.003	(0.014)	0.057	4265
(29)	**Rely on SHG for savings**	0.186***	(0.031)	0.143	4265
(30)	**Belong to an SHG**	0.219***	(0.047)	0.185	4266
(31)	**Would report to institution: Alcoholism**	0.099***	(0.033)	0.036	4266
(32)	**Would report to institution: Dealer shop is closed**	-0.014	(0.033)	0.124	4266

(33)	**Would report to institution: Midday meal problems**	0.014	(0.032)	0.123	4266
(34)	**Woman needs permission to leave home: Panchayat**	0.022	(0.015)	0.021	4266
(35)	**Woman needs permission to leave home: SHG**	0.182***	(0.030)	0.103	4266
(36)	**Woman needs permission to leave home: Bank**	0.101***	(0.027)	0.051	4266
(37)	**Woman goes alone: Panchayat**	-0.002	(0.015)	0.024	4266
(38)	**Woman goes alone: SHG**	0.161***	(0.031)	0.092	4266
(39)	**Woman goes alone: Bank**	0.045*	(0.024)	0.059	4266
(40)	**Index: Need permission to leave the home**	0.257***	(0.076)	0.077	4266
(41)	**Index: Willingness to act on community problems**	-0.065	(0.081)	0.116	4266
(42)	**Index: Institutional responses to community problems**	0.013	(0.072)	0.089	4266
(43)	**Index: Willingness to use SHG to act on community problems**	-0.066	(0.089)	0.122	4266
(44)	**Index: Freedom to visit alone**	0.054	(0.072)	0.039	4266
(45)	**Index: Civic Action**	0.093	(0.070)	0.057	4266
(46)	**Index: Reliance on government programs**	0.003	(0.038)	0.659	4265
(47)	**Index: Input in household decision making**	-0.045	(0.079)	0.077	4266

Table 7: ANCOVA ESTIMATES- UNCONDITIONAL

		Treatment		R-squared	N
(1)	**Household has a sewing machine**	0.002	(0.008)	0.081	2333
(2)	**Household has a kerosene stove**	0.040*	(0.022)	0.111	2333
(3)	**Household has jewelry**	-0.007*	(0.004)	0.009	2333
(4)	**Household has a mobile phone**	-0.014	(0.019)	0.115	2333
(5)	**Expenses per-capita: Total (monthly)**	-111.927	(255.398)	0.104	1886
(6)	**Expenses per-capita: Food (monthly)**	-167.718	(237.231)	0.107	2125
(7)	**Expenses per-capita: Non-Food (monthly)**	-0.830	(46.417)	0.026	1886
(8)	**Expenses per woman on adult women's goods (annual)**	20.476	(91.198)	0.090	1995
(9)	**Expenses per child on children's goods (annual)**	89.458*	(52.189)	0.032	2044
(10)	**Expenses per capita: healthcare (annual)**	278.698**	(128.896)	0.012	2056
(11)	**Fraction of household budget for food**	-0.008	(0.008)	0.092	1901
(12)	**Fraction of household budget for women and child goods**	0.003**	(0.001)	0.139	1901
(13)	**Fraction of household budget on social expenses**	0.003	(0.005)	0.100	1901
(14)	**Expenditure on informal payments**	33.811	(46.308)	0.006	2094
(15)	**Cultivate own land: Kharif**	0.014	(0.023)	0.214	2258
(16)	**Cultivate own land: Rabi**	0.029	(0.022)	0.070	2258
(17)	**Agricultural labor: Kharif**	0.019	(0.018)	0.069	2258
(18)	**Agricultural labor: Rabi**	0.016	(0.015)	0.086	2258
(19)	**Non-farm business: Kharif**	-0.004	(0.004)	0.009	2258
(20)	**Non-farm business: Rabi**	-0.005	(0.004)	0.011	2258
(21)	**Number of days worked on job card**	2.377***	(0.616)	0.041	2117
(22)	**Number of days woman is paid on job card**	1.922**	(0.776)	0.020	2117
(23)	**Household performs any casual labor**	-0.003	(0.023)	0.114	2342
(24)	**Household performs any skilled labor**	0.012	(0.023)	0.050	2342
(25)	**Any one in the household has any outstanding loans**	0.055***	(0.020)	0.044	2169
(26)	**Total loans (Rs.)**	6278.690	(4594.157)	0.067	2163
(27)	**Any institutional loans**	0.082***	(0.025)	0.094	2169
(28)	**Savings**	0.027***	(0.009)	0.060	2169
(29)	**Rely on SHG for savings**	0.215***	(0.026)	0.230	2169
(30)	**Belong to an SHG**	0.229***	(0.028)	0.116	2333
(31)	**Would report to institution: Alcoholism**	0.056***	(0.020)	0.053	2117

(32)	**Would report to institution: Dealer shop is closed**	0.041**	(0.020)	0.032	2117
(33)	**Would report to institution: Midday meal problems**	0.046**	(0.020)	0.045	2117
(34)	**Woman needs permission to leave home: Panchayat**	0.019	(0.012)	0.010	2117
(35)	**Woman needs permission to leave home: SHG**	0.179***	(0.024)	0.090	2117
(36)	**Woman needs permission to leave home: Bank**	0.087***	(0.020)	0.052	2117
(37)	**Woman goes alone: Panchayat**	0.001	(0.013)	0.013	2117
(38)	**Woman goes alone: SHG**	0.177***	(0.025)	0.126	2117
(39)	**Woman goes alone: Bank**	0.049***	(0.018)	0.042	2117
(40)	**Index: Need permission to leave the home**	0.296***	(0.045)	0.103	2117
(41)	**Index: Willingness to act on community problems**	0.064	(0.049)	0.045	2117
(42)	**Index: Institutional responses to community problems**	0.105**	(0.048)	0.035	2117
(43)	**Index: Willingness to use SHG to act on community problems**	0.001	(0.047)	0.049	2117
(44)	**Index: Freedom to visit alone**	0.126***	(0.048)	0.062	2117
(45)	**Index: Civic Action**	0.014	(0.050)	0.036	2117
(46)	**Index: Reliance on government programs**	0.038	(0.043)	0.282	2169
(47)	**Index: Input in household decision making**	0.003	(0.047)	0.048	2117

Table 8: ANCOVA ESTIMATES: CONDITIONAL

		Treatment		R-squared	N
(1)	**Household has a sewing machine**	0.004	(0.008)	0.092	2333
(2)	**Household has a kerosene stove**	0.041*	(0.022)	0.135	2333
(3)	**Household has jewelry**	-0.007*	(0.004)	0.016	2333
(4)	**Household has a mobile phone**	-0.006	(0.016)	0.197	2333
(5)	**Expenses per-capita: Total (monthly)**	-1.715	(279.341)	0.122	1886
(6)	**Expenses per-capita: Food (monthly)**	-83.469	(259.389)	0.120	2125
(7)	**Expenses per-capita: Non-Food (monthly)**	11.365	(44.606)	0.063	1886
(8)	**Expenses per woman on adult women's goods (annual)**	73.280	(97.527)	0.104	1995
(9)	**Expenses per child on children's goods (annual)**	85.098	(55.326)	0.060	2044
(10)	**Expenses per capita: healthcare (annual)**	303.954**	(128.600)	0.024	2056
(11)	**Fraction of household budget for food**	-0.005	(0.009)	0.120	1901
(12)	**Fraction of household budget for women and child goods**	0.002	(0.001)	0.170	1901
(13)	**Fraction of household budget on social expenses**	0.001	(0.005)	0.107	1901
(14)	**Expenditure on informal payments**	31.040	(41.311)	0.010	2094
(15)	**Cultivate own land: Kharif**	0.001	(0.023)	0.236	2258
(16)	**Cultivate own land: Rabi**	0.015	(0.022)	0.083	2258
(17)	**Agricultural labor: Kharif**	0.020	(0.017)	0.104	2258
(18)	**Agricultural labor: Rabi**	0.019	(0.014)	0.101	2258
(19)	**Non-farm business: Kharif**	-0.006	(0.004)	0.022	2258
(20)	**Non-farm business: Rabi**	-0.007	(0.004)	0.023	2258
(21)	**Number of days worked on job card**	2.212***	(0.592)	0.047	2117
(22)	**Number of days woman is paid on job card**	1.807**	(0.776)	0.026	2117
(23)	**Household performs any casual labor**	-0.024	(0.021)	0.142	2333
(24)	**Household performs any skilled labor**	0.018	(0.022)	0.077	2333
(25)	**Any one in the household has any outstanding loans**	0.051**	(0.021)	0.056	2169
(26)	**Total loans (Rs.)**	5426.002	(4667.273)	0.080	2163
(27)	**Any institutional loans**	0.077***	(0.025)	0.121	2169
(28)	**Savings**	0.023***	(0.008)	0.072	2169
(29)	**Rely on SHG for savings**	0.207***	(0.025)	0.250	2169
(30)	**Belong to an SHG**	0.224***	(0.027)	0.154	2333
(31)	**Would report to institution: Alcoholism**	0.056***	(0.020)	0.071	2117
(32)	**Would report to institution: Dealer shop is closed**	0.049**	(0.020)	0.053	2117
(33)	**Would report to institution: Midday meal problems**	0.051**	(0.020)	0.072	2117
(34)	**Woman needs permission to leave home: Panchayat**	0.016	(0.012)	0.020	2117

(35)	**Woman needs permission to leave home: SHG**	0.173***	(0.023)	0.115	2117
(36)	**Woman needs permission to leave home: Bank**	0.085***	(0.019)	0.077	2117
(37)	**Woman goes alone: Panchayat**	0.002	(0.014)	0.022	2117
(38)	**Woman goes alone: SHG**	0.178***	(0.024)	0.153	2117
(39)	**Woman goes alone: Bank**	0.053***	(0.017)	0.064	2117
(40)	**Index: Need permission to leave the home**	0.281***	(0.042)	0.131	2117
(41)	**Index: Willingness to act on community problems**	0.081*	(0.048)	0.080	2117
(42)	**Index: Institutional responses to community problems**	0.128***	(0.049)	0.060	2117
(43)	**Index: Willingness to use SHG to act on community problems**	0.003	(0.045)	0.061	2117
(44)	**Index: Freedom to visit alone**	0.137***	(0.048)	0.075	2117
(45)	**Index: Civic Action**	0.024	(0.049)	0.079	2117
(46)	**Index: Reliance on government programs**	0.029	(0.028)	0.644	2169
(47)	**Index: Input in household decision making**	-0.001	(0.045)	0.090	2117

Table 9: USING SHG MEMBERSHIP AN INSTRUMENT FOR TREATMENT

		Belong to an SHG		R-squared	N
(1)	Household has a sewing machine	0.064	(0.050)	-0.001	4266
(2)	Household has a kerosene stove	0.269*	(0.144)	0.088	4266
(3)	Household has jewelry	-0.024	(0.160)	0.327	4266
(4)	Household has a mobile phone	-0.182	(0.126)	0.161	4266
(5)	Expenses per-capita: Total (monthly)	-2021.554	(1911.673)	0.050	4075
(6)	Expenses per-capita: Food (monthly)	-2205.986	(1932.744)	0.040	4264
(7)	Expenses per-capita: Non-Food (monthly)	64.256	(217.217)	0.059	4075
(8)	Expenses per woman on adult women's goods (annual)	95.843	(469.712)	0.072	4186
(9)	Expenses per child on children's goods (annual)	650.929**	(281.962)	-0.044	4238
(10)	Expenses per capita: healthcare (annual)	1402.711*	(741.558)	-0.055	4246
(11)	Fraction of household budget for food	-0.138**	(0.069)	0.061	4047
(12)	Fraction of household budget for women and child goods	0.022**	(0.011)	-0.040	4047
(13)	Fraction of household budget on social expenses	0.062*	(0.032)	0.037	4047
(14)	Expenditure on informal payments	37.413	(193.107)	0.008	4244
(15)	Cultivate own land: Kharif	-0.099	(0.148)	0.065	4225
(16)	Cultivate own land: Rabi	0.362**	(0.180)	-0.110	4225
(17)	Agricultural labor: Kharif	0.120	(0.148)	0.090	4225
(18)	Agricultural labor: Rabi	-0.109	(0.128)	0.070	4225
(19)	Non-farm business: Kharif	0.026	(0.071)	0.057	4225
(20)	Non-farm business: Rabi	0.058	(0.073)	0.046	4225
(21)	Number of days worked on job card	9.668***	(3.676)	-0.154	4266
(22)	Number of days woman is paid on job card	8.463**	(4.209)	-0.038	4266
(23)	Household performs any casual labor	-0.245	(0.169)	0.038	4266
(24)	Household performs any skilled labor	0.017	(0.129)	0.083	4266
(25)	Any one in the household has any outstanding loans	0.434***	(0.167)	-0.020	4265
(26)	Total loans (Rs.)	45610.885*	(24889.145)	-0.019	4255
(27)	Any institutional loans	0.387***	(0.138)	0.053	4265
(28)	Savings	0.014	(0.063)	0.060	4265
(29)	Rely on SHG for savings	0.849***	(0.187)	0.339	4265
(30)	Belong to an SHG	1.000***	(0.000)	1.000	4266
(31)	Would report to institution: Alcoholism	0.449**	(0.175)	-0.121	4266
(32)	Would report to institution: Dealer shop is closed	-0.063	(0.153)	0.108	4266
(33)	Would report to institution: Midday meal problems	0.065	(0.143)	0.129	4266
(34)	Woman needs permission to leave home:	0.099	(0.070)	0.009	4266

	Panchayat				
(35)	**Woman needs permission to leave home: SHG**	0.828***	(0.184)	0.035	4266
(36)	**Woman needs permission to leave home: Bank**	0.459***	(0.145)	-0.078	4266
(37)	**Woman goes alone: Panchayat**	-0.008	(0.070)	0.022	4266
(38)	**Woman goes alone: SHG**	0.731***	(0.175)	0.246	4266
(39)	**Woman goes alone: Bank**	0.207*	(0.113)	0.066	4266
(40)	**Index: Need permission to leave the home**	1.170***	(0.388)	0.028	4266
(41)	**Index: Willingness to act on community problems**	-0.298	(0.384)	0.077	4266
(42)	**Index: Institutional responses to community problems**	0.060	(0.327)	0.092	4266
(43)	**Index: Willingness to use SHG to act on community problems**	-0.302	(0.419)	0.090	4266
(44)	**Index: Freedom to visit alone**	0.244	(0.328)	0.076	4266
(45)	**Index: Civic Action**	0.426	(0.336)	0.051	4266
(46)	**Index: Reliance on government programs**	0.012	(0.175)	0.659	4265
(47)	**Index: Input in household decision making**	-0.207	(0.366)	0.060	4266

Table 7: DEFINITION OF VARIABLES

HOUSEHOLD ASSETS	Sewing machine	Kerosene stove
	Jewelry	Mobile phone
HOUSEHOLD EXPENSES	Expenses per-capita: Total (monthly)	
	Expenses per-capita: Food (monthly)	
	Expenses per woman on adult women's goods (annual)	
	Expenses per child on children's goods (annual)	
	Expenses per capita: healthcare (annual)	
	Fraction of household budget for food	
	Fraction of household budget for women and child goods	
	Fraction of household budget for social events	
EMPLOYMENT AND LIVELIHOODS	Cultivate own land: Kharif	Cultivate own land: Rabi
	Agricultural labor: Kharif	Agricultural labor: Rabi
	Non-farm business: Kharif	Non-farm business: Rabi
	Number of days worked on job card	
CREDIT	Household has outstanding loans	Total loans (Rs.)
	Any institutional loans	Savings
	Rely on SHG for savings	Belong to an SHG
PARTICIPATION IN COLLECTIVE ACTION	Would report to institution: Alcoholism	
	Would report to institution: Dealer shop is closed	
	Would report to institution: Midday meal problems	
	Woman needs permission to leave home: Panchayat	
	Woman needs permission to leave home: SHG	
	Woman needs permission to leave home: Bank	
	Woman goes alone: Panchayat	
	Woman goes alone: SHG	Woman goes alone: Bank
INDICES	Index 1: Need permission to leave the home	
	Index 2: Willingness to act on community problems	
	Index 3: Institutional responses to community problems	
	Index 4: Willingness to use SHG for community problems	
	Index 5: Freedom to visit alone	
	Index 6: Civic Action	
	Index 7: Reliance on government programs	
	Index 8: Input in household decision making	

NOTES: All indices are constructed the index using principal-components analysis in STATA 15 using the command "factor". **Index 1** includes dummy variables that take value 1 if the woman needs permission to visit (a) a shop; (b) a health center; (c) the Panchayat; (d) an SHG and (e) a bank**. Index 2** includes dummy variables that take value 1 if a woman reports a willingness to act on (a) closure of the local PDS shop, (b) problems with the mid-day meal program at the local school, (c) a case of domestic violence; and (d) alcoholism within the village. **Index 3** includes dummy variables that take value 1 if a woman is willing to take any institutional action on the issues listed in Index 2. **Index 4** includes dummy variables that take value 1 if a woman is willing to use an SHG to take action on the issues listed in Index 2. **Index 5** includes dummy variables that take value 1 if a woman reports that she is able to travel alone to (a) a shop; (b) health-center; (c) Panchayat; (d) SHG and (e) a bank. **Index 6** includes dummy variables that take value 1 in the following cases: (a) Woman knows the Gram Sabha; (b) Woman attends the Gram Sabha; (c) Woman knows the name of the Prime Minister; (d) Woman voted in the Panchayat election. **Index 7** includes dummy variables that take value 1 if a woman receives benefits from the following government programs: (a) SGSY, (b) ICDS, (c) MoKudia, (d) Pension, (e) Scholarship, (f) BPL, (g) Annapurna, and (h) Antodaya. **Index 8** includes dummy variables that take value 1 if a woman reports input in the following areas of household decision

making: (a) purchase of consumer durables, (b) purchase of personal items for herself, (c) education of children, (d) Livelihood activities of the primary income earner of the household, and (e) politics.