Evaluating Tamil Nadu Empowerment and Poverty Alleviation (Pudhu Vaazhvu) Project, Additional Financing Blocks

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Abstract

This paper uses a Regression Discontinuity Design to evaluate the difference in performance of two women's empowerment and livelihoods focused Community Driven Development Programs. The study takes place in Tamil Nadu and compares the Pudhu Vaazvhu Project (PVP) to the Tamil Nadu State Rural Livelihoods Mission (TNSLRM) from 2012 to 2016. Both projects are women centric anti-poverty programs, and have the same institutional structure. Our results suggest that PVP has higher first order impacts with better access to credit and savings than TNSRLM. We see no differences in impacts on economic welfare, women's empowerment, or political participation. We use a triple difference approach to find that longer exposure to PVP leads to decline in economic and welfare impacts.

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1. Introduction

Over the last fifteen years, participatory projects have become an increasingly popular anti-poverty and sustainable development tool. The World Bank alone has invested 85 billion USD in participatory community driven development projects (CDD) (Mansuri & Rao, 2012). CDD projects tend to operate on principles of accountability, empowerment, community participation and transparency. Over time, the World Bank has supported CDD projects that target a range of interventions such as providing access to credit for livelihoods and micro-enterprises, improving women's agency and participation in local government, education, and infrastructure construction, in an effort to reduce poverty.

The empirical evidence on CDD projects is mixed[1]. This body of evidence finds that (i) the poverty impact of CDD projects that focus more on local infrastructure ranges from no impact to limited impacts for certain groups (see- Arcand & Bassole, 2007, Chen, Mu, & Ravallion, 2008, Park & Wang, 2010 and Voss, 2008), and (ii) that individual components of CDD projects that focus more on livelihoods (credit, skills) show some positive potential (see- Gine & Mansuri, 2011 and Blattman, Fiala, & Martinez, 2011). Each of these evaluations examines the poverty, participatory, or component-specific impacts of these projects, rather than the impact of CDD programs in and of themselves.

The Government of India uses CDD projects as a poverty reduction and livelihoods creation tool. Through the National Rural Livelihoods Mission (NRLM), it has spent over 6

[1] For a detailed literature review of livelihoods-based CDD projects, refer to Khanna et al. (2015). In this paper, we limit the literature to evidence on livelihoods projects in India, which are similar to the Pudhu Vaazhvu project in design and implementation

billion USD on state-wide programs till date. Under NRLM, each state rolls out its implementation in multiple phases, where on average the first phase is used as a resource model while the second phase uses learnings from the first phase to scale up rapidly.

We have mixed evidence on livelihoods focussed CDD projects in India. Deininger & Liu (2009) use propensity score matching (PSM) to find universal empowerment effects, but limited economic impacts on self-help group (SHG) members in Andhra Pradesh. Joshi, et al. (2015) find that households have greater access to credit and higher rates of SHG membership under Odisha's TRIPTI program. Datta (2015) uses retrospective PSM to evaluate the first phase of JEEViKA, a CDD program in Bihar, that finds significant effects on indicators of women's empowerment and a shift in households preferences towards low-cost debt instruments[2]. A randomized evaluation of JEEViKA's second phase, finds a reduction in the prevalence of informal lenders and significant positive results on a household's asset holdings. However, impacts on indicators of women's empowerment were mixed, and the evaluation showed no impact on consumption expenditures (Hoffman, et al., 2017).

A retrospective PSM evaluation of the first phase of the Pudhu Vaazhvu Project (PVP), a World Bank implemented livelihoods CDD project in Tamil Nadu, found that it was successful in improving broad-based measures of socio-economic welfare (23.4% lower in high cost debt and asset index higher by 0.23-units) of poor households (Khanna et. al. 2015). The evaluation also found a shift in the livelihoods portfolios of poor households towards more skilled jobs

[2] JEEViKA- the Bihar Rural Livelihoods Project, TRIPTI- the Odisha Rural Livelihoods Project, and PVP- the Tamil Nadu Empowerment and Poverty Alleviation (Pudhu Vaazhvu) Project are World Bank funded women-centric CDD projects, that aim to improve livelihoods of the poor and vulnerable, with a larger objective to eliminate poverty.

(31.5% higher) and statistically significant effects on women's empowerment both within and outside the household, in addition to an increase in women's participation in deliberative forums of local government.

Evaluations of CDD program's in India tend to have significant first-order impacts during initial stages and limited results during its second phases. There are limited studies that cover multiple phases of program implementation and this paper aims to complete a set of evaluations conducted to assess PVP's impact on social and economic welfare and how it sustains over time.

The rapid expansion of the NRLM program meant that areas demarked as control areas for the PVP evaluation became intervention areas for the Tamil Nadu State Rural Livelihoods Mission (TNSRLM). We could not therefore, develop a pure control group against which to assess the impact of additional financing blocks of PVP. This paper uses a Regression Discontinuity Design, to present the additional impact the PVP program has in comparison to TNSRLM.

Our results suggest higher first order impacts on access to credit and savings in PVP areas relative to TNSRLM areas. However, we find no significant impact differences on poverty measures such as consumption expenditure, household asset holdings, economic welfare, or women empowerment. Moreover, an additional year of PVP's presence in the village (relative to TNSRLM) leads to a decline in impacts, if any, on reduction in open defecation, political participation of the household, and some indicators of women empowerment, like mobility and propensity to approach female networks when faced with community problems.

The rest of this paper is organised as follows. Section 2 provides a background on PVP, TNSRLM and their institutional contexts, and lays out the main hypothesis that we examine, Sections 3 and 4 present our methodology and data respectively. Section 5 presents our key results, and Section 6 concludes.

2. Background

Large-scale, community driven projects that focus on livelihoods implement a range of interventions that include women's empowerment activities, food security and nutrition programs as well as access to low-cost credit. They also facilitate interventions that focus on youth employment, demand and supply linkages for CBOs, and agriculture productivity. These projects are therefore complex, and are implemented by various government departments at different levels.

A typical livelihoods project organizes various beneficiaries and stakeholders into community based organizations (CBOs) in every village. These CBOs are most commonly self-help groups (SHG) of women that are federated at the village, block/sub-district and district levels. The village level organization, which is a federation of SHG members from different SHGs in the village, is the primary implementing unit of these large-scale CDD livelihoods projects.

These multiple interventions and federations aim to affect a range of multidimensional outcomes. Due to its demand-driven design these livelihoods projects vary across different socio-

economic contexts despite being implemented under a single overarching programme. PVP and TNSRLM are examples of such large-scale multidimensional programs. Section 2.1 describes the institutional context for the two projects and Section 2.2 outlines our hypothesis and choice of outcomes for this evaluation.

2.1 Institutional Context

The Tamil Nadu Pudhu Vaazhvu Project (PVP), launched in 2005, is a women's empowerment and poverty reduction program implemented by the Government of Tamil Nadu, with assistance from the World Bank. PVP's first phase covered 2300 Village Panchayats (VPs) in 70 blocks/sub-district units, in 16 districts of Tamil Nadu. The project scaled up during its second phase in 2012 to cover 1665 VPs in 46 blocks in the remaining 14 districts via additional financing from the World Bank.

Tamil Nadu has an active history of using SHG groups for anti-poverty projects. SHG formation was initiated in the state in the 1980's by NGOs and the National Bank for Agriculture and Rural Development, later consolidated under 'Mahalir Thittam' an initiative of the government, to cover three million women. PVP was designed to address the drawbacks of these earlier programs namely, exclusion of caste groups and missing linkages between SHGs and local governments. A key feature of PVP is therefore, to make Community Based Organizations (CBOs) more inclusive by targeting the poorest and most vulnerable households in villages. To ensure the program targeted the poorest of the poor, blocks or sub-districts were chosen based on a poverty 'backwardness' score that uses poverty measures as well as other indicators that reflect the development status of the block. This score was constructed using the number of households

belonging to disadvantaged groups such as Scheduled Castes and Tribes (SCs and STs) and the number of below the poverty line households. This set of metrics are known as the *population criterion.* In phase two areas, the 'backwardness' score, was composed of five equally weighted indicators- percentage of unirrigated area to the total cultivable land, infant mortality rate, an industrial backwardness score, rural female literacy rates, and percentage of SC-ST populations in the block. Project blocks were chosen based on a descending order of scores. All VPs within every selected block were eligible for the PVP program.

The institutional structure of PVP consists of CBOs that are federated at various levels to sustain collective action, and promote universal financial inclusion. These CBOs federated at the VP level are known as the Village Poverty Reduction Committee (VPRC) that work in close collaboration with the VP. The VPRC coordinates the self-help groups to identify needs at the village level and plan, implement and monitor project activities. Every VP has a VPRC. On average in Tamil Nadu one village makes up a VP. Tribal VPs, however, may have an additional VPRC for its tribal population. The representatives of the VPRC are drawn from SHG members from different habitations of the VP (one member per habitation). Youth and disabled groups are also represented at the VPRC. The VPRC is the main implementing unit for PVP's interventions.

The core mandate for PVP is its participatory promotion of livelihoods and facilitating greater access to credit. The project also focuses on providing other services such as facilitating public action and access to available social safety nets and services. In order to promote civic engagement of the project, it was intended that PVP will work in close partnership with the

elected village government (World Bank, 2005). The president of the VP is the ex-officio president of the VPRC. As the ex-officio head of the VPRC, the VP president plays an important role in PVP's interventions. The VP president formally submits a memorandum requesting the project to implement its intervention in the VP. The list of the target poor identified through the participatory identification process is ratified by Grama Sabha moderated by the VP. Finally, monitoring reports and external audits are prepared by a committee of SHG members- Social Audit Committee. These reports are discussed and approved in the Grama Sabha. The remaining project structure is a three-tiered system with staff at the state, district and cluster (group of VPs) levels.

In 2011, the Government of India designed the National Rural Livelihood Mission that implemented livelihoods based multi-sectoral CDD projects in states across India. In Tamil Nadu, this project is called TNSRLM (Tamil Nadu State Rural Livelihoods Mission). In 2012, TNSRLM was implemented in the 265 remaining blocks, where PVP was not present. The timing of roll-out of additional financing blocks under PVP and TNSRLM coincided. While PVP is a World Bank funded project, TNSRLM is funded by the central government of India.

A crucial difference between PVP and TNSRLM is in their modality of determining the 'target group'. While TNSRLM uses the below poverty line (BPL) list to identify the targeted beneficiaries, PVP uses a participatory identification process to identify its target group. Both programs deliver interventions that include cash grants for the target group, livelihoods and skills training programs for members of the SHGs and the VP, and village wide programs that aim to

improve access and accountability of local governmental units. They also target the disabled with specific targeted goods such as facilitating access to required aid and appliances.

Since both PVP and TNSRLM are CDD projects, the village community identifies its needs and then plans and implements and monitors the project activities. PVP and TNSRLM are housed under the Tamil Nadu State Women's Development Corporation and have the same Project Director at the State level. State and district level specialists differ in personnel but have similar responsibilities and hierarchy. Both projects have identical structures both, administratively as well as at the community level. TNSRLM is, by default, present in blocks that are less backward based on PVP's scoring criteria for blocks. Our identification strategy ensures that treatment (area's where PVP is present) and control (areas where PVP is not present, but TNSRLM is present) areas are similar on poverty backwardness, as we contrast blocks that just came under the envelope of PVP and ones that did not. Control blocks, in our sample are ones that would have received PVP had the program's presence been increased. This evaluation uses a Regression Discontinuity Design to provide a rigorous comparison of impacts of outcome measures brought about by the two programs. We detail the methodology and identification strategy in Section 3 below.

2.2 PVP's Impact: Hypothesis and Outcome Measures

Given the complexity and multi-dimensional nature of CDD programs, it is imperative that we define our hypothesis, and outcome measures in this study. Our results are based on two broad categories of outcomes: (i) economic welfare, as measured by asset and debt portfolios of a household, savings, livelihoods, and consumption expenditures; and (ii) women's

empowerment indicators of agency within the household and in public spheres. While the former measures the direct impact of PVP, whose focus is to affect indebtedness, savings behaviour and individual livelihoods, the latter measures second order impacts of PVP, that focus on women and women's groups. Our focus on these two broad categories of outcome measures were designed with respect to PVP's Project Appraisal Document (PAD), which was written before the implementation of the first phase of PVP. Since the data used was collected explicitly for this evaluation, our surveys were designed to measure outcomes that the project sought to affect, using the PAD as a guideline.

The PAD includes a set of Project Development Objectives (PDOs), that are specific indicators used to measure the progress and quality of implementation of the project. PDOs also outline details on how results and outcomes will be monitored and evaluated. We cannot always use the PAD's indicators to measure outcomes with respect to this evaluation, because indicators specified in the PAD focus on outputs rather than their intended outcomes. 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 similar interventions elsewhere. Our hypothesis is therefore similar to the one used to evaluate the first phase of PVP (Khanna, et al. 2015).

The direct impact of PVP's credit and livelihoods components are measured through first order impacts on economic welfare. The hypothesis that a group-credit intervention can have a positive effect on metrics of household welfare, measured through savings, indebtedness, credit and asset profiles, income, livelihoods, consumption expenditures and asset portfolios, is well-

reasoned and commonly used (see for instance Banerjee et al., 2013; Datta, 2013; Deininger & Liu, 2009; Khandekar & Pitt, 1998; Khanna et al., 2015).

Our secondary hypothesis regarding women's empowerment finds roots in well-established individual empowerment effects of similar group-based women centric interventions (for instance, Cartwright et al., 2006, Banerjee et al., 2013; Khandekar & Pitt, 1998; Datta, 2013; Khanna et al., 2015). We also look at evidence that such projects aim to enable women in both the private and public spheres (Sanyal, 2009; Blattman et al., 2011; Khanna et al., 2015) as part of our secondary hypothesis.

3. Methodology

This evaluation is based on a Regression Discontinuity (RD) framework that exploits PVP's program assignment rule to create a counterfactual or control group. The evaluation was designed in 2012 and examines the added impact of PVP in additional financing blocks.

The identification strategy sought to exploit the project's assignment of backwardness scores. Therefore, in every district, a pair of blocks- a treatment block, and a control block was chosen to be part of the evaluation sample. The control blocks were those that had the closest score to the treatment block with the lowest score (i.e., the last treatment block that was selected)[3]. Based on this methodology, ten block pairs were selected.

[3] Control blocks were such that their backwardness score was within ten per cent of the score of the last treatment block.

With this sample, the intended estimation methodology was to carry out a simple difference-in-difference analysis. However, with this RD design we could not establish balance at the baseline on many relevant variables, including some outcome variables. Table 2, column (3) shows balance at the baseline without weights. The significant differences on outcome variables, such as measures of housing quality or indicators of women empowerment, can be attributed to the program's assignment rule. The assumption of parallel trends can be too restrictive when treated and control units are significantly different on multiple counts at the baseline. Different covariates for these groups could be associated with different dynamics of the outcome variable.

We address this issue by reweighting our control units such that these weights ensure that a large set of variables at the baseline are balanced on the first sample moment. We use entropy balancing to generate these weights. Entropy balancing is a data preprocessing method proposed in Hainmueller, 2012, where weights are obtained by minimizing a loss function that measures the distance between the distribution of the estimated control weights and the distribution of the base weights. We use Kullback's entropy divergence metric, and the base weight to assign equal weight to each control unit. The loss function is minimized subject to balance constraints that intend to equalize the covariate distributions between the treated and the reweighted control group.

Regarding initial conditions, we find that different papers propose different weighting techniques to ensure balance between treatment and comparison units. For example, Rosenbaum and Rubin, 1983 guarantee balance on a propensity score based on observables. Propensity scores that are predicted using a limited dependent model can also be used to reweight regression equations Hirano, Imbens, & Ridder, 2003. In practice, however, the researcher has to iteratively search for the correct propensity score model that *may* induce balance in initial conditions. The advantage of entropy balancing is that it automatically adjusts weights to match sample moments, and therefore avoids the needs for continuous balance checks to determine the weights. In other words, the weights are determined *endogenously* with respect to the initial sample (Ferwerda, 2014, Doleac and Hansen, 2016, and Deb and Vargas, 2016).

Our final estimation equation is:

$$Y_{ivbt} = \beta_0 + \beta_1 * Treatment_{ivbt} + \beta_2 * Post_{ivbt} + \beta_3 * Treatment_{ivbt} * Post_{ivbt} + \beta_4 * bpair_{bt} + \varepsilon_{ivbt} \quad (1)$$

Y_{ivbt} is the relevant outcome for household i, residing in village v and block b. the index t is for the time period. $Treatment_{ivbt}$ is an indicator variable for whether unit i is in a treatment block, and $Post_{ivbt}$ is an indicator to identify which round the data was collected in. We also include block pair fixed effects and cluster standard errors at the village level. The relevant estimator for our study is $\widehat{\beta_3}$. The estimates we obtain are different from the conventional difference-in-difference estimator in the sense that we compare PVP blocks to TNSRLM blocks whereas the conventional measure would compare PVP blocks to pure control

blocks. Thus, our estimate is the differential impact on the outcome measure of PVP relative to TNSRLM.

As discussed in Section 2, our control blocks started TNSRLM activities almost simultaneously to PVP in treatment areas. The project model was identical to PVP but the project implementation agency is different. To study the variation in the effectiveness of the project across treatment and control blocks, we employ a triple difference methodology which measures the intensity of the exposure to CDD institutions. The intensity of exposure is measured by the number of years a VPRC is present in a VP. Although we have the data on a VPRC's age from all treatment blocks, this information is missing for 33 VPs from the control blocks.

The estimation equation is:

$$Y_{ivbt} = \beta_0 + \beta_1 * Treatment_{ivbt} + \beta_2 * Post_{ivbt} + \beta_3 * VPRCyear_{ivbt} + \beta_4 * Treatment_{ivbt} * Post_{ivbt} + \beta_5 * VPRCyear_{ivbt} * Treatment_{ivbt} + \beta_6 * VPRCyear_{ivbt} * Post_{ivbt} + \beta_7 * VPRCyear_{ivbt} * Post_{ivbt} * Treatment_{ivbt} + \beta_8 * bpair_{bt} + \varepsilon_{ivbt} \quad (2)$$

The relevant estimator for our study is $\widehat{\beta_7}$. It measures the effect of an additional year of the VPRC on the impact of the outcome variable in PVP Village Panchayats. That is, it measures

how an extra year of VPRC changes the magnitude of impacts for VPs in treatment (PVP) areas in comparison to control VPs.

Results for both the weighted and the non-weighted regressions have been presented in the Appendix. We however, discuss the results from the weighted regressions throughout the paper.

4. Data

The data for our evaluation comes from two rounds of surveys commissioned by PVP, with the technical assistance of the World Bank. Independent survey firms were hired to conduct the surveys. Baseline data collection was carried out in March-June 2013 and endline data was collected in July-September 2016. The baseline data collection coincided with the initial implementation of PVP, which were restricted to institutional revival in phase two areas. Core interventions in phase two areas were implemented only after the completion of baseline data collection. The final set of data covers a three-year period when both PVP and TNSRLM were in operation.

As discussed in Section 2, TNSRLM also started its activities in all our control blocks. Our sample consisted of ten treatment blocks and ten control blocks. Eight of the ten control blocks are categorized as Intensive blocks under TNSRLM, the remaining two blocks are Extensive blocks. The sample for our analysis was restricted to the eight PVP-TNSRLM

Intensive block pairs. Table 1, panel (a) list the eights intensive TNSRLM blocks alongside their matched PVP blocks[4].

Fifteen VPs were chosen at random in every block, thus giving us an evaluation sample of 238 VPs. Thirteen households were randomly chosen in each VP, which included the VP President's household giving us a total sample of 3120 households. Since all households in treatment areas were eligible for PVP's schemes ex-ante, they were all considered "intended for treatment". Additionally, since PVP works with identified target groups of poor, which are overwhelmingly drawn from Scheduled Caste (SC) and Scheduled Tribe (ST) groups, we over sampled SC and ST households in proportion to their population shares, to accurately estimate the impact of PVP. Table 1, panel (b) presents the caste distribution of households across treatment and control areas in our evaluation sample.

The household questionnaire has two modules: (i) a general household module that includes an LSMS type consumption module, and detailed information on the livelihoods portfolio and debt profile of a household; and (ii) a woman's module that was administered to an adult married woman in a household, and measures different metrics of women's empowerment and agency. These measures include questions on decision-making within the household, and women's participation in local government and civic action.

[4] Alanganallur block (matched to Vadipatti block under PVP) in Madurai district and Veppanpalli block (matched to Palakkodu block under PVP) in Krishnagiri district are Extensive blocks under TNSRLM and are excluded from the final evaluation sample.

In addition to household surveys, a village focus group discussion was conducted to collect information on key infrastructure, and public good preferences in the village. A VP President survey collected information on a President's political background and preferences. PVP areas received an additional survey that collected data on key activities of implementation and progress of the VPRC.

We use data on 3091 households, distributed equally between PVP and non-PVP (TNSRLM) areas in our final analysis[5]. A comparison of TNSRLM and PVP sample characteristics, with and without entropy weights are presented in column (4) and (3) of Table 2, respectively. Imbalances in outcomes at the baseline are corrected by the inclusion of entropy weights. Re-weighting control units for comparability to treatment will allow for more reliable inferences even when pre-treatment equivalence can't be established between PVP and TNSRLM villages.

5. Results

We detail our findings in the two sub-sections below. The first section describes the impact of PVP on economic welfare and women's empowerment indicators, using a difference-in-difference approach (specification (1) in Section 3). The second section uses a triple difference methodology (specification (2) in Section 3), to study the effect of intensity of exposure to PVP on impacts on economic welfare and women's empowerment.

[5] 1545 households from TNSRLM blocks and 1546 households from PVP blocks

5.1 Difference-in-difference approach

Impact on indicators of economic well-being

Our results of the impact differential between PVP and TNSRLM villages on economic welfare are modest (Table 3, column (2)). We observe first order differences in impacts between PVP and TNSRLM areas on credit access and savings. There are, however, no differential changes in the composition of debt portfolio (towards low-cost debt instruments) between the two projects. Although there are no significant differences in access to institutional credit between the PVP and TNSRLM blocks, the incidence of borrowing from SHGs is ten percentage points higher in PVP blocks. The number of loans taken from an SHG is also 16 percentage points higher in PVP blocks than TSNRLM blocks. This suggests that institutions under PVP provide a better access to credit and savings than those under TNSRLM.

We do not observe second order effects on economic well-being, as reflected by a household's livelihood portfolio and asset holdings. There is no significant difference in the standard of economic welfare measured by livelihoods profiles and asset holdings[6] between PVP and TNSRLM areas. We also do not find any differential impact on housing quality, consumption expenditure or its composition. Households in the PVP areas, however, do report a 11 percentage point lower likelihood of having access to government pension schemes.

[6] Our asset index is the first factor derived from factor analysis using maximum-likelihood factor method on indicator variables of 29 consumer durables.

Impact on indicators of women empowerment

To measure women's empowerment, we developed three indices: (i) a mobility index[7] that measures the movement of a woman outside the household, i.e. if a woman can go to the bank, block office, district office, political party office and SC/ST/OBC corporation; (ii) an intra-household decision making index, which includes a woman respondent's input in decision making on the purchase of household durables, children's education, woman's livelihood activity and her political vote; and (iii) a public action index that measures the propensity of a woman to take any action on local village problems of domestic violence, alcoholism, functioning of the Public Distribution System (PDS), and law and order. Our results show no difference in these three indices between PVP and TNSRML areas.

5.2 Triple difference approach: Differential exposure to treatment

In this section, we present our main findings from the triple difference specification. Our results seem to suggest that impacts of PVP relative to impacts of TNSRLM, if any, seem to dissipate/weaken in the long-run. We will discuss these results in detail in the section that follows (presented in column (4) of Table 3).

[7] All three indices are the first factor from factor analysis performed on respective indicator variables.
(i) Mobility index is the first factor from factor analysis using principal-factor method on dummy variables for whether the woman respondent can go to the bank, block office, district office, political party office and SC/ST/OBC corporation,
(ii) Intra-household decision making index is the first factor from factor analysis using principal component method on indicator variables for if the woman respondent takes decision on purchase of household durables, children's education, her livelihood activity and her vote, and
(iii) Public action index is the first factor from factor analysis using principal component method on indicators of if a woman takes 'a possible action' if faced with village-level problems of domestic violence, alcoholism, functioning of PDS, and law and order. We develop a separate index for 'a possible action' factoring the four village-level problems- index for whether the woman respondent approaches the female networks, index for whether woman approaches Gram Sabha, index for whether woman approaches SHG and index for whether woman takes any action at all.

Impact on indicators of economic well-being

We find that overall savings rise by 10 percentage points more in PVP areas than TNSRLM areas with every additional year of PVP, but effects on institutional and SHG savings are invariant to the intensity of exposure between the two programs. However, the impact on the loans taken against collateral declines by 17 percentage points in PVP VPs with every additional year of exposure in contrast to the control VPs. Moreover, while there is no differential impact of PVP on the proportion of money lender loans relative to TNSRLM, the proportion of loans taken from the money lender rises differentially by 11 percentage points for every additional year that PVP is present in the village.

The impacts on indicators of housing quality, share of human capital expenditure as a proportion of total expenditure, livelihoods and indicators of political participation decline with every additional year that PVP is present in the VP. While we see no differential impact in consumption expenditure between the two areas, impacts on the fraction of education and human capital expenditure seems to decrease by two percentage points and three percentage points, respectively, with every additional year of the PVP program. An additional year that PVP is present in the VP also decreases the likelihood of reduction, if any, in open defecation by 8 percentage points. Though there were no significantly different impacts on political participation under PVP, we do observe that every additional year of PVP's presence in a treatment village reduces the likelihood of any impact on household's attendance in Gram Sabha by 17 percentage points.

Impact on indicators of women empowerment

The impacts of PVP on women's empowerment seem to weaken in comparison to TNSLRM, with every additional year of exposure to the program. We observe a relative reduction in impacts on mobility index and public action index with respect to a woman approaching female networks by 28 and 24 percentage points, respectively with every additional year of PVP in contrast to TNSRLM villages. However, there is no significant difference between the two programs when we control for the intensity of exposure to PVP on other indices and on political participation of women.

6. Discussion

The first evaluation of the PVP project covered its first phase, from 2006-2011, using retrospective propensity score methods. The retrospective evaluation finds significant effects on debt reduction, women's mobility and intra-household decision making. The study also finds an increase in women's participation regarding public action (Khanna et. al, 2015). This prospective evaluation is one component of a set of studies done to measure PVP's impact.

Due to the lack of a pure control group, we cannot explicitly measure the performance of PVP in blocks that received additional financing. We can however measure the additional impact PVP has in treatment villages compared to TNSRLM. Using a Regression Discontinuity Design, we compare changes in outcomes of interest between the two programs. We find first-order effects on access to credit and savings that are significantly better in PVP areas. On average households in PVP areas save more and take more SHG loans than households in TNSRLM areas. We do not however, observe any significant differences on outcomes such as

consumption, livelihoods, and empowerment in contrast to what we have seen in PVP's retrospective evaluation. Our results find that for every additional year of exposure to PVP, households in PVP areas see an increase in savings, however PVP is less effective in reducing the proportion of loans taken from money lenders than TNSRLM areas. Longer exposure to PVP also creates a yearly decrease in women's Gram Sabha participation. Apart from immediate outcomes of access to credit and savings, PVP's impacts are not significantly different from TNSRLMs.

This evaluation is part of a set of five evaluations, of the World Bank's livelihoods focused CDD projects in India. These evaluations use various assignment techniques (RCT, RD, PSM) to assess various aspects of CDD interventions. Most the evaluations are complemented by qualitative analysis to understand the mechanisms underlying the impact. All together they create a body of work that reliably analyses the impact of these large–scale, multi-dimensional programs.

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