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Does Self Help Group Participation Lead to Asset Creation ?

Ranjula Bali Swain*and Adel Varghese†

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Abstract

We evaluate the effect of Self Help Group participation on a long term impact parameter, namely asset creation. Indian Self Help Groups (SHGs) are unique in that they are mainly NGO-formed microfinance groups but later funded by commercial banks. The results reveal that longer membership in SHGs positively impacts asset creation, robust to various asset specifications. With longer participation in SHGs, members move away from pure agriculture as an income source towards other sources such as livestock income. Training by NGOs positively impacts asset creation but the type of SHG linkage per se has no effect.

Keywords: Asset creation, microfinance, impact, Self Help Groups.

JEL: G21, I32, O12.

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1. Introduction

In January 2008, Indian policymakers released a report on financial inclusion. This report reviewed various mechanisms including bank-correspondent models and traditional Grameen style microfinance institutions. Of all the proposed delivery mechanisms they highlight Self Help Groups (SHGs) as "the most potent initiative since Independence for delivering financial services to the poor in a sustainable manner."[1] With the potential of SHGs proclaimed in such an emphatic manner, one would expect that existing evidence indicates substantial SHG impact on borrowers. Surprisingly, very limited research has attempted to answer this question.

This paper aims to explore whether SHG participation leads to asset creation. We test this objective using a unique data set from five Indian states with SHGs. The data were not only collected on current members but also on newly enlisted SHG members who have not yet received loans. This study investigates whether assets have increased for current SHG borrowers over these new members. We also explore short-term impact parameters such as income and evaluate whether the type of SHG linkage matters for asset creation.

In a broad sense, this paper falls under the umbrella of impact studies on microfinance. However, it differs in its emphasis on the asset creation ability of SHGs. Instead of focusing on short term profits, which is the focus of many impact studies, we highlight a more long term sustainable impact parameter. Asset accumulation serves as a potential exit avenue for chronic poverty. Assets also help individuals reduce their vulnerability to shocks in that with assets, individuals are less subject to fluctuations in the short and medium term (Hulme and McKay, 2005). SHGs may also lead to asset dilution through their demand for frequent repayment installments.

[1] RBI (2008), p.iii.

In order to meet this demand, households may borrow from other sources, liquidate assets prematurely, or invest in an inefficient amount of liquid assets.

The related literature falls under two categories. The first covers relevant impact studies in microfinance.[2] Due to the number of selection bias issues, Coleman, 1999, proposed an approach followed at the data design stage. Dubbed the "pipeline" approach, it compares current members to future members who have not yet received loans. We broadly adopt Coleman's approach but adapt it to the SHG framework. Another influential paper on microfinance impact is Pitt and Khandker, 1999, which relies on Grameen's eligibility rule.[3] More recent papers that have exploited the panel nature of the data to remove the fixed unobservables are Khandker, 2005, and Tedeschi, 2008.[4]

The important role assigned to SHGs in the rural credit policy of India demands an evaluation of their impact. Our work differs from previous impact studies on its policy relevance rather than methodological breakthroughs. For instance, even though Coleman provides a unique methodological framework, his results on Thai village banking do not provide much policy relevance. Village banking in Thailand does not occupy the same policy pulpit as SHGs in India. Many of the households already rely on other sources for borrowing and village banks serve as one more additional lender. SHGs, on the other hand, provide the primary institutional credit

[2]For a general survey, see Goldberg, 2005, and for a survey of methodological issues, see Karlan and Goldberg, 2006.

[3]See the lively debate between Pitt and Morduch on the actual implementation of the eligiblity rule. These can be found in Aghion and Morduch, 2005, and in Pitt, 1999, and Morduch, 1998. Our role is not to take sides on the debate but we find Coleman's approach intuitively more appealing. Furthermore, since the implementation is straightforward, the approach provides a forum for interdisciplinal dialogue on policy.

[4]Panel data may have an advantage of cleanly removing the unobservable elements, with careful correction of attenuation bias. Cross-sectional data is more amenable to policy conclusions since it is much less expensive (and quicker) than panel to collect. Additionally, by the time the panel results are ready, the program may have moved in a different direction.

access vehicle for many borrowers. Furthermore, as previously mentioned, we focus on the asset creation element of microfinance organizations rather than the short term impact of consumption (as in Pitt and Khandker) or profits (as in Tedeschi).

On Indian SHGs specifically, impact studies consist of the Puhazendhi and Badataya study, 2002, commissioned by NABARD (India's rural development bank) with 115 members and three states. The study measured impact by computing the percentage difference of the means of members' variables pre and post SHGs membership. Clearly, this type of analysis does not account for any changes in observable characteristics nor broad economic changes through a control group. Due to inappropriate corrections for selection bias, Tankha, 2005, states, "their findings cannot be considered to be conclusive or even convincing."

Nevertheless, this Puhazendhi-Badataya study has had much policy influence, quoted by many sources and most recently by the RBI paper on financial inclusion, 2008. Their results find that SHG membership significantly increases the asset structure (30 %), savings, annual net income, employment (34 %), and social empowerment. As a middle of the road assessment, CGAP, 2006, claims SHG performance as "mixed so far" but admits to no real evidence. Still, CGAP proceeds to assert that, experience to date indicates that SHGs can serve as a viable model, if implementation were competent.

A more recent study by EDA Rural Systems, 2006 (joint with CARE and GTZ; hereafter EDA), on 214 SHGs from 108 villages does not attempt an impact study but interviews focus groups and complements our study. Throughout this paper, we will draw on this study as it offers important insights into the functioning of SHGs and provides information on some aspects of SHGs not covered in our data. Due to new insights in the methodology of impact studies and the mentioned lack of studies of such an important credit institution, a natural next step would measure the impact

of SHGs. This paper seeks to achieve this objective. In this endeavor, we remove ourselves from the many debates on their observations which are predominantly anecdotal and case study centric and focus on the simple question: do SHGs actually positively impact borrowers?

In our results, we find that SHGs positively impact asset creation. These results hold for different variations on the definition of assets. The impact occurs primarily through livestock accumulation and savings. Members move away from pure agriculture as an income source towards other types of income. We do not find any differential treatment on office members but that the interaction of training and type of model matters for asset creation.

For those unfamiliar with SHGs, in the next section, we outline the basic information and design. Section 3 discusses our econometric specification and explain potential biases. In the fourth section, we describe the data set collected on SHGs with the results presented in the next section. In the last section we conclude and draw some policy lessons.

2. Self Help Groups in India

Self Help Groups fall under the category of village banking which expands the solidarity (Grameen) type model to ten to twenty (primarily female) members. Credit is not immediately extended to members. Formed groups have to build credit discipline by first saving a certain amount. Once savings pass a threshold level, then the groups wait six months to receive loans which are four times the savings amount. The bank then disburses the loan and the group decides how to manage the loan. As savings increase through the group's life, the group can access a greater amount of loans. Detractors of SHGs decry the long delay for members to receive loans but

the incubation period can favor long term asset creation over short term impact.

Group formation occurs through three types. In the first model, banks act as a self help group promoting institution. In the most common second model, NGOs form groups. In the last model, NGOs form groups as well as provide lending to SHGs from banks.[5] Rather than follow strict eligibility criteria, SHGs attract poor with SHPAs or self help promotion agents which include NGOs, banks, and government officials. The program features of small loan size, frequent meetings, and frequent repayment installments also dissuade the non-poor. Due to these targeting efforts, the EDA survey finds that only about one fifth of the SHG members are non-poor.

Different camps have touted the relative advantages of SHGs over MFIs. In general, institutional observers such as the World Bank and the Government of India prefer the institutional mode of credit delivery of SHGs. Others such as private oriented practitioners prefer the MFI mode of delivery. Many are skeptical about the most prevalent model of SHGs mainly due to the incentive mechanism. As mentioned above, individual groups formed by an SHPA, as an NGO, begin by saving. Critics note that once the NGOs form groups, the program provides no incentive for the NGOs to continue in their monitoring activities. Similarly, NGOs do not obtain adequate compensation for their group formation (currently they are subsidized at Rs. 3000 per group).

Since groups are large (about twenty), individual members may free ride off others. Other criticisms include the following: the required saving amount rules the very poor out, the high costs of attending meetings and workshops before joining, and finally, the amount of implicit subsidies. Furthermore, many groups pursue joint

[5]In our data, 70 % of the SHGs follow this model while 12% and 18 %, respectively, follow the first and third models.

projects and this requirement creates shackles on individual performers.

Defenders of SHGs assert the following. First, that NGOs are performing these activities on their own in the district, so they do not need an extra incentive mechanism to monitor SHGs. If NGOs choose to move away from a particular group and not hand hold, then that indicates a low quality group. In many instances, bank officers are involved along with NGOs at every step of the way. The discipline is group reinforced and members do not need others to monitor this group as in standard Grameen style models. Finally, because MFIs are donor-driven many have pressure to obtain high repayment rates while SHGs with its development banking focus may not face that same pressure. Overall, the SHG model reflects an institutional, statist type of approach, while private MFIs reflect a more market oriented outlook.

Initiated in 1992, the SHG movement faced slow progress up to 1999. Since then, the program has mushroomed growing to financing 687,000 SHGs in 2006-2007 alone compared to 198,000 SHGs in 2001-02. The cumulative number of SHGs has grown to roughly three million by March 2007 reaching out to more than forty million families. As with microfinance (or more generally with credit), the spread of SHGs has been spatially varied.

As of March 2002, the cumulative number of linked SHGs in five states covered in this study indicate this diversity. For these five states, their shares (in parentheses) of the cumulative SHG links are the following: Andhra Pradesh (48.5), Tamil Nadu (12.5), Uttar Pradesh (6.6), Orissa (4.1), and Maharashtra (3.9). Given this concentrated spread, NABARD has identified thirteen poorer states in which they would like to expand their program. The RBI, 2008,also recommends extending the program to the urban poor. Given the recent policy momentum and the ongoing debate on SHGs, we turn to examine whether SHGs actually positively impact borrowers.

3. Estimation Strategy

Seemingly straightforward, assessing impact is tainted by the presence of selection bias mainly due to unmeasured attributes. Further complication arises because the decision to participate in SHGs depends on the same attributes that determine the impact variable (asset creation in this paper). At a broader level, bias may arise because policymakers may place programs in better or worse off areas leading to non-random program placement. In this section, we limit our remarks on impact assessment to those pertinent to this paper.[6]

In measuring the impacts of a well established development program such as SHGs, certain roadblocks arise from the outset. The increasingly popular method of randomization is difficult to implement. First, such a method would upset certain constituencies. Second, since we are interested in long term impact, holding a control group for long is problematic (as noted by Karlan and Rosenberg). Moreover, there is no strictly followed exogenous rule to exploit for estimating unbiased impact. Even though SHGs tend to target poorer households, the program does not follow a strict eligibility criteria (this is also true for most microfinance programs). Even implementing the "pipeline method" is difficult in that the SHG program is well established and not a novel one. One advantage of SHGs is that by design members have to wait to receive a loan from the bank (about six months) and we exploit this design feature to identify the self-selected members who have not yet received a loan.

The self-selection bias arises from the potentially unobservable traits of the SHG members. One presumes that higher entrepreneurship, ability to recognize opportunity, and other critical aspects will make households more likely to participate in

[6]For a lengthier discussion on selection bias in impact studies, see Goldberg, Karlan and Goldberg, and Coleman.

the SHG program. However, these same traits would lead to higher asset creation even if they were not members of Self Help Groups. Ideally, for perfect impact assessment, one would choose a control group from the same village (which would hold all external conditions constant) but then earlier signees of SHGs may have different reasons for joining than later signees. Researchers are then driven to use different villages and control for village differences with village fixed effects. This approach imposes the restriction of intercept differences among villages instead of exploiting more nuanced differences among villages.

Raising the level of aggregation to another level, such as districts (where both old and new SHGs reside) would hold district specific conditions constant. Some recent papers on credit in India, as Sharma, 2005, also adopt this tactic. As Sharma, notes,

> most developmental policies of the government are implemented at the district level. In addition, the Lead Bank Scheme, introduced towards the end of 1969, assigns a lead role to a particular bank in every district. The Lead Bank coordinates all credit institutions in the district that serve the priority sector. For these reasons, it is natural to think of the district as a relevant regional unit in analyzing local credit markets. The typical district covers several dozen villages.[7]

Similarly, NABARD's choice to expand the SHG program occurs at the district level without any specific policy targeting certain villages over others.[8] Thus, we choose to aggregate at the district level, the basic administrative unit within a state.

In certain districts, some members are currently active members of SHGs. In these same districts (but in other villages), members from newly formed SHGs have been

[7] Sharma, p.8.

[8] NABARD's or the bank's decision to form a linkage program might follow a NGO's choice. We do not have information whether NGOs favor certain villages over others within certain districts.

selected but not yet received financial services from the bank. Thus, the "control" group in our sample consists of old SHGs, while new SHGs form our "treatment" group.[9] We hypothesize that the old and new SHGs have similar unobservables.[10] We also have information on nonmembers from these districts so that we can condition on the selection to join the SHG.

The dropout rate for SHGs is not severe in that the EDA study estimated the dropout rate as 9.8 %, below the 20-30 % cited by Aghion and Morduch and Karlan as a severe problem.[11] Furthermore, the EDA study indicates that almost 50 % of SHGs had no dropouts, one third had two or fewer dropouts. The very poor had a higher dropout rate of 11% but not considerably higher than the 7 % of the non-poor. The major reasons for dropout were shocks such as migration, death, or illness and difficulties in making financial payments. We did not track the dropouts but considering the slightly higher dropout rate of the very poor in SHG programs,

[9] One caveat of this approach is that we need to assume behavior of the new SHG members has not changed while awaiting loans. An advantage of the slow incubation period of SHGs is that members know for some time the nature of the wait and will not change their behavior radically as compared to a one time infusion.

[10] To check for differences in the observable characteristics for old and new SHGs, we ran regressions of the following type:

$$X_{ijs} = \alpha D_s + \beta M_{ijs} + \gamma T_{ijs}$$

where X_{ijs} is the observable characteristic, D_s is a vector of district dummies, M_{ijs} is a member dummy which takes a value one for members and zero otherwise, T_{ijs} is a treatment variable which takes on the value one for old SHGs and zero for new SHGs. Thus, the significance of γ indicates any difference over and beyond district and self-selection differences. The results (available from the authors upon request) indicate that only age and dependency ratio were significant. The results from the observable characteristics also lend support to the idea that old and new SHGs are not very different.

[11] The dropout issue is two-fold (Karlan). In the first, the incomplete sample bias, dropouts are impacted differently so that an impact assessment does not taking into account the whole program, only better performers. In the second, the attrition bias, the active borrowers are not either failed borrowers or the stars that chose to graduate. If the failures are more likely to dropout, comparing old and new borrowers overestimates impacts.

the estimates we present will slightly over-estimate impact. Thus, the results of this study are conditional on the remaining old SHG members.

Program placement bias arises from non-random placement of programs. This may arise from placement of programs in regions that are relatively better-off in terms of economic development and infrastructure and may produce better impact outcomes. Alternatively, the bank may place programs within relatively deprived areas. In either case, these differences across districts or regions due to non-random program placement may induce a bias in the impact results (i.e. members are not better off due to the program but simply because they live in a better area). As described in detail above, we hold these differences constant by drawing the treatment and control group from the same area, i.e. the same district.

We still need to account for nonmembers from these districts who may be availing themselves of district specific policies, such as parallel government programs. We control for these differences with the use of district fixed effects. In that there may be district-wide spillover effects from old members to new members and non-members, the estimates here would underestimate that impact. To account for the remaining village level variability, we employ village level characteristics.[12]

Keeping in mind the outlined procedure, we estimate the following regression:

$$Aijs = a + \alpha Xijs + \beta Vjs + \lambda D_s + \gamma Mijs + \delta SGHMONijs + \eta_{ijs} \qquad (1)$$

Where $Aijs$ is the asset position for household i in village j and district s, $Xijs$

[12]For this data set, we prefer this approach over village fixed effects. Here, with 218 villages and the available sample size, a regression with 218 dummies is simply infeasible. With aggregation at the district level, any differential impact of the program due to missing unobservables at the village-level (i.e. village has a more dynamic leader or village has stronger political connections), cannot be taken into account.

are the household characteristics; Vjs is a vector of village-level characteristics, and D_s is a vector of district dummies that control for any district level difference. Here, $Mijs$ is the membership dummy variable, which controls for the selection bias. It takes the value one for both old and new SHGs. It takes the value of zero for those villagers that have chosen not to access the program. The parameter of interest is δ, the causal treatment effect where $SHGMONijs$ is the number of months that SHG credit was available to old members, which is exogenous to the households.

4. Data

The data used for the empirical analysis in this paper forms part of a larger study which investigates the SHG -bank linkage program of NABARD. The data was collected from two representative districts in five different states in India for 2003. Additionally, recall data for the year 2000 was also collected. Due to budget and operational constraints, the sample size was limited to one thousand respondents. Instead of a nationally representative sample, this study focusses on a diverse set of ten representative districts from five states.[13] Thus, the results of this study are conditional on these states. Within the states, districts with over and under exposure of SHGs were avoided and only SHGs with good operational links with banks were evaluated.

For this particular study, the collected data was further refined. Of the total respondents, 114 were from villages with no SHGs. Since these households were not provided the opportunity to self-select, these were dropped. Sixty old and new SHG respondents were from the same village and this would contaminate the sample since

[13] In the final cut, the following districts from these states were selected: Andhra Pradesh – Medak and Rangareddy, Tamil Nadu – Dharamapuri and Villupuram, Orissa – Koraput and Rayagada, Uttar Pradesh – Allahabad and Rae Bareli, and Maharashtra – Gadchiroli and Chandrapur.

the earlier signees may be of a different makeup than the later signees. Of the remaining sample, 604 respondents are from old SHGs, 186 are from new SHGs, and 52 are non-members.

For the critical variable in our test, SHGMON, or the number of months since a member has joined a SHG, we made the following adaptations. Since an SHG is bank-linked only six months after formation, we needed to take those six months into account. Almost all the new SHG respondents in our data had been members for less than six months and for these SHGMON=0. Only fourteen of these new respondents were members for more than six months, in which case SHGMON= date of formation - six months. For the old SHGs, their SHGMON = date of formation - six months. A few old SHG respondents (forty six) did not report the date of their SHG formation. For these households, we used the number of the months since they received the first SHG loan for SHGMON.

As suggested by Doss et al., 2007, we divide assets into six categories: land owned, livestock wealth, dwelling and ponds, productive assets, physical assets, and financial assets (includes savings and lending). Household characteristics include age, gender, education dummies, and a shock variable.[14] We also include dependency ratios in that we expect households with larger dependency ratios to have greater incentive for asset accumulation. In order to control for initial wealth, we employ land owned three years ago.[15] For village characteristics, in addition to male wage, we include the following distance variables: paved road, market, primary health care center, and

[14]The shock dummy =1 if respondent reports yes to any one of the following: social and religious emergency, failure of crops (includes failure due to lack of rain), illness in family, loss of work of one of the earning members or natural catastrophe (like drought, cyclone or floods). This information was asked for both 2000 and 2003. We averaged the two to create an average shock variable.

[15]Since land forms the bulk of assets and land turnover is infrequent in India (see Pitt-Khandker for more discussion on this), this variable was the best choice for initial wealth.

bus-stop.

5. Results

This section presents and discusses the estimation results for the impact of SHG participation on asset creation and other variables. Table 1 provides the regression results of Equation (1) for various specifications of the asset variable. In Column (1), we employ a gross assets specification. Column (2) uses the same gross assets specification but the member dummy is dropped. To account for concomitant borrowings, we subtract recent liabilities to all sources to obtain a measure of net assets in Column (3). Finally, in column (4), we explore the impact without SHG savings.

The results consistently yield significance of the member variable and the SHG-MON variable. We can now emphatically answer the question posed in the title of this paper: SHG membership helps asset creation. The significance for the member dummy indicates that members are actually on average less wealthier than non-members, holding everything else constant. It would take close to six years of membership to catch up to the initial wealth of non-members (assuming constant returns to participation). Of the household characteristics, we find positive significance of the dependency ratio. Households with a greater number of dependents, and a lower discount factor, are more interested in asset creation. Education carries the expected signs in that households with greater education are more adept at asset creation (since "no education" is the dropped dummy). Initial wealth (as in the amount of land holdings) also influences the current asset position of a household. Of the village characteristics, distance from paved town and distance from market and bus stop (though very marginally) are significant.

Regression (2) indicates that failing to take into account any of the unobservables

that tend to make households become members would imply that SHGs have no impact on asset creation. These results contrast with other impact studies (and the theoretical discussion) where member unobservables overestimate impact.[16] Many presume that microfinance borrowers are more entrepreneurial, etc. However, less entrepreneurial borrowers join SHGs in part due to no access to other credit sources and SHPAs target them for these very reasons. Not taking these observations into account would underestimate impact.

Two doubts may arise from the above results. First, that longer SHG membership creates greater SHG savings since with increased duration, SHG members have a greater incentive to save. In this respect, some may argue that SHGs actually "force" asset creation through this savings mechanism. Regression (3) indicates the results are robust to this interpretation in that if we subtract SHG savings from assets, these assets represent wealth above the SHG savings requirement. A second doubt from observers who view "credit as debt" acknowledge that members may actually asset create but may also debt create by borrowing from other sources. In other words, their net position may deteriorate. Regression (4) accounts for this observation by subtracting recent borrowing from all other sources by all household members. We still find that SHG membership matters for asset creation.

We now turn to trace the source of the asset impact by disaggregating assets. Land value is doubtful as the source, due to the low turnover of land sales during years of membership. Members may accumulate productive and physical assets. In regressions not reported here (but available from the authors), SHG membership

[16] Or many times, the unobservables really do not make much difference after all. For example, Coleman found unobservables matter in 8 of 72 regressions ! He himself admits, "for many outcomes, unobservable differences between members and nonmembers are of little consequence." In our specification, and in other regressions (not shown here), this member dummy actually matters. Without taking membership into account, we would underestimate impact.

does not create any impact on land value, business wealth, or physical assets. Table 2 addresses the disaggregated assets of interest. The output of other variables (shown in Table 1) is suppressed and focus is on the variables of interest, namely the membership and SHGMON variable. Tobit estimations account for the large amount of censoring.

The first column indicates results for the "dwelling and ponds" category and though the SHGMON variable has no impact on this creation, these results indicate that SHG members have a lower ability to accumulate this variable. The second column indicates the positive impact on livestock accumulation. This result foreshadows some of the results below on current income. The third column indicates a positive impact on total savings driven by SHG savings. Finally, the fourth column confirms that SHG members are not involved in credit cycling, i.e. borrowing from other sources in order to repay SHG groups. As the negative sign on the member coefficient of other borrowings indicates, members do not access other sources relative to non-members.[17] Old SHGs do not access other sources presumably because they have SHG access now. New SHGs presumably join SHGs because they cannot not access other sources.

Table 3 indicates the impact on current variables, again showing only the results for member and SHGMON. The significance on total income indicates a positive impact for membership in that members find ways to increase their income over non-members, though the length of membership (negative coefficient) is not significant. Results in column 2 (conditional on cultivator households) indicate that any impact on total income will not come from agriculture.[18] These results indicate the SHG's

[17] We also evaluated the impact on high interest borrowing (as defined as borrowing above 21 %). The results for member and SHGMON yielded the following insignificant results, respectively: -6.481 (0.81) and 0.015 (0.12)

[18] The breakdown for the components of agricultural income was the following. For agricultural

role (with the help of NGOs) as weaning members away from pure agriculture towards other methods of income generation. Column 3 confirms this interpretation, in the high impact of membership on other sources of income. These other sources of income include the following: livestock, fisheries, rent, forest, financial gain, and salary income. In other regressions (not reported here), we also found no impact of length of membership on business profits and total expenditure. The first result disappoints for those hopeful of SHG groups creating profitable microenterprises. The second results confirms our previous results that SHG membership has a limited short-term impact.

We now deviate from investigating the impact of household level variables and explore broader questions. Do office bearers wield undue influence and capture much of the surplus from SHGs ? Does a certain linkage model type favor asset creation ? Table 4 presents the results of interest. Column (1) confirms the anecdotal evidence from EDA that officers actually serve SHGs without capturing any undue amounts for asset creation. This result may occur because SHG officers are elected officials of the group and not appointed by village chiefs or contacts, and also approved by the SHPAs.

Column (2) indicates that the linkage model type does not matter for asset creation. Whether bank formed (linkage 1), NGO financed (linkage 3) or bank financed/NGO formed (linkage 3) does not matter for asset creation. However, evaluating the model per se is limiting since some of the models provide development and business training while others do not. For example, many banks form the groups and then leave. NGOs, on the other hand, provide much development

wage income, member: 1.640 (0.82) and SHGMON: -0.073 (1.77). For agricultural profits, member: 4.629 (1.05) and SHGMON: -0.060 (1.18). We also ran Tobit regressions on the whole sample which yielded qualitatively similar results.

training. For column (3), we interact a training variable (number of weeks of training) with the linkage type, with the most popular linkage model 2 as the base. The results show that with NGOs involved in the funding process (and thus more directly involved), linkage model 3 positively impacts on asset creation. As expected, with NGOs not involved in the process (as in linkage model 1), this negatively impacts asset creation.

We can now compare and contrast our results to those by Puhazendhi and Badataya in their SHG impact study. They found a 30 % return to assets of SHG membership, while we find about a 15 % return (calculated at SHGMON means and old SHG asset mean). As with their study, we find a positive impact on savings. In contrast to their study, we did not find a positive impact on income but we did find a movement towards diversifying income streams.

6. Conclusion

In this paper, we evaluated the effect of Self Help Group participation on a long term impact parameter, namely asset creation. By comparing the impact on current borrowers vis a vis future self-selected borrowers, longer membership duration in SHGs positively impacts asset creation. These results are robust to various specifications of assets. However, we do not find any impact on short-term impact variables such as total current income. Training by NGOs positively helps members in creating assets. The impact on asset accumulation stems from the savings requirement in the program and livestock accumulation which then leads to income diversification.

The results of this study deviates from other impact studies. In particular, we find impact of microcredit membership whereas most of the studies reviewed in Goldberg show no impact at all. The unobservables matter and not introducing them can

move the bias in an unexpected direction: under-estimation of impact. Due to time limitations, impact studies may focus on short term variables such as consumption and income. Older programs such as SHGs allows one to analyze longer term impact variables such as asset creation. The results of this study reinforce the cliche that programs need analysis on a case by case basis.

This study also yields some programmatic lessons. Linkages between banks (even public sector ones) and NGOs may provide effective means for credit delivery. Banks provide the funding and NGOs provide the training. The time the borrowers have to wait for loans allows time to build up savings in order for banks to trust the groups. The training that NGOs provide help rural households move away from pure agriculture to other sources of income, a micro reflection that needs to happen in India on a macro scale. This exit strategy occurs through two avenues: asset accumulation and diversifying income streams.

A recent theoretical contribution by Ahlin and Jiang, 2008, arrives at a similar point. They find that long-run development from micro-credit relies on "saver" graduation (due to gradual accumulation of average returns in self-employment). They conclude that for micro-credit to enhance broad-based development, it must depend on simultaneous facilitation of micro-saving. The current regulations in India permit savings only through certain financial institutions and most MFIs do not fall under this category. An institutional program such as the SHG program would help in this regard.

One of the limits of this study is that even if we have evaluated the benefits through the impact, we have not estimated the costs. Can another credit delivery mechanism deliver similar impacts at lower costs? A future study on SHGs can hopefully answer this question with a focus on more states, especially the newer ones in which NABARD forecasts SHGs to develop.

Appendix: Tables

Table 1

Estimates of Impact on Asset Creation (x10^3)

	G. Assets	G.Assets	N.Assets	G.A-SHG Savings
Member	-45.43 (2.36)	———	-46.86 (2.44)	-45.45(2.34)
SHGMON	0.649 (1.99)	0.434 (1.35)	0.625 (1.92)	0.649 (2.00)
Age	0.125 (0.22)	0.195 (0.34)	0.135 (0.23)	0.128 (0.22)
Gender	9.667 (0.74)	11.91 (0.91)	9.760 (0.74)	9.154 (0.71)
Dep. Ratio	38.17 (2.01)	34.83 (1.89)	37.57 (2.01)	38.80 (2.05)
Primary Ed.	24.35 (2.00)	25.70 (2.05)	25.65 (2.12)	24.06 (1.97)
Secondary Ed.	28.87 (2.42)	28.14 (2.37)	29.83 (2.52)	28.48 (2.39)
College Ed.	57.06 (2.12)	56.34 (2.06)	59.01 (2.18)	56.48 (2.11)
Land 3 years ago	43.13 (8.11)	42.82 (8.09)	43.12 (8.08)	43.08 (8.10)
Average Shock	2.297 (0.19)	2.223 (0.18)	8.118 (0.83)	2.024 (0.16)
Distance Paved Rd.	-8.088 (2.55)	-8.435 (2.63)	-8.556 (2.69)	-8.043 (2.54)
Distance Bank	0.741 (0.65)	0.687 (0.61)	0.829 (0.72)	0.745 (0.65)
Distance Market	-1.835 (1.64)	-2.004 (1.76)	-1.909 (1.71)	-1.820 (1.63)
Distance HealthCare	1.661 (0.68)	2.064 (0.85)	1.863 (0.76)	1.614 (0.66)
Distance Bus Stop	5.173 (1.65)	5.535 (1.74)	5.486 (1.74)	5.152 (1.64)
Male Wage	-0.481 (1.05)	-0.374 (0.82)	-0.471 (1.03)	-0.473 (1.04)

Notes: All regressions include district dummies.Analysis based on 842 observations. Absolute t-ratios in parentheses computed with White heteroskedasticity-consistent standard errors clustered by village . See text for definitions of variables.

Table 2

Tobit Estimates of Impact on Select Disaggregated Assets ($x10^3$)

	Dwelling	Livestock	Savings	Other Borrowings
Member	-21.43 (3.72)	-2.082 (0.89)	-0.721 (0.41)	-22.83 (3.10)
SHGMON	-0.006 (0.08)	.0070 (2.11)	0.0461 (1.92)	0.013 (0.11)

Notes: All regressions include the right hand side variables of Table 1 and district dummies.Analysis based on 842 observations. Absolute t-ratios in parentheses . See text for definitions of variables.

Table 3

Estimates of Impact on Select Income Variables ($x10^3$)

	Total Income	Agricultural Income	Other Income
Member	4.277 (1.68)	4.844 (1.59)	-0.488 (1.42)
SHGMON	-0.068 (1.56)	-0.139 (3.21)	0.019 (3.83)
N	842	733	842

Notes: All regressions include the right hand side variables of Table 1 and district dummies. Absolute t-ratios in parentheses .Other income is a Tobit regression. See text for definitions of variables.

Table 4

Augmented Estimates of Impact on Asset Creation ($x10^3$)

	Office Bearer	Linkage Type	Linkage*Training
Member	-45.85 (2.37)	-45.96 (2.31)	-42.30 (2.19)
SHGMON	0.593 (1.80)	0.663 (2.02)	0.478 (1.46)
Office Bearer	6.620 (0.67)	———	———
Linkage 1	———	-19.83 (0.78)	2.745 (0.10)
Linkage 3	———	10.07 (0.78)	-0.483 (0.05)
Linkage1*Training	———		-22.99 (1.74)
Linkage3*Training	———		87.77 (1.90)

Notes: All regressions include the right hand side variables of Table 1 and district dummies. Absolute t-ratios in parentheses . See text for definitions of variables.

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