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Working Paper

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Working Paper, No. 2009:11

Provided in Cooperation with:

Department of Economics, Uppsala University

Suggested Citation: Swain, Ranjula Bali; Varghese, Adel (2009) : The impact of skill development and human capital training on self help groups, Working Paper, No. 2009:11, Uppsala University, Department of Economics, Uppsala, <https://nbn-resolving.de/urn:nbn:se:uu:diva-106712>

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Working Paper 2009:11

Department of Economics

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Working paper 2009:11
June 2009
ISSN 1653-6975

THE IMPACT OF SKILL DEVELOPMENT AND HUMAN CAPITAL TRAINING ON
SELF HELP GROUPS

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The Impact of Skill Development and Human Capital Training on Self Help Groups

Ranjula Bali Swain* and Adel Varghese♦

15 June 2009

Abstract

We evaluate the effect of training, in both skill development and human capital, provided by facilitators of self help groups (SHGs). Indian SHGs are unique in that they are mainly NGO-formed microfinance groups but later funded by commercial banks. The results suggest that, in general, training does not impact assets but training can reverse the potentially negative effect of credit on income. Moreover, training is more effective for asset accumulation in villages with better infrastructure. In terms of training delivery, results show that the most effective linkage is when NGOs form groups and banks finance SHGs.

Keywords – Asia, India, microfinance, impact studies, training, Self Help Groups

JEL: G21, I32, O12.

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1. INTRODUCTION

In a recent impact and sustainability study of Self Help Groups (SHGs) Bank Linkage Programme, NCAER (2008) finds that SHGs have significantly improved the access to financial services of the rural poor and have a considerable positive impact on the socio-economic conditions and the reduction of poverty of SHG members and their households. In fact, RBI (2008) report on financial inclusion further emphasizes that SHGs are “the most potent initiative since Independence for delivering financial services to the poor in a sustainable manner.”¹ SHGs also provide both skill development and human capital training services to their members in addition to financial services.

This paper aims to explore the impact of these training services. We test this objective using a unique data set from five Indian states with SHGs. The data were not only collected on current members and non-members but also on newly enlisted SHG members who have not yet received loans. This study investigates whether training has impacted assets and income for current SHG borrowers as well as these new members. In other words, we want to examine whether training has impact over and above membership (which measures loan access).

This paper contributes to the small number of studies that seek to identify the impact of extra training for borrowers (Karlan and Valdivia (2009) and Field, Pande, and Jayachandran (2007)). It also lends itself to the debate of whether microfinance should be narrowly focused on credit or on ‘microfinance plus’, for instance, provision of additional services like training. Some people (as Mohammed Yunus and his emphasis on entrepreneurial talent) argue that credit is enough, while others find that credit without marketing and business skills is for naught. Still, others find microfinance not as an end per se

¹ RBI (2008), p.iii.

but as a vehicle for concomitantly achieving other development goals such as education and health.

Why are we interested in the effects of training? As Karlan and Valdivia note, we would like to know if microfinance institutions (MFIs) can teach entrepreneurship skills or if skills are fixed characteristics. On one side researchers believe that households may already have the skills and human capital and only need financial capital. On the other side, are those who believe that MFIs must also provide training as households cannot efficiently use the financial capital that they receive. Furthermore, since borrowers are already organized to obtain loans, they may not be interested in other services?² This additional training may either provide business skills for immediate impact or life training skills as in population control and education training. A natural question arises whether it is worthwhile for MFIs to branch out to training or should they focus purely on lending?

With training, an important point that requires further investigation is whether membership is sufficient for impact, i.e. is training beyond membership necessary? Beyond the innate entrepreneurial skills, membership impacts outcome measures in a number of ways. First, by working, saving, and repaying, members adopt a disciplinary ethic. Second, by actually working hands on in projects, members “learn by doing” without any need of training. Third, regular meetings provide a setting for members to discuss their work-related problems. Our data allows us to discern the effects of training from that of membership. We have data on new members (with no credit) as well as mature members, thus controlling for member self-selection. We also have training data on these members.

The paper begins by examining the impact of training on assets or income. It then proceeds to look at different vectors by investigating the impact of the quantity of training, in

² Thus, it is not a provision of an actual extra product as in insurance or health (as in Smith (2002)). Here, it is the provision of human capital which can help.

terms of the amount of weeks of training on the borrowers? It then turns to training interactions: whether training is more effective in villages with better infrastructure. Finally, it examines delivery systems to find which linkage delivers the greatest impact for training. We find that training has no effect on assets, but positively impacts income. We also observe that the amount of training has no impact on these outcome measures. We find that training is more effective for asset accumulation in villages with better infrastructure. Training for income impact is best delivered through the linkage model in which NGOs form the groups and banks finance.

In a broad sense, this paper falls under the umbrella of impact studies on microfinance. However, it differs in its emphasis on the training impact of SHGs. We first discuss the related literature on impact studies in microfinance. 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. While Coleman surveyed borrowers in both treatment and control villages who sign up at the same time, we observe new and old groups in SHGs.³

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 from three states. The study measured impact by computing the percentage difference of the means of members’ variables pre and post SHGs membership. Their results find that SHG membership significantly increases the asset structure (30 %), savings, and annual net income. Clearly, this type of analysis does not account for any changes in observable characteristics nor broad economic changes through a control group. Furthermore,

³ Another influential paper on microfinance impact is Pitt and Khandker, 1999, which relies on Grameen’s eligibility rule. More recent papers that have exploited the panel nature of the data to remove the fixed unobservables are Khandker, 2005 and Tedeschi, 2008.

this study does not address the impact of training. Still, due to the scarcity of studies on SHGs, this study has had much policy influence, and is widely quoted in a number of RBI and NABARD documents.

In terms of training, Karlan and Valdivia is the only rigorous study of which we are aware. Using the popular randomization method with data from the Philippines, they find that training improved business practices and revenues. They also find that this increased knowledge led to greater repayments and client retention. Field, Pande, and Jayachandran are in the process of using a similar randomization technique to India but only preliminary results so far are available. Thus, not only for SHGs but for microfinance in general, very few studies have analyzed the contribution of training to microfinance outcome measures.

A more recent study by NCAER (2008) on 4,600 households from six states in India assesses the impact and sustainability of the SHG bank linkage program.⁴ Throughout this paper, we will draw on this study as it offers important insights into the functioning of SHGs and provides information on training and some other aspects of SHGs not covered in our data. Also, the NCAER study overlaps with our study in five of the six states (we do not have data on Assam). However, the NCAER study is primarily anecdotal and descriptive without much rigorous analysis. 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 training in SHGs. This paper seeks to achieve this objective.

For those unfamiliar with SHGs, in the next section, we outline the basic information, design, and training. Section three discusses our methodology and explains potential biases. In the fourth section, we describe our data set with the results presented in Section Five. In the last section, we conclude and draw some policy lessons.

⁴ Two districts each were selected from Andhra Pradesh, Karnataka, Maharashtra, Orissa, Uttar Pradesh and Assam.

2. SELF HELP GROUPS AND TRAINING

Self Help Groups fall under the category of village banking which includes ten to twenty (primarily female) members. In the initial months the groups have to save a certain amount and thus build group discipline. Once savings pass a threshold level, the groups wait six months to receive loans of up to four times the savings amount.⁵ The bank will then disburse the loan and the group on its own decides how to manage the loan. As savings increase through the group's life, the group accesses a greater amount of loans.

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. According to NABARD (2006), 44,000 branches of 547 banks and 4,896 NGOs participate in the SHG bank linkage program. As with microfinance in India (or more generally with credit), the spread of SHGs has been concentrated in the Southern states.

As of March 2002, the cumulative number of linked SHGs in five states covered in this study follow a similar pattern. 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). Well aware that the spread of SHGs is concentrated, recently NABARD has identified thirteen poorer states in which they would like to expand their program. As the program is predominantly rural, NABARD has recently identified urban areas for experimentation.

Rather than follow strict eligibility criteria, the SHG program links with the poor through Self Help Group Promoting Agencies (SHPAs), which primarily includes NGOs,

⁵ More recently, NABARD has allowed the banks to lend five to six times the savings amount to reflect the growing requirement of SHG members.

but also banks, and government officials. The agencies survey the village, provide the details of the program, enlist borrowers, and sometimes organize the training. Three types of linkages have emerged as the most common. In Linkage Model 1, banks both form and finance SHGs. According to NABARD (2006), roughly twenty percent of SHGs fall under this linkage model. In the most popular linkage model 2 (roughly three-fourths of all SHGs), NGOs form the groups but directly finance them. In the third linkage model banks finance the SHGs through NGOs (but only 5 % of linkages fall under this model).⁶ For banks, SHG linkages allow them to expand lending which helps them fulfill India's priority sector guidelines. For NGOs, the SHGs provide a vehicle to reach a larger number of the poor for a wider development agenda, such as women's development schemes and child development services.

The program features of small loan size, frequent meetings, and frequent repayment installments dissuade the non-poor from joining SHGs. Thus, SHGs do not use explicit eligibility criteria but rather rely on indirect methods for attracting the poor. In many SHGs, SHPAs provide training and outreach to members in fields such as primary healthcare, basic literacy, family planning, marketing, and occupational skills.

Training and capacity formation can be broadly classified into two categories.⁷ The first type is general training to all SHG members which covers group formation and introduction to linkage methods. This training includes basic literacy, book-keeping, group formation, and group dynamics.⁸ Though this type of training is geared towards group management, it may impact economic variables as well. Still, all members receive this

⁶ In our data, 70 % of SHGs follow Model 2 while 12 % and 18 %, respectively, follow the first and third models.

⁷ Much of this information was provided through interviews with Mr. Mishra, NABARD Manager, Bhubaneswar, and Mr. Choudhury, Assistant General Manager, Bhubaneswar. Some of this information is also available through NABARD circulars.

⁸ More specifically it includes training on group formation and functioning; functions and qualification of office bearers; rules and regulations; planning, management and monitoring; financial service provisions, conditions and procedures; training of group leaders; and training of book keepers.

training which is relatively homogenized. The general training usually takes one day and each participant is awarded Rs. 250.

The second training module relates to skill formation and the SHPAs primarily administer these to more mature groups, those older than one year. This study will mainly focus on this aspect of training. The skill formation training aims at improving income-generating activities such as farming, craft or business. Skill formation programs include programs such as the REDP (Rural Entrepreneurial Development Program) which is designed for unemployed but educated rural youth.⁹ The training hours depend on the skill and training module but vary between ten and a half hours to seventeen and a half hours per day. Participants receive a stipend as well as free boarding and lodging. The REDP comprises of three distinct phases: pre-training (survey for identifying business activity), training (for six to eight weeks) and post training (with services rendered to trainees for at least two years for setting up units).

SHG members can demand the required skill training. However, their demand may not be met in all the cases because the viability of the training sessions require a critical number of potential trainees to make the 'demanded' training program cost effective. Moreover, local trainers for that specific skill also need to be found. Why do members participate in the training sessions? Since some of the demand is internally driven, members participate out of interest and need. Actually, many SHGs note that more members than those that initially request the training, participate in the sessions. Furthermore, as mentioned before, NABARD's stipend provides an added incentive to participate. Other than the REDP, NGOs also provide additional education, health related training and awareness creation training. However, not all SHPAs provide this type of training, nor is the type of program homogenous.

⁹ The MEDP (Microenterprise Development Program) began only after 2006, which is after our data had been collected. However, it will be discussed more at length in the conclusion.

Different camps have touted the relative advantages of SHGs over MFIs. Defenders of NGO linked SHGs (linkage model 2) assert the following. First, that NGOs perform effective development activities within their own district and so are the best equipped to provide training services. They do not need an extra incentive mechanism to monitor and train SHGs (as suggested by the detractors). If NGOs choose to deny training services to a particular group, then the NGOs have identified that group as low quality. In many instances, bank officers work with NGOs at every step of the way. At times, members initiated the training which differs from many standard Grameen style models. Furthermore, to a certain extent, the group is self-run as the elected office bearers (such as the president and treasurer) maintain the financial records. These officers are usually more educated and share the records with the group.

In contrast, several MFIs are donor-driven and face pressure to obtain high repayment rates which may stifle their training efforts. In particular, training may have payoffs much later but add to costs and may potentially damage current outcome measures. Since the government backs the SHG program with a development mission in mind it may not face the same pressure. Overall, the SHG model reflects an institutional approach, while the private MFIs reflect a more market oriented outlook. Given the recent policy momentum and the ongoing debate on SHG impact, we turn to examine whether training positively impacts borrowers.

3. ESTIMATION STRATEGY

Due to unmeasured attributes, selection bias can complicate assessing impact. A further complication arises because the decision to participate in SHGs and receive training depends on the same attributes that determine the impact variable (asset accumulation and income in this paper). Policymakers may also place programs and provide training 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.¹⁰ We will first establish the correction for selection into the program in this section and later in the results section (Section 5), discuss the treatment of training.

In measuring the training impact of a well established development program such as SHGs, certain roadblocks arise from the outset. The increasingly popular method of randomization such as the one Karlan and Valdivia have adopted is difficult to implement. Providing training to some borrowers and denying to others may upset certain constituencies. In particular, holding a control group without training for long is problematic (as noted by Karlan and Goldberg). This problem is especially true for large programs such as SHGs because it would mean synchronizing the training randomization across different states. A second strategy (as adopted by Pitt and Khandker) exploits an exclusion rule on credit access to estimate unbiased impact. However, SHGs follow no such exogenous rule.

The third method, the Coleman pipeline approach, is closest to our choice for this study. As mentioned in the introduction, at the data design stage Coleman interviewed both current members of an MFI and future members of an MFI. Presumably, both types of members have similar unobservables, thus we can attribute any difference in impact to borrowing from the MFI. Adapting the pipeline method is not straightforward in that the SHG program is well established and not new as the program Coleman studied.

By design, SHG members have to wait to receive a loan from the bank (about six months) and we can exploit this design feature to identify the self-selected members who have not yet received a loan. Our method differs from Coleman in that he intentionally interviewed people at the data design stage while we exploit the wait some households have to face with later SHGs.

¹⁰ Selection bias in impact studies has been discussed at length in Goldberg (2005), Karlan and Goldberg (2006), and Coleman (1999).

The self-selection bias arises from the potentially unobservable traits of the SHG members. One presumes that leadership skills, entrepreneurial ability, and other critical aspects will make households more likely to participate in the SHG program. However, these same traits would lead to higher asset creation or income generation even if members 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. To avoid the problems with villages, we raise the level of aggregation to another level, such as districts (where both mature and new SHGs reside). Some recent papers on credit in India, as Sharma, 2005, also adopt this tactic since many programs are established at the district level. Similarly, NABARD's choice to expand the SHG program occurs at the district phase without any specific announced policy targeting certain villages over others.¹¹ Thus, we choose to aggregate at the district level, the basic administrative unit within a state where credit decisions are made.

We have data from districts where some members are currently active members of SHGs for at least one year but in the same district (but different villages), members from newly formed SHGs have been selected but not yet received financial services from the bank. Thus, the treatment group in our sample consists of mature SHG members, while new SHG members form our control group.¹² We hypothesize that the mature and new SHG members

¹¹ NABARD's or the bank's decision to link with a SHG might follow the NGO's choice. We do not have information whether NGOs favor certain villages over others within a certain district.

¹² One caveat of this approach is that we need to assume the behavior of new SHG members has not changed while anticipating loans. In other words, while awaiting loans, SHG members do not begin asset accumulating knowing that they will receive SHG loans in the future. An advantage of SHGs is the following. Due to the slow incubation period of SHGs, members know for some time the nature of wait and will not change their behavior as radically as a one time boost in loans.

have similar unobservables. We also have information on nonmembers from these districts so that we can condition on the selection to join the SHG.¹³

The dropout rate for SHGs is not severe in that the NCAER study estimated the dropout rate as 8.2 %, below the 20-30 % cited by Aghion, Morduch and Karlan as a severe problem.¹⁴ Furthermore, the NCAER study indicates that almost 57 % 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. We did not track the dropouts but considering the slightly higher dropout rate of the very poor in SHG programs, the estimates we present will slightly over-estimate impact. Thus, the results of this study are conditional on the remaining mature SHG members not being of a much different makeup than the dropouts.

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. This same problem affects training programs. Depending on the economic development and infrastructure of the region the cost of arranging the training and availability of trainer may vary and hence impact the decision to provide a certain type of training. Alternatively, the bank may place programs

¹³ We do not have data to actually test this hypothesis since otherwise we condition on the unobservables. We would need to take it on an act of faith or the results would be attributable to the differences in unobservables between mature and new SHG members. We can check for significant differences in the observable characteristics for mature and new SHGs. We ran regressions of the following type:

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

Where X is the observable characteristic, D is a vector of district dummies, M is a member dummy which takes on the value one for member and zero otherwise. T is a treatment variable which takes on the value one for mature SHGs and zero for new SHGs. Thus, the significance indicates any difference over and beyond district and self-selection differences. The results indicate that only age and dependency ratio were significantly different between the two groups.

¹⁴ The dropout issue is two-fold (Karlan, 2001). In the first, the incomplete sample bias, dropouts are impacted differently so that an impact assessment does not take 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 choose to graduate. If the failures are more likely to dropout, comparing mature and new borrowers overestimates impacts.

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 (worse) off due to the program but simply because they live in a better (worse) 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 mature 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.¹⁵

As mentioned in the earlier section, the SHPAs provided basic training to all SHGs. Some of the SHPAs organized additional training to some of the mature SHGs. The extra training targeted improving knowledge, especially in terms of financial, communication, income generating, management, and marketing skills. The training variable (T_{ijs}) indicates whether the household received training. Thus, this variable captures whether training has impact beyond membership duration and self selection of the members. We will focus on different aspects of this variable to fine tune the definition of training. We will discuss later the potential endogeneity of this variable.

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

$$I_{ijs} = a + \alpha X_{ijs} + \beta V_{js} + \lambda D_s + \gamma M_{ijs} + \delta SGHMON_{ijs} + \phi T_{ijs} + \eta_{ijs} \quad (1)$$

Where I_{ijs} is the impact for household i measured in terms of asset creation or income generation, for household i in village j and district s , X_{ijs} are the household characteristics; V_{js}

¹⁵ 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 (e.g. village has a more dynamic leader or village has stronger political connections) cannot be taken into account.

is a vector of village-level characteristics, and D_s is a vector of district dummies that control for any district level difference. Here, M_{ijs} is the membership dummy variable, which controls for the selection bias. It takes the value one for both mature and new SHGs. It takes the value of zero for those villagers that have chosen not to access the program. Here, $SGHMON_{ijs}$ is the number of months that SHG credit was available to mature members, which is exogenous to the households. The parameter of interest is ϕ which measures the impact of training.

4. DATA

The data used for the empirical analysis in this paper was collected by one of the authors and forms part of a larger study that investigates the SHG-bank linkage program.¹⁶ The household survey uses a quasi-experimental design, with pre-coded questionnaire to collect cross-sectional data for two representative districts each, from five states in India, for the year 2003.¹⁷ Within the states, the study avoided districts with over and under exposure of SHGs and only evaluated SHGs with good operational links. The sampling strategy randomly chose the respondents from the SHG members at the district level. The non-members were chosen to reflect a comparable socio-economic group as the SHG respondents.

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 the earlier signees may be of a different makeup than the later signees. Of the remaining sample, 593 respondents are from mature SHGs, 185 are from new SHGs, and 52 are non-members.

¹⁶ The process involved discussion with statisticians, economists and practitioners at the stage of sampling design, preparing pre-coded questionnaire, translation and pilot testing with at least 20 households in each of the 5 states (100 households in total). The questionnaires were then revised, reprinted and the data collected by local surveyors that were trained and supervised by the supervisors. The standard checks were applied both on the field and during the data punching process.

¹⁷ These states (districts in parentheses) are Orissa (Koraput and Rayagada), Andhra Pradesh (Medak and Warangal), Tamil Nadu (Dharamapuri and Villupuram), Uttar Pradesh (Allahabad and Rae Bareli), and Maharashtra (Gadchiroli and Chandrapur).

For, 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.¹⁸ For the mature SHGs, their SHGMON = date of formation - six months. A few mature 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.

The data was not collected specifically for a training study. An advantage is that respondents did not overemphasize training and answered training questions as part of other questions. A disadvantage is that specific answers to training are missing. We primarily have information on the total training weeks that a household has received. We realize that quantity of training may not adequately measure training in that training may be more effective with a fewer, focused delivery. We address this issue further on with other training variables. Quantity still remains important for two reasons. First, number of weeks means increased costs on the SHPAs as well as participants. Second, we still want to explore whether the weeks of training were effective or not.

The survey yields other measures of training. Table 1 summarizes the descriptive statistics for training related items. When comparing the means and variances of the training weeks for mature and new SHGs we do find a large difference: a mean of 1.11 weeks for new SHGs versus a 1.62 for mature SHGs.¹⁹ For the standard deviation, we found a 1.78 for new

¹⁸ These respondents have been a SHG member for less than a year and have been identified as a new member in the SHG list available at the district level.

¹⁹ A t-test with unequal variances revealed that a t-ratio of 3.32 statistically significant at the 1 % level.

SHGs and 2.53 for mature SHGs. Thus, the amount of training weeks and variability in training is larger for mature SHGs. Over half (53 per cent) of the mature SHGs reported having received additional training while only 39 percent of the new SHGs reported the same.²⁰ These statistics are not surprising in that the longer length of membership of mature SHGs may provide them with more opportunities for training. A very small percentage of the non-members also received training from other NGOs or programs.

Other training statistics include the following: the quality of training (a self reported success variable) and the type of training (development (health and education), business and skill development, or others). On the type of training, new SHGs are receiving more training from non-development, non-business types of training. Surprisingly, under Linkage 1 where banks form SHGs, the largest proportion of members receive training but under the more popular Linkage 2 where NGOs form SHGs, the length of training is greater per member. NGOs dominate training organization, even in Linkage 1.

<Insert Tables 1a and 1b here>

As suggested by Doss et al., 2007, we accumulate assets from six categories: land owned, livestock wealth, dwelling and ponds, productive assets, physical assets, and financial assets (includes savings and lending). For household income, we include income from agriculture, poultry and livestock, wages, fisheries and forest resources, rent, remittances, and enterprise. Household characteristics include age, gender, education dummies and number of earning members in the family. We also include dependency ratios in that we expect households with larger dependency ratios to have greater incentive for asset accumulation. In

²⁰ NCAER(2008) also finds that nearly half of all the SHGs have had skill development training (p.42) About 35 per cent of the households received training only once in 2006 and another 15 per cent have received training multiple times (p. 74).

order to control for initial wealth, we employ land owned three years ago.²¹ For village characteristics, in addition to male wage, we include the following distance variables: paved road, market, primary health care center, and bus-stop. Table 2 presents the non-training related descriptive statistics of the independent and the dependent variables, respectively.

<Insert Table 2 here>

In comparing SHG members versus non-members, they are of about the same age, dependency ratio, similar level of education and a higher amount of land on average. In terms of village level variables, SHG members are closer to most amenities but non-members are relatively closer to banks.²² In comparing SHG members to non-members on other variables, we further find that SHG members on average have a relatively higher income, own more land and dwelling but have slightly lower amount of assets. Non-members also have a slightly higher proportion of household members that are engaged in economic activities.

5. RESULTS

This section presents and discusses the estimation results for the training impact of the SHG bank linkage program on asset accumulation and income. Table 3 provides the regression results of Equation (1) for the impact of training on assets and income. In Columns (1) and (2), we examine the impact of training in a broad sense. Columns (3) and (4) focus on the amount of training received by SHG members and its impact on the gross assets and income.

<Insert Table 3 here>

²¹ Since land forms the bulk of assets and land turnover is infrequent in India (see Pitt-Khandker, 1998 for more discussion on this), this variable was the best choice for initial wealth.

²² This might result from the branching of Indian banks outside the sub-district (block) headquarters where most of the government offices are located.

Column (1) indicates that membership duration matters for asset accumulation and training does not provide any additional benefit.²³ Presumably, the in-built savings mechanism within the SHG framework provides sufficient incentives for members to build assets. The results in column (2) indicate that surprisingly membership duration negatively affects income creation (though the point estimates are small).²⁴ Thus, a trade-off emerges between short term income creation and long term asset creation. Moreover, training can reverse on the negative impact by positively increasing the income generation of the household. Roughly, up to three years of membership can be reversed with training (assuming constant returns to membership). The amount of training, however, does not have a direct impact on either income generation or asset creation as seen in columns (3) and (4). We also estimated a non-linear function of weeks of training with the assumption that initial weeks would have larger effect but did not find any significance on these either.

Of the household characteristics, we find positive significance of the dependency ratio for asset creation but negatively for income generation. Households with a greater number of dependents are more interested in asset creation and less in income 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) and less interested in current income generation. Initial wealth (as in the amount of land holdings) also influences the current asset and income position of a household. Of the village characteristics, distance from paved road (as expected negatively) and distance from the bus stop are significant (though somewhat surprisingly positively) for assets but no influence on income. We will use distance from paved road as a proxy for village infrastructure.

²³ We have also estimated regressions where we replaced gross assets with gross assets minus SHG savings and also with net assets (gross assets – other borrowings). The results were substantially the same.

Table 4 provides the impact of the level of infrastructure, linkage model, and the training provider with their respective interactions with the training. Table 4, Columns (1) and (2), find that training has a much higher impact on assets when it is made available to SHGs in villages closest to paved roads. A clear interpretation of this result is that for effective asset accumulation, location of village matters and households need an avenue for marketable products. Without that outlet, households have no incentive to accumulate assets and training in these respects would not be of much use. For those with training, one kilometer less of paved road can drop assets by about 5000 rupees. With income generation, paved roads do not yield a similar impact, presumably because households can still consume their own products without relying as much on the market. Still, the result of no effect is surprising.

<Insert Table 4 here>

Column (3) indicates that the linkage model type does not matter (since all the coefficients are insignificant) for asset creation (where the reference dummy is the most popular linkage two which is bank financed/NGO formed). We find that linkage 2 does not have any advantages over bank formed (linkage 1) or financed through NGOs (linkage 3). In column (4), we examine the impact of the linkage model on income generation to find that linkage model 1 (SHGs formed and financed by banks) coupled with training has a lower impact on income generation as compared to SHGs formed by NGOs but directly financed by banks (linkage model 2). Linkage model 3 on the other hand is the least effective in terms of its impact on income. The NCAER study (2008) confirms these results as they find that SHGs found training and information from linkage 2 as “especially positive”, whereas linkage 1 was ranked as “below average”.

The source of training whether it is arranged by the government, NGOs or others might also have varying impact due to difference in content, structure, organization and

implementation. This is investigated further in Columns (5) and (6). Training provision by government officials are less effective in its impact on assets, as compared to the training from others. Surprisingly NGOs do not provide a distinct advantage over others in terms of training organization.

We now discuss the potential endogeneity of the training variable. Length of training is not endogenous since that is dictated by the provider but the choice between getting training and not might be. This is because the length of training is more randomly decided especially in the pre-2006 era. We test for potential endogeneity of the training variable. Training is usually demanded by the SHG members but whether it is actually provided or not also depends on the capacity of the NGOs, government, or SHPAs. In particular, their motivation and interest, the critical mass of individuals that require training and the availability of a trainer.

As such we used a Two Stage Least Squares Method to correct for the endogeneity of the training variable. We use household characteristics, infrastructural village characteristics to predict the probability to receive training. The predicted probability is then used to measure the impact. The results from the predicted probability which corrects for endogeneity give us similar results to previous ones (available on request from authors).

6. CONCLUSION

In this paper, we evaluated the impact of training in Self Help Groups on two outcome measures, income and assets. In general, we find that training does reverse the otherwise negative impact of SHG participation on income but has no impact on assets. The quantity of training as in weeks does not make any difference on either outcome. Good village infrastructure helps training's effectiveness in asset accumulation. When NGOs form groups and banks finance groups, training has the greatest impact on income.

Training matters for income generation because it helps people move away from agricultural income to other sources of income, such as livestock income. Membership per se may actually have a negative impact on income since households obtain greater loans but are not trained to utilize them efficiently. Income generating activities require technical knowledge and skills. Income generation in agriculture and animal husbandry can also be largely improved by appropriate training and further enhanced by training about processing, preservation and refrigeration. For assets, membership is sufficient presumably because savings are inbuilt and provide enough discipline for asset accumulation.

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 organization (as in Linkage Two). This linkage is the one that exploits the comparative advantage of the bank and the NGO and not surprisingly is the most effective. The results here call for an expansion of this type of linkage and for not utilizing government officials as training organizers.

We now comment on future directions, both in terms of research and policy. Even though this survey has the best data to date on training on SHGs, more work needs to be done for data collection. One, our measure of quantity of training is provided in weeks, if one were to obtain a finer measure such as hours that may provide different results. Two, a distinction

of the types of training programs would help differentiate the ones that had most impact. Three, in future work we will examine the relationship between the type of training such as education and its impact on other outcome measures such as schooling. Though this type of training may be costly now, it has future payoffs.

In terms of implementation, according to NCAER (2008), more than eighty per cent of the SHGs face problems in developing the skills of their members. Major reasons cited are: lack of time, lack of interest, inadequate literacy among members and insufficient training facilities. The SHGs in all the states suggested that the SHPAs allow more time in training and group discussions. They further require support from financial institutions in training on book keeping, reviewing and advice on SHG financial activities and health. Furthermore, the training program is not homogenized and varies by NGOs so it is difficult to grade the quality of the training program.

One future hopeful program is the Microenterprise Development Program (MEDP) which began in 2006 and thus is not included in this data set. This training program targets skill development for mature SHGs. Here, the initial demand for skill training comes from the SHGs and the SHPAs apply for grants to impart the relevant skill training. Another appealing aspect of this program is that the length of the training is limited to two weeks and can also be a minimum of three days. Future data collection on this program can evaluate its impact.

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 training 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.

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APPENDIX: TABLES

Table 1a

Training Statistics (by Mature and New SHGs)

| Training statistic | Mature SHGs | New SHGs |
|---|--------------|--------------|
| Received training (%) | 53 | 39 |
| Length of training (weeks) | 1.62 (2.53)* | 1.11 (1.78)* |
| Skill development for income generation (%) | 22 | 19 |
| Development Training (%) | 17.5 | 16 |
| Other types of training (%) | 13.2 | 28 |

*Mean (standard deviation)

Table 1b

Training Statistics (by Model)

| Training Statistic | Model 1 | Model 2 | Model 3 |
|----------------------------------|------------|----------|------------|
| Received training (%) | 55 | 43 | 48 |
| Length of training (weeks) | 2.5 (1.4)* | 3 (1.9)* | 2.3 (1.5)* |
| Government training (%) | 6.5 | 11.4 | 2.4 |
| Training by NGOs (%) | 89 | 70 | 76 |
| Training organized by others (%) | 0 | 1 | 0 |

*Mean (standard deviation)

Table 2
Non- Training Related Descriptive Statistics

| Variable Name | Mature SHGs Mean (S.D) | New SHGs Mean (S.D.) | Non-Members Mean (S.D.) |
|------------------------------------|---------------------------|-------------------------|----------------------------|
| N | 593 | 185 | 52 |
| Gross Assets (Rs.) | 109164 (146381) | 104810 (136807) | 118248 (174756) |
| Income (Rs.) | 16862 (16545) | 15386 (17963) | 12661 (15102) |
| Months in SHG | 26 (13) | 0.31 (1.4) | 0 |
| Age (yrs.) | 35.2 (8.7) | 32.6 (7.3) | 35.6 (8) |
| Gender (Female=1) | 0.96 (0.20) | 0.92 (0.27) | 0.96 (0.2) |
| Dep. Ratio | 0.66 (0.22) | 0.69 (0.19) | 0.61 (0.23) |
| No Education | 0.51 (0.50) | 0.59 (0.50) | 0.5 (0.5) |
| Primary Ed. | 0.20 (0.39) | 0.12 (0.33) | 0.25 (0.44) |
| Secondary Ed. | 0.17 (0.38) | 0.18 (0.38) | 0.12 (0.32) |
| College Ed. | 0.03 (0.18) | 0.04 (0.19) | 0.02 (0.14) |
| Owned Land in 2000 (acres) | 0.86 (1.43) | 0.81 (1.47) | 0.54 (1.19) |
| Distance from Paved Road (kms.) | 3.04 (3.33) | 3 (3) | 3.5 (3.0) |
| Distance from Bank (kms.) | 9 (7.4) | 6.3 (5.7) | 4.9 (3.2) |
| Distance from Market (kms.) | 7 (4.2) | 4.3 (3.5) | 5.4 (3.2) |
| Distance from Healthcare (kms.) | 4 (6) | 3.6 (3.2) | 4.9 (3.3) |
| Distance from Bus Stop (kms.) | 7 (6) | 3.34 (3.15) | 4.6 (2.8) |
| Male Wage (Rs.) | 46 (12.4) | 45 (20) | 54.8 (16.2) |

Table 3

Estimates of Impact on Asset Creation and Income ($\times 10^{-2}$)

| | (1) | (2) | (3) | (4) |
|-------------------------------|------------------|-----------------|------------------|-----------------|
| | Gross Assets | Income | Gross Assets | Income |
| Member | -462.43 (2.35)** | 33.16(1.27) | -452.7 (2.34)** | 37.74(1.46) |
| SHGMON | 5.80 (1.78)* | -0.69(1.81)* | 5.80 (1.78)* | -0.68 (1.77)* |
| Training (Yes=1) | 105.46 (1.12) | 26.9(2.04)** | - | - |
| Weeks of Training | - | - | 25.7 (0.93) | 4.6(1.34) |
| Age (yrs.) | 0.13 (0.02) | 1.2(1.67)* | 0.18 (0.03) | 1.22(1.70)* |
| Gender (Female=1) | 100.95 (0.75) | -1.4(0.05) | 106.68 (0.79) | -0.86(0.03) |
| Dep. Ratio | 345.82 (1.82)* | -100.8(3.74)*** | 351.18 (1.85)* | -100.1(3.70)*** |
| Primary Ed. | 226.62 (1.87)* | -21.8(1.37) | 223.77 (1.84)* | -22.37(1.41) |
| Secondary Ed. | 267.62 (2.13)** | -32(1.85)* | 264.53 (2.10)** | -32.77(1.90)* |
| College Ed. | 553.87 (2.05)** | -63.5(1.88)* | 553.47 (2.03)** | -63.48(1.88)* |
| Land 3 years ago (acres) | 438.54 (8.15)*** | 16(3.91)*** | 440.53 (8.25)*** | 16.61(4.09)*** |
| Distance Paved Rd. (kms.) | -92.01 (3.12)*** | -0.46(0.11) | -93.68 (3.20)*** | -1.14(0.28) |
| Distance Bank (kms.) | 5.91 (0.50) | -1.35(1.05) | 5.66 (0.48) | -1.47(1.14) |
| Distance Market (kms.) | -16.70 (1.51) | -0.04(0.20) | -17.55 (1.58) | -0.20(0.12) |
| Distance HealthCare (kms.) | 16.29 (0.66) | -1.19(0.46) | 17.12 (0.69) | -0.97(0.37) |
| Distance Bus Stop (kms.) | 67.65 (2.20)** | -0.81(0.21) | 67.95 (2.26)** | -0.45(0.12) |
| Male Wage (Rs.) | -5.29 (1.14) | -0.05(0.09) | -5.18 (1.12) | -0.02(0.04) |

Notes: *** Significant at the 1 % level. ** Significant at the 5 % level. * Significant at the 10 % level. All regressions include district dummies. Analysis based on 830 observations. For (1) and (3) absolute t-ratios in parentheses computed with White heteroskedasticity-consistent standard errors clustered by village. (2) and (4) are Tobit regressions. See text for definitions of variables.

Table 4

Estimates of Impact on Asset Creation and Income with respect to Infrastructure, Type of Model and Training Provider ($\times 10^{-2}$)

| | (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------------------|---------------------|------------------|--------------------|-------------------|---------------------|------------------|
| | Gross Assets | Income | Gross Assets | Income | Gross Assets | Income |
| Member | -464.62** (2.35) | 33.06 (1.27) | -444.8** (2.22) | 41.54 (1.58) | 446.92** (2.24) | 51.14* (1.70) |
| SHGMON | 6.35* (1.94) | -0.67* (1.73) | 58.51* (1.82) | -0.90** (2.30) | 5.40 (1.61) | -0.60 (1.55) |
| Training (Yes=1) | 252.19* (1.88) | 34.37* (1.92) | 66.50 (0.63) | 31.93** (2.13) | 173.19 (0.91) | -6.72 (0.23) |
| Distance Paved Rd. (kms.) | -78.20** (2.66) | 0.24 (0.06) | - | - | - | - |
| Distance Paved Rd.* Training | -48.74** (1.99) | -2.48 (0.62) | - | - | - | - |
| Model 1 | - | - | -193.1 (0.78) | 41.56 (1.50) | - | - |
| Model 3 | - | - | 14.59 (0.13) | -45.52* (1.89) | - | - |
| Model 1*Training | - | - | 29.49 (0.06) | -73.47* (1.76) | - | - |
| Model 3*Training | - | - | 171.5 (0.84) | -6.89 (0.21) | - | - |
| Organised by NGO | - | - | - | - | -43.37 (0.47) | -27.83 (1.27) |
| Organised by government program | - | - | - | - | 76.04 (0.38) | -23.38 (0.70) |
| trngngo*Training | - | - | - | - | -906.52** (2.32) | 42.57 (1.31) |
| trnggt*Training | - | - | - | - | 8.13 (0.04) | 35.32 (0.72) |

Notes: ** Significant at the 5 % level. * Significant at the 10 % level. All regressions include household characteristics and village level characteristics as in Table 3 and district dummies. Analysis based on 830 observations. For (1), (3), and (5) absolute t-ratios in parentheses computed with White heteroskedasticity-consistent standard errors clustered by village. Regressions (2), (4), and (6) are Tobit regressions. See text for definitions of variables.

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