ISSN No. 2454 – 1427

CDE
July 2017

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Jean-Marie Baland
Email: jean-marie.baland@fundp.ac.be
CRED, University of Namur

Rohini Somanathan
Email: rohini@econdse.org
Department of Economics
Delhi School of Economics

Lore Vandewalle
Email: lore.vandewalle@graduateinstitute.ch
The Graduate Institute, Geneva

Working Paper No. 278

http://www.cdedse.org/pdf/work278.pdf

CENTRE FOR DEVELOPMENT ECONOMICS
DELHI SCHOOL OF ECONOMICS
DELHI 110007

Socially Disadvantaged Groups and Microfinance in India*

Jean-Marie Baland, Rohini Somanathan and Lore Vandewalle†

June, 2017

Abstract

About two-thirds of microfinance clients in India are reported to be in Self-Help Groups (SHGs). These mostly women's groups have been promoted by nationalized banks since the early nineties to improve credit access among especially disadvantaged populations. We study the survival of members and groups and their differential access to credit using a census of SHGs created between 1998 and 2006 in 386 villages in eastern India. Households without land and those from disadvantaged castes and tribes exhibit higher attrition rates and smaller loans but we find the main predictor of differential outcomes is education rather than social identity. Members with formal education receive larger loans and have a 30 per cent lower risk of being separated from their group. Groups with no such members are also four times more likely to become inactive.

*Thanks to the PRADAN team for many useful discussions and for their support in facilitating data collection, to Sandeep Goyal, Sanjay Prasad, Amit Kumar, Rahul Sharan and Saurabh Singhal for research assistance.

†CRED, University of Namur (jean-marie.baland@fundp.ac.be), Delhi School of Economics (rohini@econdse.org) and The Graduate Institute, Geneva (lore.vandewalle@graduateinstitute.ch)

1 Introduction

In India, as in much of the world, microfinance has become central to development policy and poverty alleviation programs. The dominant model in Indian microfinance emerged in the early nineties when the Reserve Bank of India issued guidelines to all nationalized commercial banks encouraging them to lend to informal groups which came to be called Self-Help Groups (SHGs). Official statistics report members of these village-based groups to be about two-thirds of the 86 million microfinance clients in India.[1] The numbers of newly created groups and the total credit disbursed to them each year forms a regular part of banking statistics in India. There is however very little evidence on how membership and group composition evolves over time or on how bank loans are distributed within groups. This paper attempts to fill this gap by providing an empirical analysis of the determinants of survival and success of members within SHGs.

The SHG model is based on a partnership between non-government organizations (NGOs) and nationalized banks. NGOs initiate the formation of groups in the regions in which they operate and facilitate their application to banks for subsidized credit if the group shows a capacity to meet and save regularly.[2] Our data comes from a census of SHGs created by one such NGO during the period 1998-2007 in 386 villages in eastern India. We gathered data on all the 1,521 women's groups that were created in these villages and their 21,974 members. Entry into the group is voluntary and the coverage of the program is impressive, as 38 per cent of households in these villages have at least one SHG member.

We study the relationship between village composition and the initial membership of groups and then examine how these groups evolve over time. We focus on three sub-populations that are perceived as especially disadvantaged in India: landless households, uneducated villagers and those belonging to the Scheduled Castes or Scheduled Tribes. In the absence of reliable income data, these characteristics are routinely used to target public programs to the poor in India. We find that on average, the initial composition of groups closely resembles that of the village, so that SHG membership does not reflect signs of dis-

[1] Microfinance clients are defined as those who are part of a group that has received credit: by March 2014, nearly 4.2 million SHGs had outstanding bank loans and covered about 54.5 millions households (Nair and Tankha, 2015, p. 35.)

[2] See Reserve Bank of India (1991) and NABARD (1992) for statements outlining the program.

crimination against tribal or landless households. However, groups within a village are sorted by caste and land, and are therefore much more homogenous than the village as a whole. We investigate to what extent this variation affects the relative performance of different groups within the same village.

Based on a combination of surveys and financial records of SHGs, we are able to track the composition of groups over time and the credit received by each member. Over the period of our study, 12.2 per cent of initial members left their groups and 8.7 per cent of groups discontinued their activities. The core of our analysis uses duration models to uncover the determinants of longevity and success of particular types of members and groups. Households without land and those from disadvantaged castes and tribes exhibit higher attrition rates and the latter also receive smaller loans but we find that the main source of differential outcomes is education rather than social identity. Members with some formal education have a 30 per cent lower risk of being separated from an existing group and groups in which no member is educated are four times more likely to disappear as those in which all members have some education. Groups with educated members receive their first bank loan much faster than those in which members have no education. Educated members also receive loans that are about one-third larger than non-educated ones. These benefits are roughly similar across caste and tribe categories.

Most of the existing empirical literature in microfinance focuses on the appropriate design of microfinance institutions and their impact on household investment and consumption behavior.[3] We focus instead on the member and group characteristics that underlie the performance of SHGs. Benefits within the SHG network depend critically on how long individuals can stay within it and how effectively they are linked to a system which can provide them with credit. These processes have not been explored in previous work.

Section 2 outlines the structure and functioning of SHGs in our study area and provides details on the data collected. Section 3 compares the composition of groups with that of the villages in which they are formed. Section 4 estimates the determinants of group and member survival and Section 5 examines their differential access to credit, provided the

[3]This literature is extensive and Banerjee (2013) provides an overview and an assessment of available insights and existing gaps. On the impact of SHGs in India, see Baland et al., 2008; Casini et al., 2017; Datta, 2015; Deininger and Liu, 2013; Desai and Joshi, 2014; and Khanna et al., 2015.

group survived and the member is still active. Section 6 explores some possible mechanisms relating education to financial performance before concluding.

2 The survey

Our data is based on surveys of SHGs created by PRADAN (Professional Assistance for Development Action), one of the earliest NGOs in the Indian microfinance sector. The NGO is active in 44 districts, spread over 8 states.[4] It aims to promote and strengthen the livelihoods of socio-economically disadvantaged communities. PRADAN operates by first targeting areas with high levels of rural poverty within particular districts. Such areas are under the sole responsibility of a particular PRADAN team, both for the creation and the accompaniment of the groups in that area. A member of the PRADAN team begins the process of group formation by calling a meeting in some public space in the village, during which he presents the benefits of membership and some general principles followed by successful groups (compulsory attendance, weekly savings, typical interest rates, bookkeeping, etc.).

A group of around 15 voluntary women is formed, and it progressively decides on its basic rules, such as the location of the weekly meeting, the minimum savings per member or the interest rate charged on small internal loans given to group members (usually 2% monthly). Each group is initially provided with a register for keeping accounts and a cash box, and either designates one of the members to keep accounts or hires an accountant. The register, cash box and keys are usually rotated across the members. The PRADAN professional is present at the meetings until membership becomes fairly stable and all members are familiar with group practices.

Smoothly functioning groups typically open a savings account with a nearby commercial bank within a year of their inception. After some more months of regular contributions to that account, PRADAN discusses possible projects with the group and some members decide on particular projects which are approved in group meetings. The group then applies

[4]The states are Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan and West Bengal.

to a commercial bank for a loan, through the intermediation of the PRADAN professional in charge of that group. This loan constitutes their first bank linkage. Once linked, bank loans are always given to the group as a whole, without collateral and at subsidized interest rates. The group distributes the loan to its members according to their various projects. Repayment of the loan is made at the weekly meeting, along with the minimum savings deposited on the group account. There is some flexibility on repayment within the group, but peer pressure ensures that loans are effectively repaid, so that the default rate on bank loans is limited.

We ran a census of all the 1,521 SHGs created by PRADAN in five of its field locations, two in northern Odisha, one in central Chhattisgarh and two in northern Jharkhand. These groups were all created from 1998 onwards. Running a census was particularly appropriate as we focus on groups' disappearance and members' departure, which a traditional random survey is more likely to miss. The observations therefore included every group that has been formed since 1998 in these areas. At the group level we collected data on rules, activities and the timing of some significant events. These events include the inception of the SHG, the opening of savings accounts, receiving bank loans and the date of the last meeting. Group rules include fines (for attendance and late repayment), minimum savings requirements, interest rates and the assignment of group responsibilities. In addition to group level data, we collected information on the backgrounds and SHG activities of 21,974 women who, at any stage, had been members of these groups.[5] The records kept by the group helped in the process as they systematically mention the entry and exit dates of their members. In the present paper, we focus on members who join the group at the time of its creation.[6] We collected information on a standard set of characteristics relating to their social and economic background: caste, education, age, marital status, fertility, household landholdings and some parental information. We also recorded the total value of the bank loans taken.

[5]We miss information on 13 groups and 63 members for which we do not have some critical information. In particular, two groups refused to participate in the survey.

[6]We thereby ignore members who join the groups later, for whom the processes of membership and departure may not be directly comparable. Our results are virtually unchanged when they are included in the analysis.

3 Group composition

3.1 Group composition at the village level

We first examine the composition of the groups focusing on the caste, education and land status of their members. The caste status we consider here is defined by the three main caste categories: scheduled tribes (ST), scheduled castes (SC) and other backward castes (OBC/Other).[7] These categories are hierarchically organized, with the ST and SC at the bottom and the OBC/Other at the top of the social ladder.

Another dimension of interest in the composition of groups is related to wealth. Given that these villages are all located in remote rural areas, where farming is the major occupation, we focus on the landownership status of group members. In particular, landless households are vulnerable, as they mostly rely on casual labour as their main occupation.[8] Unfortunately, the information available to us at the village level is rather coarse, as landownership in the village surveys was defined in terms of categories instead of actual land size. We also describe group and village composition in terms of education where, given the very low level of education in the adult population, education is defined either as "being literate" (for the village census) or as having spent at least one year in primary school (in the survey).[9]

Table 1 provides details on the composition of caste, education and landownership in the villages and groups. The first two columns report the composition of households in the surveyed villages and in the groups within those villages respectively, and the last column reports the difference and its significance.

[Table 1 here]

While significant, the differences between the caste composition of the groups and their

[7] We grouped in the category OBC/other some higher ranking castes (the *forward castes*) which represent a very small fraction of the population in our villages (less than 3 percent). As is well known, within each of these categories, there are a large number of different sub-castes and tribes. Moreover, some mobility across categories has been observed in the past, whereby some tribes and sub-castes succeeded in moving upwards in the social hierarchy (for more details, see, e.g. Cassan, 2015).

[8] Among landless households, only 5.8% declare themselves as farmers. Their main occupation is casual labour (52.1%), housewives (29.5%) and traditional handicraft (7.0%). Only 2.6% of them have a permanent salaried position. For non-landless households, the main occupations are farming (26.1%), casual labour (29.1%), housewives (32.32%), traditional handicraft (7.0%) and permanent salaried position (2.3%).

[9] As will be discussed later, our results are robust to alternative definitions of education. We chose a simple binary indicator here given the large percentage of uneducated persons in the population (72%).

distribution in the total population are very small. STs are slightly under-represented in the groups, but this is essentially due to a placement bias as participation rates are larger and more SHGs are created in villages where tribal households are less present.[10] Within the same village, the caste composition of group members is essentially unbiased. This is not true for landownership as the initial composition of the group strongly favors landless households, who are twice more likely than wealthier households to be members. Group membership decreases with the amount of land owned. Finally, group members tend to be more educated than the average female population. This last finding has to be taken with caution, however, as the census used for the village information records literacy level for all female villagers who are at least 6 years old which over-estimates the actual proportion of educated female adults in the village.

These results do not control for household and village level variables that may influence membership. A natural approach would be to investigate group membership as a function of household and village characteristics. Unfortunately, our data do not allow us to do this, as we do not have information on the households in the village that are not members of a group. At the village level, we only know the share of households endowed with a particular characteristic (caste, education or landownership category).

3.2 Composition at the group level

We now examine the composition of the groups within villages, as 80.3% of the villages exhibit more than one group, and some sorting process may take place between groups within the same village. In order to explore this, Figure 1 reports the relation between the caste composition of groups and the villages within which they were created. In the top panel of the figure, we summarize this information at the village level, using the caste composition across all existing groups in a village (386 observations). On the horizontal axis, we report the share of a particular caste in the village population. On the vertical axis, we measure the village share of SHGs members of that caste. In the bottom panel, we report the information for each group separately, so that we measure on the vertical axis the percentage of members

[10]The average participation rate in all villages is equal to 38% but falls to 35% in villages in which STs exist.

of a given caste who are members of a particular group (1,521 observations).

[Figure 1 here]

The contrast between the two sets of figures is particularly striking. The top panel of Figure 1 replicates our previous section: within a village, on average, there is no selection of members based on their caste. The bottom panel indicates substantial heterogeneity across groups within the same village, as reflected by the much larger dispersion in the observations. We also observe a large number of homogenous groups, as evidenced by the accumulation of points at 1 (they represent 41.1% of our sample). This shows that, while groups on average reflect the caste composition of their community, group composition varies a lot within the same village. We carried out a similar exercise in terms of landownership and education but do not report the figures here. We also find substantial heterogeneity across groups within the same village but a negligible number of homogenous groups in terms of these two characteristics.

To further illustrate the importance of sorting across groups based on caste identity, landownership or education, we compute the caste fragmentation within groups with that prevailing among all group members in the village. The fragmentation index measures the probability that two randomly drawn members of the same set (group or village) belong to a different caste. For our measure to be meaningful in terms of sorting, we restrict ourselves to villages where more than one group has been created, which represent 1,445 groups in 310 villages. We compute the same measure for landlessness and for education (since this measure does not require information on village population). The results are reported in Table 2. In terms of castes, the fragmentation index over the village population is much larger than among group members. SHGs are therefore much more homogenous in terms of their social composition. This phenomenon is much less pronounced for landownership or education.

[Table 2 here]

An alternative measure to capture this phenomenon is the dissimilarity index, which is based on the dis-proportionality of different categories across groups. We first compute caste dissimilarity at the village level by measuring the difference between the relative share of a

particular caste and the relative share of all the other castes for each SHG in a particular village:

$$D_{jv} = \frac{1}{2} \sum_i |\frac{P_{ijv}}{P_{jv}} - \frac{P_{ikv}}{P_{kv}}|$$

where P_{ijv} is the number of members of caste j in group i in village v, P_{ikv} is the number of members of any other caste k, with $k \neq j$, in group i in village v, $P_{jv} = \sum_i P_{ijv}$ and $P_{kv} = \sum_i P_{ikv}, k \neq j$. This measure can be interpreted as the percentage of SHG members of a particular caste that have to be changed across SHGs within a village so that their share in each SHG is identical. The same measure is also constructed for land and education.

Across villages, one can then define the caste, land or education dissimilarity index, D_j, which is the population-weighted average across villages of the same measure:

$$D_j = \frac{1}{\sum_v P_{jv}} \sum_v P_{jv} D_{jv}$$

D_j therefore represents, on average across all villages, the proportion of members of a particular caste, land or education category who should change groups for their members to be uniformly represented in all groups of the same village.[11] Table 3 reports the dissimilarity index for each caste, education and land group.

[Table 3 here]

The measured indices are very large which implies a substantial proportion of members should be exchanged across groups within the same village to achieve a proportional representation of each relevant category in those groups. Indeed, on average, about half of the members should change groups within the village.[12] This reflects the fact that groups are much more homogenous in terms of caste, education and landownership than the population of group members in a village. This is important in so far as it likely affects the relative performance of different groups within the same village.

[11] These measures, while relatively unfamiliar to economists (for some exceptions and alternative measures, see Echenique and Fryer, 2007; and Sethi and Somanathan, 2009), have been used extensively in social sciences, for instance to measure the extent of racial segregation across neighborhoods in American cities (see in particular Duncan and Duncan, 1955; Cortese et al., 1976; and the discussions in Reardon and Firebaugh, 2002; and Alonso-Villar and del Río, 2010).

[12] The figures obtained are very similar to those obtained for the indices relative to African-American residential or school segregation (see e.g. Cortese et al., 1976; and Sparks et al., 2013).

4 Group and member duration

4.1 Descriptive statistics about group failure and member departure

In the preceding section, we highlighted the fact that, within the same village, the composition of SHGs varies a lot in terms of caste and, to a lower extent, education and landownership. Potential members tend to sort themselves across groups, and are more likely to belong to a group composed of members of the same education, caste or landownership category. Also, the overall membership in SHGs is biased in favor of villagers with no or little landholding but reflected quite closely the caste composition of the villages.

These observations naturally lead to the following questions. First, given that some groups disappear, is the survival of the group related to its composition in terms of education, caste or landownership? Second, are some members more likely to leave groups while others are more likely to stay? In other words, is the process of disappearance of some groups and some members selective? Third, to what extent are the achievements of the groups and their members related to their characteristics in terms of education, caste, landownership and other relevant characteristics? We focus on the two first issues in this section and address the third question in Section 5.

We define a group as *inactive* if the group did not organize meetings at the time of the survey, and declared they have no plans to start meeting again in the future. We also call this a group failure. A group is considered as *active* if they held meetings at the time of the survey or planned to meet in the near future. Most groups in our sample are active, as only 8.7% of the groups surveyed had actually failed by the time of the survey. Failure occurs in the early stages of the group - mostly due to organizational problems or personal conflicts - as 71.5% of the inactive groups fail before getting linked to a bank.[13]

A member is described as *past* if she abandoned an active group, or left an inactive group before the last meeting. A member is called *present* if she participated in an active group at the time of the survey or belonged to an inactive group as long as it was active (i.e., up

[13]Note this implies that defaulting is not a main driver of group failures.

to its last meeting day).[14] We first present some descriptive statistics on departure rates by caste, education and landownership status in Table 4. For each SHG member of a particular caste, education or land category, we compute the probability that her group fails, that she leaves an existing group and, finally, that she remains a member.

[Table 4 here]

Four interesting patterns emerge from these figures. First, on average 20% of the initial members have left a group: 12.2% of them left an existing group, while 7.4% belonged to a group which failed. Second, educated members are less likely to leave existing groups or be forced to leave because of group failure. Third, group failures are more frequent among STs than among the other two caste categories. ST and SC members are also more likely to leave existing groups. Overall, the probability that a member stays in a group that remains active is 74% for STs, as against 80% for SCs and 85% for the OBC/Other castes. Fourth, group failure and member's departure is larger among landless villagers: the chance that a landless member remains in an existing group is equal to 76% as compared to an average of 82% for the other land categories. In the process, the initial advantage of landless villagers in their access to groups gets eroded by higher group failure and departure rates.

We provide descriptive statistics on the groups by survival status in Table 5 and on present and past members in Table 6. A comparison of the two types of groups shows some interesting patterns. First, active and inactive groups are both reasonably long-lived, with inactive groups operating for an average of 2.4 years after they are formed.[15] Second, homogenous ST groups have a lower survival rate: while 15.5% of the active groups are homogenous ST, they represent 27.1% of the inactive groups. The opposite holds for homogenous OBC/Other groups. There is no difference in landlessness.

[14]It is possible that a member leaves a group because she anticipates group failure, so that group failure precipitates the early departure of its members. In the following, we will stick to the definition of present member based on being a member as long as the group exists. We carried out several robustness checks though, e.g. we defined past members in inactive groups as those who left six or three months before the day of the last meeting. The results presented below remain virtually unchanged. Alternatively, we could consider that all group failures are based on members leaving a group, so that the definition of past members includes all past members as defined above as well as all members of a failed group. Even under this extreme assumption, the main results of the paper remain unchanged.

[15]For inactive groups, we calculated the duration using the date of their last meeting which was written down in their accounting records.

Finally, active groups have a larger proportion of educated members. Given that 78% of the members are uneducated, our basic measure of education is defined as having had at least one year of formal education. We further explore two alternative measures that are relevant in the present context. First, we distinguish within educated members those who did not complete primary school (Class I-IV) and those who completed at least primary school (Class V and above). Second, given the different positions that have to be filled within a group and for which a literate person may be more efficient, such as the chairman or one of the three group representatives that are collectively in charge of the relations with the bank, we define at the group level a dummy indicating whether the group has at least 3 members that have some education.[16] Again, active groups display a clear advantage in terms of the education.

Table 6 compares present and past members. As already noted, less educated and landless members are more likely to leave groups, and so do ST members unless they received some education.

[Table 5 here]

[Table 6 here]

4.2 Group duration

In this section, we investigate the determinants of time taken till a group becomes inactive or a member leaves a group with a survival analysis based on the Weibull model (see e.g. Klein and Moeschberger, 2003).[17] We measure duration as the number of days between the day the group was created and the date of the survey or the date at which the group became

[16]Note that the median number of educated members in a group is 2.5, while the mean is 2.9, so that the measure can be interpreted as a dummy indicating whether the group is above or below the mean. The difference between these two types of groups is striking, as 11.8% of the groups with less than three educated members fail, while only 6.7% of the group with at least three educateid members do.

[17]The Weibull model fits our data well. In particular, the estimated coefficients are very close to those obtained with a Cox model.

inactive. The hazard function is given by:

$$\begin{aligned} h(t|x_j) &= h_0(t)\exp(x_j\beta_x) \\ &= \alpha t^{\alpha-1}\exp(\beta_0 + x_j\beta_x) \end{aligned}$$

In this model, the baseline hazard rate $h_0(t)$ is restricted to vary monotonically over time, but can be either increasing, decreasing or constant, depending on the value of the parameter α. In the tables, we report the exponentiated coefficients, which represent the change in the ratio of the hazards for a one unit change in the corresponding covariate. A hazard ratio of 1 therefore implies that the covariate has no effect on the risk of failure, while if it is smaller than 1, it implies that the covariate increases the time until the event considered occurs.

In our sample, 133 out of 1,521 groups became inactive and are no longer operating. This represents a gross failure rate of 8.7%. The hazard ratios for group survival are presented in Table 7. We investigate group survival by controlling for educational attainment, caste composition and the proportion of landless members. We use the three measures of education that were introduced in the previous section, and have two measures of caste composition: whether the group is homogenous or not and whether the group is homogenous in each of the separate caste categories, using heterogenous groups as a baseline. We also control for the size of the group, for mean characteristics of the group members, namely their main occupation (housewife being the baseline category), marital status, number of children and age, and for the following village level variables: the number of other SHGs in the village and the distance to the nearest bank. We also include a PRADAN team fixed effect, which appears as the most relevant, given that PRADAN teams are given sole responsibility for all villages in a given area and provide the same instructions to the various groups they support (see Section 2).[18]

[Table 7 here]

The results indicate that education is a major determinant of group survival. The coef-

[18]We could alternatively have introduced district fixed effects, which are a bit coarser. The areas under PRADAN teams constitute a finer partition of the area. A village fixed effect would have excluded 19.7% of the groups, with a bias against Scheduled Tribes who inhabit smaller villages in which only one group was created.

ficient is large and strongly significant: with a magnitude of 0.22 (compared to a baseline coefficient equal to 1), this suggests that a group composed of uneducated members is roughly four times more likely to fail than a group in which all members have some education. We compute the predicted median duration for different levels of group education, at the mean of the other covariates. Comparing a group with no education (bottom two deciles) to a group in which half of the members have some education (which corresponds to the third quantile of our population), the expected lifetime of an educated group goes up from 16 to 28 years, a 75% increase. When using a finer measure of education, the relation is essentially driven by 'some' education (below primary), which suggests that what matters is for members to have some acquaintance with reading and basic calculus, but that higher levels of education do not play a much bigger role. A similar picture obtains when we use the variable 'the group has at least three educated members', as a group which does not have these three members is roughly twice more likely to fail. It is possible that socially homogenous groups, particularly among tribals, are more likely to fail, but the estimation is very imprecise. Finally, the fraction of landless members is uncorrelated with the survival of the group.

4.3 Member duration in groups

We now investigate the determinants of member duration. Duration is defined as the number of days between the date at which the group started and the date of the survey, or the date at which the member left a group.[19] In our sample, out of the 21,974 members surveyed, 2,675 left their group, which represents an average departure rate of 12.2%. The hazard ratios from estimating a Weibull model of member's duration are displayed in Table 8. All columns include the following member level characteristics: education, caste, landownership status, occupation, marital status, number of children and age. The uneven columns include the same group and village level characteristics as in Table 7 and the even columns group fixed effects, so that we effectively measure, within a group, the characteristics that correlate with duration. The first two columns present the estimates using our basic measure of education (at least one year of primary school). Next, we present estimates using the finer measure in which we distinguish between educated members who did not go beyond class 4 in primary

[19]For those who were member of a group when it failed, we measure the number of days till group failure.

school, and those who at least achieved primary education. Finally, the last two columns report the results obtained when interacting basic education with caste.

[Table 8 here]

The first four columns indicate that, on average, education is again the most important determinant of member's duration, and that member's duration increases essentially with her basic education. On average, a member having had some education is 30% less likely to leave an existing group than an uneducated one. Her expected duration in the group (again at the mean of the covariates and using column 1 estimations) is 51% longer. Landless members are also more likely to leave, but the coefficient is imprecisely estimated. Members of upper castes are more likely to remain members of the groups they joined. Members with no occupation (essentially housewives) are more likely to leave. This is probably due to the fact that, by definition, they are less likely to have an independent source of income, which makes it harder for them to contributing savings regularly, and they also might be less interested in taking loans and developing an income-earning project. Finally, members who are separated and have children stay longer in groups.

The last two columns indicate that education does not play the same role across all castes. A group member who belongs to the Scheduled Tribes and is educated is much less likely to leave a group compared to an uneducated one (i.e. the omitted category). Compared to an uneducated ST member, an OBC/Other member is also less likely to leave a group, and the difference is larger when she is educated. By contrast, education does not seem to play a role in the departure rates of Scheduled Castes. In Table 9, we report the summary statistics about selective attrition by level of education. The figures there confirm the importance of education, particularly among scheduled tribes or the landless who, when educated, display similar departure rates as the other groups.[20]

[Table 9 here]

[20]When asked about the reasons for leaving the group, "difficulty in savings" was mentioned by 23% of the uneducated members, while only 15% of the educated ones expressed that reason. This supports the idea that the saving rules within the group were probably not well understood or well suited to the needs of the uneducated members.

5 Group and members financial performance

5.1 Group access to bank loans

In this section, we focus on the financial performance of the groups and their members. A basic measure of performance is the ability of the group and its members to have access to bank loans. Being *linked* to a bank and obtaining a bank loan is indeed the major motive behind the creation of those groups. In the following, we restrict our attention to the 1,388 groups which are still active at the time of the survey as their performance with respect to bank loans can be more easily compared. Among these groups, 71.5% received at least one bank loan, and the average amount received per year per member is equal to 1,392 INR (which roughly corresponded 20 days of work for a casual worker in agriculture in this region in 2008 (Government of India, 2010). We investigate group performance for existing groups using two measures. The first one is the amount of time the group had to wait till it received its first bank loan. Given the censored nature of the data, this indicator actually reflects the probability that a group with a given set of characteristics succeeds in obtaining a loan. We again estimate a Weibull model, using the same specifications as in Table 7. The results are given in Table 10.

[Table 10 here]

The results are again remarkably consistent across the different estimations. Two group characteristics are critical in determining a group's access to a bank loan: education and landlessness. In particular, a group composed of educated members is more than two times more likely than an uneducated group to obtain a bank loan. Compared to a group with no education, the (predicted) median waiting time goes down from 2.4 to 1.8 years for a group in which half of the members are educated. Having at least three educated members in the group is associated with a 30% increase in the probability of obtaining a bank loan. Access to loans also increases with the presence of landless members, probably because they are more eager to develop new occupations through their access to bank loans.[21] Also, socially

[21]Indeed, they tend to get more involved in forest activities which require some initial investment, such as rearing silkworms to produce cocoons. They also process cocoons to make yarn and fabric.

homogenous groups may have to wait a longer time before obtaining their first loan, but the effect is again imprecisely estimated.

The second measure of performance is the amount of bank loans received by the group per year of activity. There, we use a Tobit estimator given the censored nature of our data, and follow the specifications adopted above. The results are given in Table 11. Again, education appears as a major determinant of success as, compared to an uneducated group, a group composed of educated members obtains 975 INR more per year per member, which roughly corresponds to a doubling of the loan size. This is perfectly consistent with the result above according to which an educated group is twice more likely to link with a bank. Groups that are socially homogenous tend to receive lower amounts on average, but the effect is essentially concentrated among scheduled tribes (columns (3) and (4)). With respect to landlessness, the results provide a more nuanced view: while groups with more landless members are more likely to obtain a bank loan, the amounts obtained per year are essentially unchanged, which implies that, on average, such groups have access to more frequent but smaller loans.

[Table 11 here]

5.2 Members' access to bank loans

We now focus on groups that have received at least one bank loan, and investigate how these bank loans are distributed across members.[22] We focus on three measures: an indicator variable measuring whether the member received a positive amount of the loan or not, the share a member obtains in all the bank loans taken by the group and finally the amount she obtained per year. In all the estimations, we use a group fixed effect, so that we effectively measure, within the group, how the loan is distributed across its members as a function of their characteristics. We use ordinary least squares in all the regressions. For the indicator variable, we do this because we use a group fixed effect, for the analysis of the shares and the amounts obtained, we do this because a share of zero really means that the member received nothing, so that our data is not effectively censored. For each measure of financial

[22]The members considered in the regressions belonged to the group at the moment of the first bank loan, so members who left after the first bank loan are included.

performance, we again use the two measures of education at the member level, as well as the measure of basic education interacted with the caste of the member.

[Table 12 here]

The results, which are given in Table 12, are very consistent across all measures. First, neither the caste of the member, nor her land status matter for her access to bank loans within the group.[23] Once a group obtains a loan, its distribution is essentially uniform along those dimensions. By contrast, more educated members receive a much larger fraction of the bank loans. Indeed, they receive 2.3% more, which corresponds roughly to a one third increase in a member's average share. The average amount received per year is also larger by 415 INR (30% more than the average loan a member receives per year). As shown in the columns (3), (6) and (9), the coefficient associated with education is uniform across the three castes, so that, within a group, access to loans does not differ across social groups.

6 Discussion and concluding comments

In this paper, we provided a descriptive analysis of the performance of microfinance groups, known as Self-Help Groups (SHGs), based on an original census we carried out in a poor area of Northern India. Given the pro-poor orientation of the program, the main question explored in this paper was whether traditionally disadvantaged groups, such as lower castes, uneducated or landless villagers, were less likely to have access to the groups and their benefits. This question is all the more important as SHGs are an essential part of anti-poverty programs in India. Thus, the National Rural Livelihood Mission puts forward the creation of groups as a first step in its poverty alleviation policies.

The coverage of the program across villages is extensive, as about 38% of the households have at least one member participating in a group. Within villages, we did not find evidence of a bias in membership based on caste identity. However, we find that the groups are much more socially homogenous than the villages where they are created, suggesting a process of fragmentation of groups within villages based on caste identity. In terms of landownership,

[23]Note that, with a group fixed effect, caste is identified in heterogenous groups only.

membership strongly favors landless villagers, who are twice as likely to enter a group than other villagers.

We showed that, while caste identity probably plays a role in explaining attrition, the main determinant of group and member survival is education: a fully educated group has four times less chances of failing and disappearing, and within an existing group, an educated member is 30% less likely to leave. These differences are much larger than those associated with other characteristics: for a member of the Scheduled Tribes, being educated more than compensates her possible initial disadvantage compared to other castes. We also showed that, on average, landless members are more likely to leave groups, so that their initial advantage in terms of participation gets partially eroded in the process.

We also analyzed the performance of groups and members in terms of access to bank loans, which is the major objective of these groups. We again find that groups perform much better when their members are educated, as they obtain on average twice the amount of bank loans per year given to the other groups. At the member level, bank loans are allocated uniformly across members, except again when they are educated, in which case the loans they obtain are at least one third larger than those given to the other members. This also suggests that, once a villager remains a member of a group, and given the performance of the group, caste identity and landownership do not really play a role in getting access to the benefits of the group.

These findings are summarized in Table 13, where we report the amount of bank loans that a given member can expect every year when joining a group, by caste, education and landownership category.[24] In expected terms, scheduled tribe members have access to smaller loans than members of other castes. Expected loans increase with the education of the member, by roughly 50%, and irrespective of the caste of the member. Landless members are slightly better off than members who own land.

[Table 13 here]

The analysis we presented is admittedly a descriptive study, based on observational data,

[24]The numbers displayed in the table are simple averages, and therefore ignore the temporal aspect of the process whereby groups in the early times of their creation have to wait several months before qualifying for a linkage. Given the interval of time used for the observations, the amount of the bank loans received are therefore under-estimated.

with no proper causal identification: given the data, we were not able to isolate and measure the impact of education. But the findings suggest that education plays a major role in the performance of SHGs and their members. There might be several reasons for this, and we now discuss some of the plausible mechanisms. First, as discussed in Section 2, once the SHG program has been presented to the village by the PRADAN team, participation to SHGs is voluntary. In other words, people self-select into groups, and if more than one group is created in the village, they also choose the group, and therefore the members, they prefer. In terms of group performance, the effect of education can be driven by those selection (and matching) effects, as women with some education may be in greater need of saving and credit, or may have larger projects to finance. They would therefore choose more successful groups (Ahlin (2009) discusses selection into groups based on risk).

In terms of occupations, educated women do not appear much different from uneducated ones, particularly in terms of self-employment in non-farm activities, which is presumably the sector for which access to credit might be the most critical: 10% of educated women are self-employed as against 9% of uneducated ones. Educated women are much less likely to be engaged in casual labour than uneducated ones (25% against 38%), but more likely to be housewives (35% against 31%), farmers (25% against 21%) or salaried workers (5% against 2%). Differences in occupation do not seem the driving force behind the observed differences across groups, all the more as we systematically controlled for occupation in all regressions. Nevertheless, differences in projects or entrepreneurial spirit, that we do not observe, may play a role, if they are correlated with education. Finally, one should note that we chose to focus on initial members, that joined the group when it was created, to avoid the possible biases introduced by later members, who may choose to join a particular SHG based on its relative performance (even though including all members in the analysis does not change the results).

Another possibility, that we cannot exclude, is that educated women are more aware of self-control problems and better appreciate the structure offered by the SHGs (see e.g. Anderson and Baland, 2002; Gugerty, 2007; or Dupas and Robinson, 2013). This is related to the fact that savings are temporarily illiquid when put in the cash box, and retrieving it requires some agreement of the group, or to the presence of peer effects within the group,

whereby members strive to keep up with the other members or with their saving objective (e.g., Kast et al., 2016). One can argue that peer pressure works better among educated women (who may be more subject to social pressure and self-image) or that educated women might simply be better peers (if education is correlated with higher social skills). Again, this is a possible story that we can certainly not exclude.

Educated women may also provide a number of skills and organizational abilities that are helpful for the success of the group. There are a number of responsibilities that have to be taken up for the group to function properly, in particular (i) the chairwoman, who organizes the meetings and keeps an eye on the accountant and (ii) the three bank representatives, who are in charge of the relations with the bank, both in terms of depositing group savings on a bank account, signing the loan contract and bringing the payments to the bank.[25] These various roles clearly call for a more educated person. By contrast, there are other roles in the group for which education is less relevant: one is the person in charge of the cash box, in which the weekly savings of the members are kept safe, and the other is the person in charge of the key which opens the box. Both of these roles require trustworthy members, but not educated ones. In the next table, we explore, within groups, the probability that a member is in charge of one of these four responsibilities: chairwoman, bank representative, box keeper or key keeper. We control for all member's characteristics, and include group fixed-effects.

[Table 14 here]

Being educated is a major determinant for a member to become chairman or bank representative. Not surprisingly, the coefficient attached to education is largest for the latter: an educated member is 27% more likely to become a bank representative than an uneducated one. For this particular function, a higher level of schooling clearly plays a role, as the coefficient is twice as large as the one associated with a lower level of education. By contrast, educated members are no more likely to be key or cash box holders (for the cash box, the

[25]For the accountant, while some groups recruit such a person among their members, most of them hire an external accountant, who is usually a high school graduate living in the village, with a moderate payment for his/her services (for more on this, see Vandewalle, 2017).

coefficient is significant, but very small). These results suggest that educated members may provide the necessary leadership and skills for the group to be successful.

At the individual level, we showed that educated members derive more benefits from the group, as they stay longer in groups and have better access to loans. In these estimates, whenever adequate, we introduced group fixed effects, so that we are actually looking at differences in outcomes among members of the same group. Those results therefore do not suffer from biases arising from comparing members belonging to different successful groups. Nevertheless, they also suffer from selection issues and omitted variable biases, so that causal interpretations at the member level are probably unwarranted. Reverse causality is even plausible, as groups may be keen to attract educated members given the positive functions they play in the group, and in order to do so, are willing to reward them with a larger share of the group's benefits.

Policy-wise, our analysis suggested that education may be an important complement to an SHG based program for poverty alleviation. Is this finding applicable to other models of microfinance? Clearly, the setting here is based on group lending, with group liability. In this sense, the identity and the composition of the group should play a very important role. This is very different from the more recent models of microfinance, based on individual liability (such as Grameen II), and for which membership into a group may not even be necessary (see e.g. Baland et al., 2013; De Quidt et al., 2016; or Giné and Karlan, 2014). Compared to more traditional group-lending, SHG members are required to meet weekly, independently of the existence of a bank loan, and are not obliged, as group member, to take part to the loan. However, it is likely that, even for loans with individual liability, group leaders play a key role in terms of discussing members' projects, giving help, applying peer pressure, advising members or intermediating with the bank. In this respect, we believe that the connection we made between education and leadership in microfinance groups is key in explaining their financial performance.

References

Ahlin, C. (2009). Matching for credit: Risk and diversification in Thai microcredit groups. *Working paper*.

Alonso-Villar, O. and del Río, C. (2010). Local versus overall segregation measures. *Mathematical Social Sciences*, 60:30–38.

Anderson, S. and Baland, J.-M. (2002). The economics of roscas and intrahousehold resource allocation. *The Quarterly Journal of Economics*, 117(3):963–995.

Baland, J.-M., Somanathan, R., and Vandewalle, L. (2008). Microfinance lifespans: A study of attrition and exclusion in self-help groups in India. *India Policy Forum*, 4(1):159–210.

Baland, J.-M., Somanathan, R., and Wahhaj, Z. (2013). Repayment incentives and the distribution of gains from group lending. *Journal of Development Economics*, 105:131–139.

Banerjee, A. V. (2013). Microcredit under the microscope: What have we learned in the past two decades, and what do we need to know? *Annual Review of Economics*, 5:487–519.

Casini, P., Vandewalle, L., and Wahhaj, Z. (2017). Public good provision in Indian rural areas: The returns to collective action by microfinance groups. *World Bank Economic Review*, 31(1):97–128.

Cassan, G. (2015). Identity-based policies and identity manipulation: Evidence from colonial Punjab. *American Economic Journal: Economic Policy*, 7(4):103–131.

Cortese, C. F., Falk, F. R., and Cohen, J. K. (1976). Further considerations on the methodological analysis of segregation indices. *American Sociological Review*, 41(4):630–637.

Datta, U. (2015). Socio-economic impacts of JEEViKA: A large-scale self-help group project in Bihar, India. *World Development*, 68:1–18.

De Quidt, J., Fetzer, T., and Ghatak, M. (2016). Group lending without joint liability. *Journal of Development Economics*, 121:217–236.

Deininger, K. and Liu, Y. (2013). Economic and social impacts of an innovative self-help group model in India. *World Development*, 43:149–163.

Desai, R. M. and Joshi, S. (2014). Collective action and community development: Evidence from self-help groups in rural India. *World Bank Economic Review*, 28(3):492–524.

Duncan, O. D. and Duncan, B. (1955). A methodological analysis of segregation indexes. *American Sociological Review*, 20(2):210–217.

Dupas, P. and Robinson, J. (2013). Why don't the poor save more? Evidence from health savings experiments. *The American Economic Review*, 103(4):1138–1171.

Echenique, F. and Fryer, R. (2007). A measure of segregation based on social interactions. *The Quarterly Journal of Economics*, 122(2):441–485.

Giné, X. and Karlan, D. S. (2014). Group versus individual liability: Short and long term evidence from Philippine microcredit lending groups. *Journal of development Economics*, 107:65–83.

Government of India (2010). Wage rates in rural India. *Ministry of Labour and Employment*.

Gugerty, M. K. (2007). You can't save alone: Commitment in rotating savings and credit associations in Kenya. *Economic Development and Cultural Change*, 55(2):251–282.

Kast, F., Meier, S., and Pomeranz, D. (2016). Saving more in groups: Field experimental evidence from Chile. *Working paper*.

Khanna, M., Kochhar, N., and Palaniswamy, N. (2015). A retrospective impact evaluation of the Tamil Nadu empowerment and poverty alleviation (Pudhu Vaazhvu) project. *Journal of Development Studies*, pages 1–14.

Klein, J. P. and Moeschberger, M. L. (2003). *Survival Analysis*. Springer, New York.

NABARD (1992). *Guidelines for the Pilot Project for Linking Banks with Self-Help Groups: Circular issued to all Commercial Banks*. Mumbai, www.nabard.org.

Nair, T. S. and Tankha, A. (2015). *Inclusive Finance India Report 2014*. Oxford University Press.

Reardon, S. F. and Firebaugh, G. (2002). Measures of multigroup segregation. *Sociological Methodology*, 32(1):33–67.

Reserve Bank of India (1991). *Improving Access of Rural Poor to Banking-Role of Intervening Agencies-Self Help Groups. Circular issued to all Scheduled Commercial Banks*. Mumbai, www.rbi.org.in.

Sethi, R. and Somanathan, R. (2009). Racial inequality and segregation measures: Some evidence from the 2000 census. *The Review of Black Political Economy*, 36(2):79–91.

Sparks, P. J., Sparks, C. S., and Campbell, J. J. A. (2013). An application of Bayesian spatial statistical methods to the study of racial and poverty segregation and infant mortality rates in the US. *GeoJournal*, 78:389–405.

Vandewalle, L. (2017). The role of accountants in Indian self-help groups: A trade-off between financial and non-financial benefits. *World Development*, 93:177–192.

Tables

Table 1: Caste, education and landownership composition of the households and groups

	Share of households in village (%)	Share of members in groups (%)	Difference
Panel A: Caste category			
ST	38.9	36.5	-2.4***
	(48.7)	(48.1)	
SC	15.9	16.8	0.9***
	(36.6)	(37.4)	
OBC/Other	45.2	46.7	1.5***
	(49.8)	(49.9)	
Panel B: Education category			
Not educated	80.2	72.0	NA
	(39.8)	(44.9)	
Educated	19.8	28.0	NA
	(39.8)	(44.9)	
Panel C: Landownership category			
Landless	12.1	20.3	8.2***
	(32.6)	(40.2)	
$0 <$ acre ≤ 1	40.0	46.6	6.6***
	(49.0)	(49.9)	
$1 <$ acre ≤ 2	22.7	15.2	-7.5***
	(41.9)	(35.9)	
> 2 acres	25.2	17.9	-7.3***
	(43.4)	(38.3)	
Observations	57,297	21,974	

The first two columns show the distribution across caste categories, educational attainment and landownership of villagers and group members respectively. Standard deviations are given in parentheses. The last column shows the difference in means and its significance: *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.
Note that our measure of educational attainment differs between villagers and SHG members. A member is educated if she attended at least one year of formal schooling, and a villager if she is literate.

Table 2: Fragmentation of caste, education and landownership at the village and at the group level

	Caste		Education		Landownership	
	Village level	Group level	Village level	Group level	Village level	Group level
Fragmentation Index	0.34	0.21	0.34	0.29	0.24	0.19
	(0.21)	(0.22)	(0.15)	(0.18)	(0.17)	(0.19)
Observations	310	1,445	310	1,445	310	1,445

The fragmentation indices measure the probability that two randomly drawn SHG members in the village or in the group belong to a different caste, have a different educational background, or a different landownership status respectively. Caste-wise a member is either a ST, SC, or OBC/Other, *education* is defined as having or not having attended formal school, and *landownership* as being landless or owning at least some land. Standard deviations are given in parentheses.

Table 3: Dissimilarity of caste, education, and landownership across groups

Caste		Education		Landownership	
ST	0.54	Not educated	0.38	Landless	0.49
SC	0.63	Educated	0.37	Owns land	0.51
OBC/Other	0.53				
Observations	310	Observations	310	Observations	310

The dissimilarity indices measure for each category the proportion of members who should be exchanged across groups within the same village as to achieve a proportional representation of each caste, education or landownership category in those groups. Caste-wise a member is either a ST, SC, or OBC/Other, she is educated if she attended at least one year of formal schooling, and is landless or owns at least some land.

Table 4: Attrition rate by caste, education and landownership status

	Number of members	Leaving because of group failure	Leaving existing group	Remains in group	Significance of the difference relative to the base category
Caste category					
ST	8,022	11.1	14.6	74.3	
SC	3,690	7.0	12.9	80.1	5.8***
OBC/Other	10,262	4.7	10.0	85.3	11.0***
Education category					
Not educated	15,832	8.1	12.7	79.2	
Educated	6,142	5.7	10.7	83.6	4.4***
Landownership category					
Landless	4,464	8.7	15.1	76.2	
Owns land	17,510	7.1	11.4	81.5	5.3***
All					
All	21,974	7.4	12.2	80.4	

The table provides the probability that a member with a certain characteristic leaves because the group fails, leaves an existing group or remains a member. The last column provides the significance of the difference relative to the base category (ST, not having attended formal education and being landless respectively): *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 5: Group characteristics

	Active	Inactive	Difference
Number of years the group has been in existence since its creation	3.6	2.4	1.2***
	(2.1)	(1.8)	
Educational attainment of the group			
Fraction of educated members	30.7	21.8	8.9***
	(25.8)	(21.1)	
Fraction of educated members: class I-IV	8.5	5.8	2.7**
	(13.2)	(9.8)	
Fraction of educated members: class V or above	22.2	15.9	6.3***
	(20.3)	(16.5)	
Group has at least three educated members	61.3	45.9	15.4***
	(48.7)	(50.0)	
Caste composition of the group			
Homogenous group:	40.9	43.6	-2.7
	(49.2)	(49.8)	
- Homogenous ST group	15.5	27.1	-11.6***
	(36.2)	(44.6)	
- Homogenous SC group	6.3	6.0	0.3
	(24.2)	(23.9)	
- Homogenous OBC/Other group	19.1	10.5	8.6**
	(39.3)	(30.8)	
Other group characteristics			
Fraction of landless members	21.3	24.9	-3.6
	(27.5)	(29.5)	
Fraction of farmers	21.7	23.6	-1.9
	(33.2)	(34.6)	
Fraction of casual laborers	34.0	42.1	-8.1**
	(35.0)	(37.2)	
Fraction of permanent laborers	2.6	1.6	1.0
	(8.6)	(4.2)	
Fraction of self-employed members	10.2	8.5	1.7
	(23.7)	(21.4)	
Fraction of separated members	9.4	12.4	-3.0***
	(9.5)	(11.8)	
Average number of children per member	2.9	2.9	0.0
	(0.8)	(0.7)	
Average age of members (years)	36.9	37.9	-1.0**
	(5.4)	(5.4)	
Number of members in the group	14.5	13.9	0.6*
	(3.8)	(3.7)	
Distance to bank from village (km)	6.7	8.0	-1.3**
	(5.6)	(5.3)	
Other SHGs in village (#)	2.9	2.0	0.9***
	(3.0)	(2.6)	
Observations	1,388	133	

A group is *inactive* if its members did not hold meetings at the time of the survey, and declared they have no plans to meet in the future, and *active* otherwise. The columns (1) and (2) report means (and standard deviations) for active and inactive groups respectively, and the last column shows the difference in means and its significance: *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 6: Member characteristics

	Present	Past	Difference
Educated, i.e. obtained at least one year of formal schooling (%)	28.4	24.6	3.8***
	(45.1)	(43.1)	
Educated: class I-IV	7.9	5.3	2.6***
	(27.0)	(22.5)	
Educated: class V or above	20.5	19.3	1.2
	(40.4)	(39.5)	
ST (%)	35.5	43.9	-8.4***
	(47.8)	(49.6)	
SC (%)	16.7	17.8	-1.1
	(37.3)	(38.3)	
OBC/Other (%)	47.9	38.3	9.6***
	(50.0)	(48.6)	
Non educated ST (%)	25.5	35.2	-9.7***
	(43.6)	(47.8)	
Educated ST (%)	10.0	8.7	1.3**
	(30.0)	(28.1)	
Non educated SC (%)	13.1	13.1	0.0
	(33.7)	(33.8)	
Educated SC (%)	3.6	4.7	-1.1***
	(18.5)	(21.1)	
Non educated OBC/Other (%)	33.0	27.0	6.0***
	(47.0)	(44.4)	
Educated OBC/Other (%)	14.8	11.3	3.5***
	(35.5)	(31.7)	
Landless (%)	19.6	25.2	-5.6***
	(39.7)	(43.4)	
Housewives and unemployed (%)	32.2	30.0	2.2**
	(46.7)	(45.8)	
Occupation: farming (%)	22.5	20.7	1.8**
	(41.7)	(40.6)	
Occupation: casual labor (%)	33.3	38.8	-5.5***
	(47.1)	(48.7)	
Occupation: permanent labor (%)	2.4	2.4	0.0
	(15.3)	(15.4)	
Occupation: self-employed (%)	9.6	7.6	2.0***
	(29.4)	(26.4)	
Separated from husband (%)	9.7	9.7	0.0
	(29.6)	(29.6)	
Number of children	3.0	2.7	0.3***
	(1.7)	(1.8)	
Age (years)	37.1	37.1	0.0
	(10.4)	(11.6)	
Observations	19,299	2,675	

A member is *present* if she still participates in an active group at the time of the survey, or if she belonged to an inactive group up to its last meeting day, and *past* otherwise. The columns (1) and (2) report means (and standard deviations) for present and past members respectively, and the last column shows the difference in means and its significance: *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 7: Group Survival (Weibull model)

	(1)	(2)	(3)	(4)	(5)	(6)
Fraction of educated members	0.22***	0.26**				
	(0.13)	(0.15)				
Fraction of educated members: class I-IV			0.07***	0.08***		
			(0.07)	(0.08)		
Fraction of educated members: class V or above			0.39	0.48		
			(0.26)	(0.33)		
Group has at least three educated members					0.58***	0.61**
					(0.12)	(0.13)
Homogenous group	1.24		1.24		1.27	
	(0.29)		(0.28)		(0.28)	
Homogenous ST group		1.46		1.48		1.55
		(0.42)		(0.43)		(0.43)
Homogenous SC group		1.15		1.14		1.13
		(0.49)		(0.49)		(0.49)
Homogenous OBC/Other group		0.99		0.95		0.96
		(0.36)		(0.34)		(0.35)
Fraction of landless members	0.90	0.94	0.91	0.95	0.91	0.95
	(0.43)	(0.46)	(0.43)	(0.47)	(0.43)	(0.47)
Fraction of farmers	1.42	1.39	1.49	1.46	1.44	1.39
	(0.46)	(0.45)	(0.48)	(0.47)	(0.47)	(0.45)
Fraction of casual laborers	1.22	1.20	1.30	1.28	1.32	1.29
	(0.38)	(0.37)	(0.40)	(0.39)	(0.42)	(0.39)
Fraction of permanent laborers	0.12	0.12	0.10	0.11	0.12	0.13
	(0.18)	(0.18)	(0.16)	(0.16)	(0.18)	(0.19)
Fraction of self-employed members	0.73	0.72	0.77	0.76	0.75	0.74
	(0.37)	(0.36)	(0.38)	(0.38)	(0.38)	(0.38)
Fraction of separated members	4.30	4.48	4.52	4.74	4.21	4.42
	(4.61)	(4.81)	(4.86)	(5.11)	(4.55)	(4.77)
Average number of children per member	0.90	0.90	0.92	0.92	0.90	0.90
	(0.16)	(0.16)	(0.17)	(0.17)	(0.16)	(0.16)
Average age of members (years)	0.96	0.96	0.96	0.96	0.96	0.96
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Number of members in the group	0.93**	0.93**	0.93**	0.93**	0.95	0.95*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Distance to bank from village (km)	1.02	1.02	1.02	1.02	1.02	1.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Other SHGs in village (#)	0.98	0.99	0.98	0.99	0.98	0.98
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Observations	1,521	1,521	1,521	1,521	1,521	1,521
Number of Failures	133	133	133	133	133	133
α	1.199	1.199	1.205	1.206	1.203	1.203
Team fixed effects	yes	yes	yes	yes	yes	yes

We analyse the time till a group becomes inactive using a Weibull duration model. The reported coefficients are exponentiated. Standard errors, clustered at the village level, are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Member Survival (Weibull model)

	(1)	(2)	(3)	(4)	(5)	(6)
Educated	0.71***	0.70***				
	(0.04)	(0.04)				
Educated: class I-IV			0.55***	0.51***		
			(0.05)	(0.05)		
Educated: class V or above			0.78***	0.79***		
			(0.05)	(0.05)		
SC	1.14	0.95	1.12	0.95		
	(0.10)	(0.09)	(0.10)	(0.09)		
OBC/Other	0.92	0.81***	0.91	0.80***		
	(0.07)	(0.06)	(0.07)	(0.06)		
Educated ST					0.61***	0.60***
					(0.05)	(0.05)
Non educated SC					1.00	0.82*
					(0.10)	(0.08)
Educated SC					1.02	0.86
					(0.12)	(0.11)
Non educated OBC/Other					0.88	0.77***
					(0.07)	(0.06)
Educated OBC/Other					0.63***	0.53***
					(0.06)	(0.05)
Landless	1.12	1.14**	1.12	1.14**	1.12	1.14**
	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)
Occupation: farming	0.83	0.84*	0.84	0.86*	0.83	0.85*
	(0.10)	(0.08)	(0.10)	(0.08)	(0.10)	(0.08)
Occupation: casual labor	0.79***	0.80***	0.80***	0.81***	0.79***	0.80***
	(0.07)	(0.05)	(0.07)	(0.06)	(0.07)	(0.06)
Occupation: permanent labor	0.79	0.79	0.78	0.77*	0.79	0.79
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Occupation: self-employed	0.67***	0.67***	0.68***	0.68***	0.67***	0.67***
	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)	(0.08)
Separated from husband	0.88*	0.87*	0.88*	0.87**	0.87*	0.86**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Number of children	0.88***	0.87***	0.89***	0.87***	0.88***	0.87***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Age (years)	1.00	1.00**	1.00	1.00	1.00	1.00*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	21,974	21,974	21,974	21,974	21,974	21,974
Number of Failures	2,675	2,675	2,675	2,675	2,675	2,675
α	0.829	0.883	0.829	0.884	0.829	0.884
Team fixed effects	yes	yes	yes	yes	yes	yes
SHG fixed effects	no	yes	no	yes	no	yes

We analyse the time till a member leaves an existing group using a Weibull duration model. The uneven columns include the following controls: a dummy indicating the group is homogeneous, the fraction of landless members, the fraction of farmers, casual laborers, permanent laborers and self-employed members, the fraction of separated members, the average number of children per member, the average age of members, the number of members in the group, the distance to the bank from the village, and the number of other SHGs in the village. The Columns (1) and (5) also include the fraction of educated members, and column (3) the fraction of members who had up to four years of education, and the fraction of members who at least finished primary school. The reported coefficients are exponentiated. Standard errors, clustered at the SHG level, are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Attrition rate by education

	Number of members	Remains in group (%) All members	ST	SC	OBC/ Other	Landless	Owns land
Not educated	15,832	79.2	71.4	80.5	85.2	74.6	80.5
		(40.6)	(45.2)	(39.7)	(35.5)	(43.6)	(39.6)
Educated	6,142	83.6	82.2	79.0	85.7	81.0	84.2
		(37.1)	(38.2)	(40.7)	(35.1)	(39.3)	(36.5)
Difference		-4.4***	-10.8***	1.5	-0.5	-6.4***	-3.7***

The table provides details on attrition by level of education. The final row gives the difference between members who are not educated and those who are, and its significance: *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 10: Duration till the first bank loan at the group level (Weibull model)

	(1)	(2)	(3)	(4)	(5)	(6)
Fraction of educated members	2.27***	2.23***				
	(0.49)	(0.47)				
Fraction of educated members: class I-IV			2.68***	2.67***		
			(0.86)	(0.85)		
Fraction of educated members: class V or above			2.10***	2.02***		
			(0.54)	(0.50)		
Group has at least three educated members					1.33***	1.31**
					(0.14)	(0.14)
Homogenous group	0.87*		0.87		0.86*	
	(0.07)		(0.07)		(0.07)	
Homogenous ST group		0.84		0.83		0.79*
		(0.11)		(0.11)		(0.10)
Homogenous SC group		0.87		0.88		0.88
		(0.16)		(0.16)		(0.17)
Homogenous OBC/Other group		0.90		0.91		0.92
		(0.11)		(0.11)		(0.11)
Fraction of landless members	1.74***	1.73***	1.74***	1.72***	1.68***	1.66***
	(0.32)	(0.32)	(0.32)	(0.32)	(0.31)	(0.31)
Fraction of farmers	0.89	0.89	0.89	0.89	0.88	0.88
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Fraction of casual laborers	0.81	0.81	0.81	0.81	0.77**	0.77*
	(0.11)	(0.11)	(0.11)	(0.11)	(0.10)	(0.10)
Fraction of permanent laborers	1.21	1.21	1.23	1.23	1.09	1.09
	(0.44)	(0.44)	(0.45)	(0.45)	(0.40)	(0.40)
Fraction of self-employed members	0.86	0.87	0.86	0.87	0.84	0.85
	(0.17)	(0.17)	(0.17)	(0.17)	(0.16)	(0.17)
Fraction of separated members	0.89	0.88	0.88	0.86	0.87	0.86
	(0.37)	(0.37)	(0.37)	(0.36)	(0.37)	(0.36)
Average number of children per member	1.06	1.06	1.05	1.05	1.05	1.05
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Average age of members (years)	1.00	1.00	1.00	1.00	1.00	1.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of members in the group	1.00	1.00	1.00	1.00	0.99	0.99
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Distance to bank from village (km)	0.97**	0.97**	0.97**	0.97**	0.97**	0.97**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Other SHGs in village (#)	1.01	1.01	1.01	1.01	1.01	1.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1,388	1,388	1,388	1,388	1,388	1,388
Number of linked groups	992	992	992	992	992	992
α	1.467	1.467	1.467	1.467	1.458	1.458
Team fixed effects	yes	yes	yes	yes	yes	yes

We analyse the time till an active group obtains a first bank loan using a Weibull duration model. The reported coefficients are exponentiated. Standard errors, clustered at the village level, are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 11: Access to bank loans at the group level (Tobit model)

	Amount of bank loans the group received per member per year of activity					
	(1)	(2)	(3)	(4)	(5)	(6)
Fraction of educated members	975.4***	909.2***				
	(291.8)	(297.6)				
Fraction of educated members: class I-IV			2037.5***	1994.8***		
			(568.1)	(568.1)		
Fraction of educated members: class V or above			353.6	225.5		
			(266.3)	(269.6)		
Group has at least three educated members					293.2**	259.9**
					(123.1)	(123.5)
Homogenous group	-222.6*		-207.5*		-235.8*	
	(123.8)		(122.7)		(126.4)	
Homogenous ST group		-331.4		-362.0*		-410.2*
		(205.4)		(207.0)		(209.9)
Homogenous SC group		-187.8		-180.2		-177.1
		(275.9)		(272.8)		(275.7)
Homogenous OBC/Other group		-139.4		-79.7		-99.8
		(162.7)		(160.6)		(160.0)
Fraction of landless members	225.1	209.5	217.3	199.0	196.6	174.0
	(215.3)	(215.1)	(213.9)	(213.0)	(214.8)	(213.3)
Fraction of farmers	-444.8***	-431.7***	-495.1***	-478.7***	-465.8***	-442.4***
	(154.3)	(154.0)	(156.0)	(155.8)	(155.2)	(154.4)
Fraction of casual laborers	-307.3*	-302.7*	-374.1**	-368.6**	-401.3**	-383.9**
	(163.5)	(163.9)	(160.9)	(160.9)	(160.3)	(160.7)
Fraction of permanent laborers	371.1	364.7	522.2	523.0	333.3	327.0
	(466.0)	(473.2)	(470.8)	(481.6)	(479.2)	(487.9)
Fraction of self-employed members	-237.6	-230.2	-302.3	-292.4	-294.2	-276.5
	(315.2)	(309.0)	(310.1)	(303.6)	(314.0)	(306.1)
Fraction of separated members	88.1	78.9	42.8	26.7	76.9	62.8
	(562.9)	(562.9)	(567.4)	(567.5)	(561.6)	(561.9)
Average number of children per member	221.2**	221.9**	165.4	163.7	203.1*	206.0*
	(109.7)	(109.7)	(107.0)	(106.4)	(108.2)	(108.4)
Average age of members (years)	36.3***	35.7***	33.9***	32.8***	33.4***	32.8***
	(12.5)	(12.6)	(12.5)	(12.6)	(12.1)	(12.2)
Number of members in the group	-19.3	-19.1	-18.7	-18.5	-29.6*	-28.1
	(16.2)	(16.5)	(15.9)	(16.2)	(16.8)	(17.2)
Distance to bank from village (km)	-14.5	-13.9	-14.7	-13.8	-15.8	-14.7
	(12.3)	(12.2)	(11.9)	(11.7)	(12.6)	(12.4)
Other SHGs in village (#)	-67.3**	-67.7**	-68.8***	-69.6***	-65.5**	-66.3**
	(26.3)	(26.4)	(26.2)	(26.3)	(25.8)	(25.9)
Observations	1,388	1,388	1,388	1,388	1,388	1,388
Team fixed effects	yes	yes	yes	yes	yes	yes

The table provides determinants of the amount of bank loans the group received per member per year of activity using a Tobit model. Standard errors, clustered at the village level, are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 12: Member's access to bank loans

	Received a part			Share received			Amount received per year		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Educated	0.0351***			0.0228***			415.3***		
	(0.0075)			(0.0025)			(53.4)		
Educated: class I-IV		0.0252***			0.0142***			243.4***	
		(0.0095)			(0.0029)			(70.3)	
Educated: class V or above		0.0395***			0.0266***			492.3***	
		(0.0089)			(0.0029)			(61.4)	
SC	-0.0031	-0.0032		0.0001	-0.0000		-17.9	-19.9	
	(0.0129)	(0.0129)		(0.0037)	(0.0037)		(70.4)	(70.1)	
OBC/Other	-0.0100	-0.0102		0.0019	0.0017		73.2	69.1	
	(0.0095)	(0.0095)		(0.0024)	(0.0024)		(68.7)	(68.5)	
Educated ST			0.0320***			0.0240***			411.1***
			(0.0090)			(0.0035)			(62.7)
Non educated SC			-0.0051			0.0012			-16.4
			(0.0138)			(0.0039)			(74.3)
Educated SC			0.0335*			0.0213***			385.4***
			(0.0171)			(0.0051)			(92.8)
Non educated OBC/Other			-0.0116			0.0024			69.2
			(0.0103)			(0.0027)			(65.5)
Educated OBC/Other			0.0249*			0.0250***			491.9***
			(0.0130)			(0.0036)			(105.3)
Landless	-0.0074	-0.0072	-0.0073	-0.0001	0.0001	-0.0001	-22.8	-19.4	-22.6
	(0.0087)	(0.0087)	(0.0087)	(0.0026)	(0.0026)	(0.0026)	(51.6)	(51.6)	(51.5)
Occupation: farming	0.0137	0.0143	0.0138	-0.0056	-0.0051	-0.0057	-162.4**	-152.4**	-162.3**
	(0.0128)	(0.0128)	(0.0128)	(0.0037)	(0.0037)	(0.0037)	(73.3)	(73.4)	(73.5)
Occupation: casual labor	0.0092	0.0100	0.0092	-0.0068**	-0.0061**	-0.0068**	-102.0*	-88.1	-102.2*
	(0.0092)	(0.0093)	(0.0092)	(0.0028)	(0.0028)	(0.0028)	(55.0)	(55.4)	(54.9)
Occupation: permanent labor	0.0058	0.0051	0.0057	0.0038	0.0031	0.0038	105.1	91.7	105.1
	(0.0219)	(0.0219)	(0.0219)	(0.0076)	(0.0076)	(0.0076)	(125.3)	(125.8)	(125.2)
Occupation: self-employed	0.0128	0.0134	0.0127	0.0006	0.0011	0.0006	-5.8	5.0	-6.2
	(0.0138)	(0.0138)	(0.0138)	(0.0046)	(0.0046)	(0.0046)	(101.6)	(101.3)	(101.1)
Separated from husband	-0.0376***	-0.0376***	-0.0376***	-0.0115***	-0.0115***	-0.0115***	-181.6***	-181.5***	-181.5***
	(0.0096)	(0.0096)	(0.0096)	(0.0025)	(0.0025)	(0.0025)	(38.3)	(38.4)	(38.3)
Number of children	0.0075***	0.0076***	0.0075***	0.0016***	0.0017***	0.0016***	42.2***	44.3***	42.3***
	(0.0019)	(0.0019)	(0.0019)	(0.0006)	(0.0006)	(0.0006)	(11.0)	(11.0)	(11.0)
Age (years)	0.0007*	0.0007**	0.0007*	0.0003***	0.0003***	0.0003***	3.3**	4.1**	3.3**
	(0.0004)	(0.0004)	(0.0004)	(0.0001)	(0.0001)	(0.0001)	(1.6)	(1.6)	(1.6)
Observations	11,767	11,767	11,767	11,767	11,767	11,767	11,767	11,767	11,767
Group fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes

The dependent variables are a dummy indicating the member received part of the bank loans taken by the group; the share she received; and finally the average amount she obtained per year. All columns include group fixed effects. Standard errors, clustered at the group level, are given in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 13: Expected amount of bank loans per year

	Number of observations	Probability of remaining till group received bank loan or till day of survey	Expected amount of bank loans received per year	Significance of the difference relative to the base category
	(1)	(2)	(3)	(4)
Non educated	15,832	85.8	669.7	N.A.
		(34.9)	(1445.0)	
Educated	6,142	88.6	977.5	307.8***
		(31.8)	(1996.4)	
ST	8,022	80.5	672.2	N.A.
		(39.7)	(1436.4)	
SC	3,690	86.8	765.3	93.1***
		(33.9)	(1496.8)	
OBC/Other	10,262	91.3	817.5	145.3***
		(28.2)	(1794.4)	
Non educated ST	5,854	78.1	593.9	N.A.
		(41.3)	(1301.8)	
Educated ST	2,168	86.7	883.7	289.8***
		(33.9)	(1731.6)	
Non educated SC	2,880	87.5	669.4	N.A.
		(33.1)	(1378.9)	
Educated SC	810	84.3	1106.6	437.2***
		(36.4)	(1816.6)	
Non educated OBC/Other	7,098	91.5	732.3	N.A.
		(27.9)	(1574.8)	
Educated OBC/Other	3,164	90.9	1008.7	276.4***
		(28.8)	(2197.3)	
Landless	4,464	84.2	793.0	N.A.
		(36.5)	(1467.6)	
Owns land	17,510	87.2	746.2	-46.8*
		(33.4)	(1661.4)	

The table provides the probability that a member remains in the group till the group receives a bank loan, or till the date of our survey, and the amount of bank loans she receives per year. The last column provides the significance of the difference relative to the base category: *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 14: Responsibilities within the group

	Chairman		Bank representative		Keeping box at home		Keeping key of box at home	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Educated	0.11***		0.27***		0.01**		0.00	
	(0.01)		(0.01)		(0.00)		(0.00)	
Educated: class I-IV		0.07***		0.16***		0.02***		0.01
		(0.01)		(0.01)		(0.01)		(0.01)
Educated: class V or above		0.12***		0.32***		0.01		0.00
		(0.01)		(0.01)		(0.00)		(0.00)
SC	-0.00	-0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
OBC/Other	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Landless	-0.01	-0.01	-0.02**	-0.02**	-0.03***	-0.03***	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Occupation: farming	0.00	0.01	0.03**	0.04***	0.00	0.00	0.02***	0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Occupation: casual labor	0.00	0.00	0.01	0.02	-0.01	-0.01	0.01***	0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Occupation: permanent labor	-0.01	-0.01	0.05*	0.04*	-0.01	-0.01	0.02	0.02
	(0.02)	(0.02)	(0.03)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
Occupation: self-employed	0.00	0.00	0.01	0.02	0.02*	0.02*	0.02**	0.02**
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Separated from husband	-0.00	-0.00	-0.02**	-0.02**	-0.01*	-0.01*	-0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of children	0.00***	0.00***	0.01***	0.01***	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age (years)	0.00***	0.00***	0.00**	0.00***	0.00***	0.00***	0.00***	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	21,974	21,974	18,801	18,801	21,974	21,974	21,974	21,974
Group fixed effects	yes	yes	yes	yes	yes	yes	yes	yes

The dependent variables are dummies indicating the member has been the chairman of the group, represented the group at the bank, kept the box with group savings at home, and kept the key of the lock of the box at home. All columns include group fixed effects. Standard errors, clustered at the group level, are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figures

Figure 1: Caste selection at the village and group level