

# Microfinance Lifespans: A Study of Attrition and Exclusion in Self-Help Groups in India\*

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## Abstract

This paper deals with member attrition and group failure in *Self-Help Groups* (SHGs), the dominant institutional form in Indian microfinance. We surveyed groups composed entirely of women in three rural and relatively poor districts of the country: Keonjhar and Mayurbhanj in northern Orissa and Raigarh in Chattisgarh. We found that 10% of the 1,102 SHGs created over the period 1998-2006 were no longer active at the end of 2006 and 22% of women had left the groups that they first joined. Our data suggest that groups are more likely to survive if at least one of their members is well educated and if they are located in villages with other SHGs. Caste fractionalization and other measures of social cohesion do not systematically influence group failure, but they do result in greater exit of members from functioning groups. We find that SHGs engage in a variety of social activities, but the provision of credit does seem to be their primary role. Among groups that were active at the time of our survey, 88% of members had received internal loans and about three-quarters of these groups had borrowed from commercial banks.

Keywords: microfinance, collective action, caste heterogeneity, duration models. JEL codes: I38, G21, O12, O16

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# 1 Introduction

Microfinance is often advocated as a solution to multiple social problems. Productive investments financed by loans can bring households out of poverty, reduce income and wealth disparities, and groups can serve as forums for collective action to improve gender relations and local governance. Over the last few years, savings and credit groups have also helped manage some important social programs of the Indian government, such as the distribution of food grains and school meals in state-run primary schools.

There are two principal institutional forms through which group lending takes place in the microfinance sector of most countries. In the first, specialized institutions organize potential lenders into groups. Group composition may be determined by random factors, as in the case of FINCA in Peru, or the matching preferences of members as in the Grameen Bank.<sup>1</sup> These lending institutions are intimately and permanently involved with their members- they form groups, set interest rates and fines, and their representatives are usually present at group meetings.

An alternative model is one in which several loosely connected institutions are involved with a given group of borrowers. Government and non-government agencies form credit groups, the groups determine their own rules for saving and lending and some of these groups subsequently borrow from commercial banks. Microcredit is just a fraction of the loan portfolio of these banks who see it as a way of meeting their social responsibilities. This is the dominant institutional form in Indian microfinance, in terms of both outreach and total loan disbursements.

The present structure of the microfinance sector in India emerged in the early nineties when the Reserve Bank of India (RBI) issued guidelines to nationalized commercial banks encouraging them to lend to informal *Self Help Groups* (SHGs). Since then, such groups have been actively promoted by a number of different agencies and the National Bank for Agriculture and Rural Development (NABARD) has provided banks with subsidized credit for SHG lending.<sup>2</sup> Official statistics currently report over two and a half million groups and 32 million households in them.<sup>3</sup> Most of these groups are composed entirely of women.

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<sup>1</sup>See Karlan (2006) for a description of group operations in FINCA and chapter 4 of Armendariz de Aghion and Morduch(2005) for Grameen Bank lending practices.

<sup>2</sup> See Reserve Bank of India (1991) and National Bank for Agriculture and Rural Development (1992) for the original policy statements.

<sup>3</sup> NABARD (2006), page 38.

In spite of the phenomenal growth in the number of SHGs and total loans advanced to them, there is little systematic evidence on their internal functioning. In part, this is due to the nature of governance within the sector. Statistics on Indian SHGs have emerged because the organizations promoting these groups provide their donors an account of the number of new groups created and because commercial banks are required to report their lending to the Reserve Bank. In neither case are details on the uses of funds or their distribution within a group reported. We therefore know little about group demographics, about whether groups, once formed, continue to function effectively or how many members leave groups that they initially join. This paper attempts to fill this informational gap by using survey data on SHGs created during the period 1998-2006. We describe the survival of groups and members within groups, document group activities, and estimate the determinants of group and member duration using an econometric survival model.

Our data come from a survey of 1,102 rural SHGs and the 16,800 women who were members of these groups at some point during the period 1998-2006. We consider all groups formed by PRADAN, (a non-government organization that has actively promoted SHGs since the start of the NABARD program) in the districts of Keonjhar and Mayurbhanj in northern Orissa and Raigarh district in the newly formed state of Chattisgarh in central India. Groups are engaged in a variety of collective activities but saving and credit does seem the most important.<sup>4</sup> Almost all groups we surveyed had made small loans to their members and 68% of them had received at least one loan from a commercial bank. Each borrower received about Rs. 2,200 per year from internal group funds. For groups with at least one bank linkage, 83% of members in the group received some part of this loan, and the average amount received by these members was Rs. 2,189 per year.<sup>5</sup> Although loans provided by some specialized microfinance institutions are often larger, these SHG loans are sizable as a fraction of local earnings and, for women who received both group loans and banks loans, total borrowing from these two sources corresponds to roughly two months of labor earnings at the minimum wage in these areas.<sup>6</sup>

Groups do undertake activities not directly related to credit. About 10% were involved in the preparation of school meals, 3% administered state programs to distribute subsidized foodgrains

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<sup>4</sup>See Table 8.

<sup>5</sup>Our survey did not explicitly ask members about the bank credit received each year. This number has therefore been computed using the total amount received by members from bank sources, and dividing it by the number of years that the group has been active since first bank linkage.

<sup>6</sup>Minimum wages for each sector are determined by the Indian States under the Minimum Wages Act, 1948. The central government issues guidelines regarding these and currently recommends a floor of Rs. 66 per day. Agricultural workers that are privately employed typically receive about two-thirds of this amount.

and about half of them had, at some point, been involved in resolving family or village conflicts. They also frequently reported helping members during periods of personal distress. These groups therefore seem to play a role in promoting solidarity networks in the community. The data we have collected so far do not allow us to investigate these activities in much detail. In terms of the fractions of groups and members involved however, they appear secondary.

We estimate models of both group and member duration and find that factors behind group survival are quite different from those affecting member longevity. The maximum level of education in the group is important for its survival, perhaps because some educated members are needed to facilitate transactions and ensure that group accounts are accurate. The presence of other SHGs in the same village also has a positive effect on duration. It may be that a dense cluster of groups allows for the sharing of costs and ideas or instills in members the desire to survive, compete and be part of a larger network.

Based on a large literature that points to the importance of social heterogeneity in collective action, we explore whether such heterogeneity matters for the average duration of groups and of members within groups. For each surveyed member, we recorded both their individual caste or *jati* and the official category to which this caste belongs. Our fractionalization measures are a function of the shares of group members that belong to each caste. There are over a hundred different castes in our surveyed area and all four of the official categories are present- the Scheduled Tribes (ST), Scheduled Castes (SC), Other Backward Classes (OBC) and the residual category of Forward Castes (FC). We find that commonly used measures of fractionalization and social heterogeneity based on these classifications do not have systematic effects on group survival but they do explain the departure of individuals from groups. Heterogeneity matters even within broad caste categories, suggesting that the official classification fails to fully capture the relevant social hierarchy. Members from traditionally disadvantaged groups, especially poor communities within the Scheduled Tribes, are the most vulnerable to group heterogeneity. In addition to heterogeneity, lower levels of education, smaller landholdings and the absence of relatives within the group are all associated with greater member exit. We find that most of the differences in in the duration of membership within a group between Chattisgarh and Orissa can be attributed to characteristics of groups in these areas and regional variations in duration are negligible once these characteristics are incorporated into our model.

Our results suggest that it is problematic to evaluate the success of microfinance interventions based on conventionally reported coverage figures because these figures do not adequately account for attrition. The formation of groups is much better recorded in official data than their closure and groups, rather than their members, are the unit of analysis. As a result, estimates

of microfinance outreach are inflated because they are based on the initial and not the actual membership of SHGs.

One might argue that the attrition rates observed in our data are not particularly high compared with many government programs. Even groups that are no longer active functioned for a little over two years and members that left functioning groups stayed for an average of one and a half years. Besides, even if attrition rates were higher, it would be difficult to derive their welfare implications without more information on the types of credit contracts that these members have access to upon leaving their group. It is possible, and perhaps desirable, that SHGs are an intermediate stage in the process of financial integration of these households and that members leave groups when individual contracts with formal financial institutions become sustainable.

We find however that attrition rates are systematically related to measures of social disadvantage. It is predominantly the poorer and socially marginalized communities that leave the SHG network and this makes it unlikely that women moving out of SHGs enter individual contracts with lending institutions. It also means that some of those in desperate need of credit cannot obtain it from within this sector. An additional concern is that lending by commercial banks to SHGs is considered *priority sector* lending by the banking system and may therefore *crowd out* other lending. Disbursements by commercial banks to SHGs were 29% of all direct bank credit to small farmers in 2004-2005 and SHG credit has been rapidly rising since.<sup>7</sup>

To arrive at concrete policy prescriptions for this sector, more information is needed about the financial opportunities available to members once they leave this sector and the extent to which SHG lending substitutes for other types of lending to the poor. Although the duration of membership is only one, admittedly crude, measure of the performance of the microfinance sector, our study suggests that survey data on the histories of members and groups in this sector is critical to an assessment of Indian microfinance.

We provide a brief institutional history of the microfinance sector in India in Section 2. Our survey data, some summary statistics and empirical methods are described in Sections 3 and 4 respectively. Results are presented in Section 5 and are followed by some reflections on their implications for policy.

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<sup>7</sup>Loan disbursements to farmers with less than 2.5 acres of land were 10833 crore rupees in 2004-5 while SHG linked loans increased by Rs. 2994 crore over the same period. (Reserve Bank of India, 2007, tables 59 and 72).

## 2 Microfinance Institutions in India

Many detailed accounts on the history of rural banking in India are available. The All India Rural Credit Survey in 1954 was the first major study of household access to credit. It found that the rural poor were heavily indebted and had very limited bank access.<sup>8</sup> As part of a process aimed at providing banking services to this population, the State Bank of India was set up in 1955, the 14 largest commercial banks were nationalized in 1969, and the National Bank for Agriculture and Rural Development (NABARD) was created in 1982. Each nationalized bank was designated a *lead bank* for a particular state and these banks were required to maintain specific ratios of urban to rural branches in their state. As a result of these policies, a vast network comprising thousands of credit cooperatives and regional rural banks was created. There is some evidence that this expansion reduced regional poverty,<sup>9</sup> but it was accompanied by operating costs and default rates that were too high to be sustainable. Moreover, the reliance on informal credit sources persisted among the very poor.

In the early nineties central bankers tried to revitalize this elaborate and largely inefficient banking system. The start of institutionalized microfinance in India is often attributed to the circular that was issued by the Reserve Bank to all nationalized commercial banks in 1991, announcing the objective of linking informal groups of rural poor with these banks. Some non-government organizations at the time had organized women into groups that used their pooled savings for mutual insurance and small credit needs. Based on studies of these informal groups, it was believed that they had the “potential to bring together the formal banking structure and the rural poor for mutual benefit” (RBI, 1991). The following year NABARD launched a pilot project which linked 500 groups with commercial banks. The banks were offered finance from NABARD for such lending at the rate of 6.5% per annum. It was recommended that banks either lend directly to groups at 11.5% per annum or route their loans through voluntary agencies at the lower rate of 8.5% in order to cover the transaction costs of these agencies (NABARD, 1992). Banks were also permitted to classify such lending under *Advances to Weaker Sections*, and this category has historically accounted for a large fraction of their unprofitable loans.

Another major change came in April 1999, with the launching of the Swarnajayanti Gram Swarozgar Yojana, popularly known as the SGSY (RBI, 1999). This program was introduced to increase the membership of SHGs among families living below the poverty line. The introduction

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<sup>8</sup> See for example, Bell(1990) for summary statistics on rural borrowing and indebtedness based on rural credit surveys and Karmakar (1999) for recent figures on the numbers of different types of rural banking institutions.

<sup>9</sup>See Burgess and Pande, 2005.

of the SGSY reflected a significant change in state policy by directly subsidizing borrowers (as only part of the initial loan had to be repaid) and by restricting the composition of a group to families below the poverty line. Subject to caps, the rates of subsidy were 50% for borrowers from the Scheduled Castes and Tribes and 30% for other poor households. A proper evaluation of the changes that the SGSY brought about in the composition and performance of SHGs is yet to be undertaken.<sup>10</sup>

The NABARD pilot program of 1992 was widely regarded as successful. As seen in Table 1, the number of SHGs linked to the banking system has been rising rapidly over the last 15 years and is currently over 2.5 million. Over the past few years, alternative models of lending have appeared and private banks have also entered the sector. However, in spite of the rapid growth of specialized microfinance institutions (MFIs) in India, they are estimated to cover only about one-half the number of households covered by SHGs.<sup>11</sup> This contrasts sharply with countries such as Bangladesh and Indonesia, where each of the major microfinance institutions is, in proportional terms, larger than the combined non-SHG sector in India (RBI, 2005 (chapter 2), Basu and Srivastava, 2005).

The dominance of SHGs in Indian microfinance appears to have resulted from the combined presence of a vibrant non-government sector engaged in rural development and an extensive but unprofitable network of rural banks and agricultural cooperatives that were created with the explicit purpose of providing small loans to the rural poor.<sup>12</sup> Policy makers may have been impressed by the phenomenal expansion in the outreach of microfinance institutions like the Grameen Bank in Bangladesh and other countries. The Grameen Bank alone, starting from humble beginnings, had reached almost a quarter of all Bangladeshi villages by 1991.<sup>13</sup> The

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<sup>10</sup> Our own surveys indicate that the combination of restrictions of group composition and subsidies may have been a factor causing the closure of some groups. Surveyed groups were asked about whether or not they received a subsidy. Although very few of the subsidized groups failed, other groups sometimes cited their exclusion from state subsidies as a reason for the failure of their group. In some cases, a few members were excluded from the group by the others because they were not on government poverty lists and the group was required to have a certain fraction of their members on these lists in order to be eligible for SGSY subsidies.

<sup>11</sup> Ghate (2007) estimates that about 14 million households are served by SHGs and 7.3 million by MFIs (p. 17).

<sup>12</sup> Harper (2002) provides some additional reasons for why SHGs rather than Grameen type institutions are more successful in the Indian context.

<sup>13</sup> This proportion is based on figures for the total number of Bangladeshi villages published by the Bangladesh Bureau of Statistics ([www.bbs.gov.bd](http://www.bbs.gov.bd)) and the number covered by the Grameen Bank (available at [www.grameen-info.org](http://www.grameen-info.org)).

linking of banks with SHGs was a creative approach that harnessed existing investments in rural banking to rapidly increase outreach among the poor and give India its own particular brand of microfinance.

### 3 Data

Our data comes from a survey of all of the 1,102 SHGs created by PRADAN in two of its field locations, one in northern Orissa and the other in central Chattisgarh. We collected information on the history of every group formed since the start of the program in these areas and on each of the 16,800 women who, at any stage, had been members of these groups. Our group-level survey records all loans taken by the group from commercial banks, rules on interest rates, fines and repayment, and a summary of the production and social activities undertaken collectively by group members over the year preceding the survey. Through member interviews we obtain their social and economic characteristics and their borrowings from internal and bank sources. In the few instances in which current or former members of a group could not be traced at the time of the survey, we relied on other informed respondents. We begin this section with a brief outline of PRADAN's microfinance program. This is followed by a description of our survey methodology and some descriptive statistics on groups and members.

#### 3.1 The PRADAN SHG Program

The first SHG formed by PRADAN was in Alwar, Rajasthan in 1987. In subsequent years, the program expanded in several states in central India: Jharkhand, West Bengal, Madhya Pradesh, Orissa and Chattisgarh. Table 2 provides a list of PRADAN locations in each of the 6 states in which the organization operates, together with the year of the first SHG and the total number of SHGs in existence at the end of March 2006.<sup>14</sup>

The groups formed by PRADAN are a small fraction of the total number of SHGs in the microfinance sector, but an important presence in the areas in which they operate. The program targets administrative blocks with high levels of rural poverty and proceeds by building a dense network of SHGs in these areas over a few years. In recent years, SHGs have been the first

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<sup>14</sup>current aggregate figures for the SHG program are available at [www.pradan.net](http://www.pradan.net)



intervention by the organization in each village and group meetings have then been used to introduce other activities aimed at raising agricultural productivity and rural incomes. The social composition of these villages is often different from other parts of the state and district; the proportion of communities classified as Scheduled Tribes is higher and literacy rates are lower than the state average.

The groups themselves consist entirely of women and are formed according to the guidelines issued by NABARD and the Reserve Bank (RBI, 1999, NABARD, 1992). Each group has between 10-25 members and large villages often have multiple groups, one in each hamlet. PRADAN professionals begin the process of group formation meeting village women in a public space in the village. They discuss the benefits of membership and some general principles followed by successful groups (compulsory attendance, weekly savings, sustainable interest rates, bookkeeping). Interested women are enlisted and a regular meeting time is set. A professional is usually present at meetings until membership becomes fairly stable and all members are familiar with group practices. Each group is 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 among the members.

As groups mature, they get federated and select representatives who regularly attend *cluster meetings* organized by the federation. Smoothly functioning groups typically open a savings account with a nearby commercial bank within a year of their inception. At this stage, PRADAN professionals discuss the feasibility of alternative self-employment projects with the group, and, once a few members decide on particular projects, the group applies to a commercial bank for a loan. This loan constitutes their first *bank linkage*. Bank funds come into the group and are then lent to individual members. Member-borrowers make payments to the group which then repays the bank on the stipulated date.

Over time, the professionals who initiated the group withdraw and their interactions with members are limited to cluster meetings and occasional visits to the village. Regular communication with PRADAN takes place mainly through copies of weekly accounting transactions that are sent in to the local office. Groups are free to determine the rules under which they operate and the stringency with which they are implemented. After the start of the SGSY in 1999, some subsidies to groups are routed through PRADAN, provided the groups satisfy the selection criteria required by the scheme. Subsidized and unsubsidized SHGs therefore co-exist in the same area.

In the absence of regular visits to older SHGs, the organizations promoting these groups are

not always informed about their functioning. Successful groups may stop sending in accounts as they reduce their reliance on PRADAN, others may temporarily suspend meetings because some members migrate seasonally, and yet others may stop their activities altogether. Survey data is therefore required to accurately track the performance of groups over time.

### 3.2 The Survey Design

As mentioned above, we surveyed all PRADAN groups created in the districts of Keonjhar and Mayurbhanj in northern Orissa and the district of Raigarh in eastern Chattisgarh. Both the Orissa districts are serviced by the professionals in Keonjhar and we henceforth refer to these groups as the Keonjhar SHGs. The three survey districts are shown in Figure 6 and surveyed areas within each district are indicated in Figures 9-8. Although only a small fraction of each district is actually covered by the program, groups are geographically clustered in dense pockets. This makes it easier for professionals to visit these areas and it also allows groups to benefit from frequent contact with each other.<sup>15</sup>

In our analysis, we refer to a group as *inactive* if the group has not held any meetings over the three months prior to the survey and if its members declare that they have no plans to meet in the future. A group is considered as *active* if it is meeting regularly at the time of the survey. All women who left groups while the group was still functioning are called *past* members, and all others are referred to as *present* members. This category therefore includes women in inactive groups if they remained with the group until its last meeting.<sup>16</sup>

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 creation of savings accounts, bank loans, the group's membership in an SHG federation, and, for inactive SHGs, their last meeting. Group rules include fines (for attendance and late repayment), minimum savings requirements, interest rates and the assignment of group responsibilities. We asked group members about their collective activities such as the involvement of its members in village and family conflicts, their visits to government officials, and their administration of state-funded school meal programs in

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<sup>15</sup> Some of these benefits are studied by Nair (2005)

<sup>16</sup>Our main reason for using this classification is that we would like to distinguish between members who left existing groups and those whose membership ended because the group became inactive. It is likely that the factors underlying these two types of events are different. We intend to explore these differences more carefully in future research.

primary schools. We also recorded the total number of other SHGs formed by PRADAN in the same village.

For all present and past members, 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. Our caste data includes both the *jati* of each member and the official caste category to which the *jati* belongs. We classify a group as homogeneous if all its members belong to the same *jati*. For each member and for each accountant, we recorded their dates of entering and, if applicable, leaving the group, and the total value of loans taken. We also created a relationship matrix which recorded family ties between members. For inactive groups, we asked members the main reason for group failure and recorded the most popular response. Similarly, we asked past members the main reason for their departure from a group.

### 3.3 Descriptive Statistics

Table 3 provides a chronology of the formation of SHGs in our study area. The survey in Keonjhar was conducted during the summer of 2006 and the Raigarh survey was in January 2007. In each case, we surveyed all groups created in the area from the start of the program until the date of our survey. This gives us a total of 1,102 groups created in the period 1998-2006. Of these 10% were inactive by the time of the survey (12% in Raigarh and 9% in Keonjhar).

Table 4 contains descriptive statistics on groups by their survival status. A comparison of the two types of groups throws up some interesting patterns. First, active and currently inactive groups are both reasonably long-lived with inactive groups operating for an average of two years after they are formed. Second, there are many more homogeneous groups in Keonjhar in both categories, and these groups as a whole have lower survival rates. This pattern is driven by groups composed of Scheduled Tribes, who form a majority of our surveyed population, and it does not hold systematically for the other caste categories. Since we've defined a homogeneous group as one in which all women are of the same tribe or caste, the lower survival rates reflect in part lower levels of education among some tribal communities which make it hard to sustain a group. We come back to this issue in Section 5 below. Third, groups that survive are both more involved in village activities and in the lives of their members. They are more likely to administer government schemes, meet government officials, attend cluster meetings, go on exposure trips organized by PRADAN to observe projects in other villages, and get involved

with family and village conflicts. In terms of their demographic characteristics, members of active groups are, on average, more educated, they own more land, and more of them act as accountants for their group.<sup>17</sup> Differences in group size are negligible.

Table 5 compares present and past members. homogeneous caste groups retain a slightly higher proportion of their members. Demographic characteristics of *past* and *present* members are similar. Members who eventually leave have fewer years of education and a smaller fraction of them are literate, but these differences are not large. A striking contrast between those who remain in SHGs and those who leave is seen in the networks these women have within their groups and in the extent to which they are responsible for group decisions. In Keonjhar, 12% of women currently in groups had another relative in the group, while this was true of only 7.6% of past members and those who stayed in their groups were at least twice as likely to have held the position of group chairman, *conditional* on the number of days spent in the group. Table 6 shows the distribution of present and past SHG members across the major caste groups in the area. We use these groups in our empirical analysis in the next section and investigate whether the durability of SHGs varies by community.

A variety of reasons were cited by respondents for group inactivity and member exit. The principal responses are shown in Table 7. We asked former members of inactive groups for their assessment of why the group stopped functioning. In both regions, problems of leadership and conflict turned out to be the most important (40%) followed by low savings and repayment rates. The stated reasons for member departures vary by region. Difficulties in saving and reimbursement are most important in Keonjhar while personal conflicts matter more in Raigarh. These responses are not surprising given the higher levels of education of departing members in Raigarh and the greater social heterogeneity of their groups. Between one quarter and a fifth of all members who have left cite personal reasons which often involve leaving their village.

The borrowing and lending activities of groups are summarized in Table 8. Almost all active groups provided their members with loans from internal funds in the year prior to the survey and a fairly high fraction of members received such loans ( 87% in Keonjhar and 63% in Raigarh). Borrowing members of active groups received an average of between 2 and 3 loans during the year prior to the survey and they borrowed an average of Rs. 2,298. For inactive groups, we recorded lending activities during the last year of their regular functioning. Most of these groups in Keonjhar did lend out internal funds while less than one-third of the inactive Raigarh

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<sup>17</sup>Average member characteristics for both types of groups are calculated using all members that were ever part of the group.

groups were engaged in such lending during the last year in which these groups were active. In both cases, access to these loans was very uneven and less than 15% of members received such loans. Those who did borrow received sizable amounts: Rs. 1,831 in Keonjhar and Rs. 1,024 in Raigarh. It is plausible that this uneven distribution of group funds may have led to the high levels of group conflict reported by members of inactive groups.

Nearly three-quarters of active groups in both areas have been linked with commercial banks. Linked SHGs have received an average of 1.7 bank loans and average total borrowings of Rs. 48,518. Over 80% of members in linked groups received these loans, resulting in average borrowings of a little over Rs. 4,000 per member.<sup>18</sup> To better understand the extent of credit provided by banks per year, we compute the number of days between the first group linkage and the survey date for active groups and the days from the first linkage to the last meeting for inactive groups. Using the average duration of 685 days (across all regions and both active and currently inactive groups), members receiving bank credit get about Rs. 2,000 per year through these linkages.

## 4 Empirical Methods

### 4.1 General Issues

In the previous section, we've described various aspects of the composition and functioning of SHGs and discussed some of the interesting correlations in our data. We've observed, for example, that groups that survive are more involved with village activities, they have more stringent attendance and savings requirements and they share loans more equitably. Members who remain in groups are more educated than average and have a network of family connections within the group. We now proceed to estimate the effects of some of these group and member characteristics on group duration and on the length of time women remain in these groups.

The group and member life-spans that we are interested in have to be estimated using data that is *right censored*. In other words, we would like to estimate the length of time that groups and members survive using data in which most groups are still active and most women who joined these groups are still in them. This makes many standard regression techniques inappropriate

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<sup>18</sup>This is roughly 100 U.S. dollars at the current exchange rate and \$ 273 using the purchasing power parity rate of 14.67 released by the International Comparison Program in December, 2007.

for our purpose. To see why, suppose that we use a binary variable which takes the value of 1 for groups (or members) that are no longer active and zero otherwise, and would like to estimate the effect of a set of co-variates on the likelihood of survival. Even if all groups had the same chances of survival, and our co-variates did not matter at all, we would observe older groups surviving at lower rates simply because they are older, and the characteristics of these groups would therefore *appear* to be negatively associated with the likelihood of survival. We would therefore obtain inconsistent estimates of the effects of group and member characteristics on survival rates. To take another example, suppose PRADAN started its SHG program in areas with low literacy. Even if literacy did not matter for group duration, it would appear to matter because older groups are less likely to have survived until our survey date and these groups have lower literacy rates.

If we try to avoid these types of biases by restricting our sample to inactive groups and to members who have completed their stay in a group, we lose a lot of the variability in our sample and reduce it to a fraction of its current size. What we do instead is to use methods of survival analysis, popular in the biomedical and quality control fields, that allow us to use censored observations by making use of information on the censored group or member until the time of censoring, rather than simply ignoring these observations or not accounting for the fact that they are censored. These methods are used to estimate the *time until events occur*; in our case, the events being either the cessation of regular group activity for the group-level analysis, or the departure of a member for our study of member attrition.

We estimate the distribution of a random variable  $T$  which denotes the duration (in days) of a group, or of a member within a group. This distribution can be represented in several ways.<sup>19</sup> The *survival function*  $S_T(t)$  represents the probability of surviving beyond a time  $t$  or, in other words, the probability that the random variable  $T \geq t$  or that the event has not occurred until time  $t$ . The *hazard rate*  $h_T(t)$  is, in the language of survival analysis, the instantaneous chance of failure at time  $t$ . For our purposes, it is the probability a member will leave a group at time  $t$ , conditional on her being there until that point in time. Finally, the *cumulative hazard rate*  $H_T(t)$  is the sum or integral of these hazard rates over  $(0, t)$ , depending on whether  $T$  is discrete or continuous.

These three representations of the distribution of  $T$  can be estimated using either parametric or non-parametric methods. Non-parametric estimators are a natural choice when dealing with a homogeneous population because of the flexibility they offer. Our population is far

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<sup>19</sup>This discussion is based on Klein and Moeschberger (2003), chapters 2 and 3.

from homogeneous but we begin with these nonparametric estimates as descriptive tools to summarize the survival behavior of groups and members. We then estimate a parametric model which allows us to incorporate co-variates and therefore estimate the causal effects of group and member characteristics on survival rates. A variety of different nonparametric estimators and parametric models are available. For nonparametric estimates we focus on the Nelson-Aalen estimator of the cumulative hazard function which is shown to have desirable small sample properties and on a smoothed hazard rate derived from this estimator. For parametric estimates we use the Weibull model for reasons discussed below.

## 4.2 The Nelson-Aalen Estimator

With right censored data, the exact lifetime is only observed if failure or exit occurs before the time of censoring, namely the date at which the group was surveyed. In the discussion below, we will usually refer to events as the exit of SHG members, although the same principle applies for group failure.

Suppose that in our data, members exit groups at  $D$  distinct times  $t_1 < t_2 < \dots < t_D$  and that at time  $t_i$  there are  $d_i$  departures. Time, in our case, is the number of days since the member joined the group. Let  $Y_i$  represent the number of individuals who are at risk at time  $t_i$ . In our case, this is the number of members who are still part of the group at  $t_i$  or who leave it at  $t_i$ . Members who do not leave but are observed for less than  $t_i$  days in the group are subtracted from  $Y_i$ . The ratio  $d_i/Y_i$  estimates the conditional probability that a group or a member who survives to time  $t_i$ , experiences the event at time  $t_i$ . The Nelson-Aalen estimator is then given by:

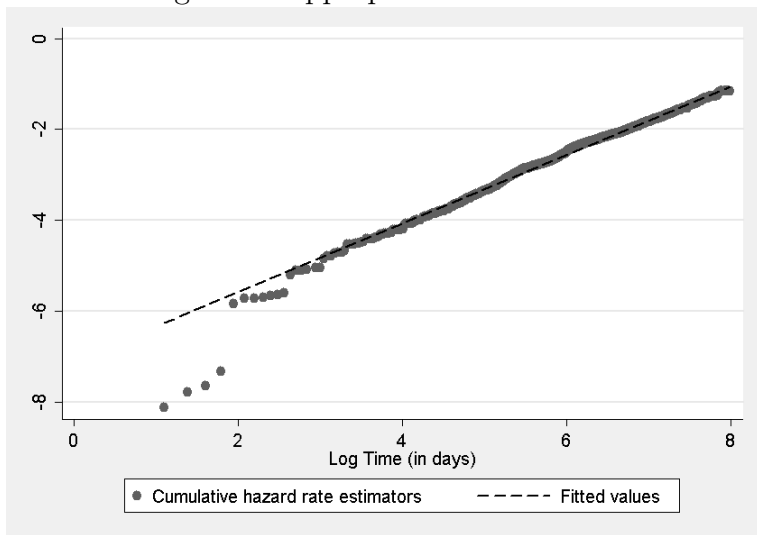
$$\hat{H}(t) = \begin{cases} 0 & \text{if } t \leq t_1 \\ \sum_{t_i \leq t} \frac{d_i}{Y_i} & \text{if } t_1 \leq t \end{cases} \quad (1)$$

By smoothing the jump sizes of this estimator with a parametric kernel, we can obtain a hazard function  $h(t)$ .

### 4.3 The Weibull Model

We now impose some additional structure on the survival function to examine the importance of various group and member characteristics on survival times. We assume that both group and member duration follow a Weibull distribution. The natural log of the cumulative hazard function in the Weibull model is linear as a function of the log of member duration. Figure 1 plots these two variables for our data set of members (using Nelson-Aalen estimates of  $H(t)$ ). The model seems to fit the data fairly well except for members with very short durations within groups. The group-level plot looks similar.

Figure 1: Appropriateness of the Weibull Model



Given a vector of covariates  $Z$  and corresponding coefficients  $\beta$ , the Weibull hazard rate is given by

$$h(x|Z) = (\alpha\lambda x^{\alpha-1}) \exp(\beta'Z).$$

The first expression  $(\alpha\lambda x^{\alpha-1})$  is referred to as the baseline hazard,  $h_0$  and  $\alpha$  is termed the shape parameter. All our results are presented in the form of hazard ratios corresponding to our explanatory variables. For binary variables these tell us the factor by which the hazard function moves up or down relative to the baseline hazard. In general, it gives us the ratio of the hazard function to the baseline hazard for a unit change in the explanatory variable. If an explanatory variable has no effect on the risk of failure our estimated hazard ratio should be close to 1.

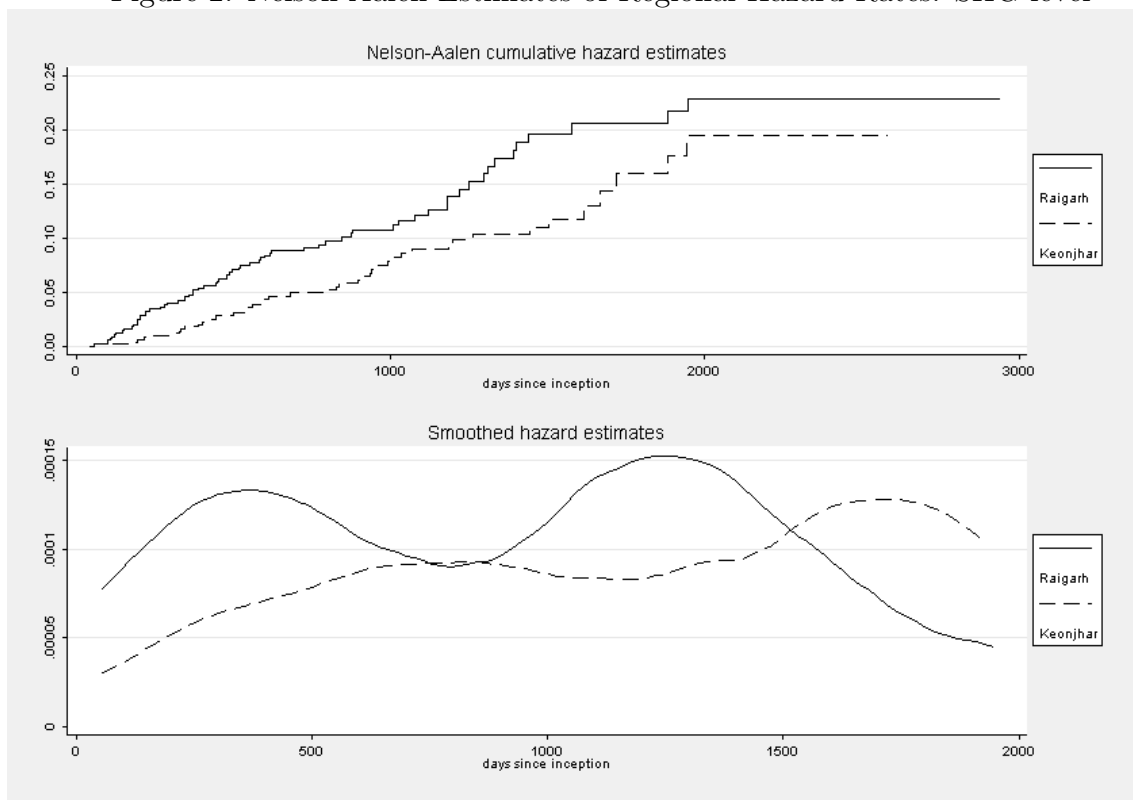


## 5 Results

We first present non-parametric estimates of hazard functions separately for each of our areas and then discuss the effects of group and member characteristics based on the Weibull model.

### 5.1 Nonparametric Estimates

Figure 2: Nelson-Aalen Estimates of Regional Hazard Rates: SHG level



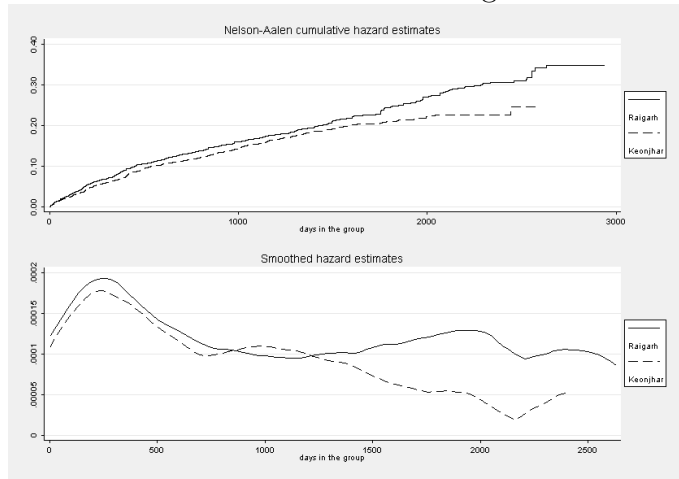
Nelson-Aalen estimates of cumulative hazard functions are shown in the upper panel of Figure 2. The lower panel shows hazard rates which are obtained by a kernel smoothing of the hazard contributions provided by the Nelson-Aalen estimators. Like all estimates obtained by kernel procedures, these hazard rates are not reliable at the end points of the time-interval because our sample is thin in this region.

The lower survival rates for SHGs in Raigarh that appeared in Table 3 are also reflected here.

The double-humped hazard rate for Raigarh suggests that there are two different phases in a group’s life when it is especially vulnerable; about a year after inception, and then again after three or four years. Hazard rates in Keonjhar vary much less over a group’s lifetime. We noted that the Raigarh groups are much more socially heterogeneous than those in Keonjhar and that group conflict is cited by members as being salient. One reason for the differences in estimated hazard rates across our two regions may be the higher levels of conflict in Raigarh. The first rise in hazard rates is at about the time that a group takes its first bank loan and the sharing of this loan may be a possible source of conflict in heterogeneous groups. In the absence of any direct evidence on this type of conflict, this is of course purely speculative.

Figure 3 displays hazard rates using member-level data for the two regions. The risk of exit in the early stages of membership are very similar, but once again, we see a second hump in the Raigarh hazard function that is missing for Keonjhar. Differences in these member-level hazard rates across the two areas appear less marked than the group-level estimates of Figure 2.

Figure 3: Nelson-Aalen Estimates of Regional Hazard Rates: Member level



As discussed in Section 3.3, members who had left groups were asked for the principal reason for their departure. The two most frequently cited reasons were (a) difficulty in saving and repayment and (b) conflict with other group members. Figures 4 and 5 estimate hazard rates based on restricted samples of members to illustrate the importance of these two factors as a function of the length of time a member stays in the group. Figure 4 is based on a sample that includes only those members that left due to difficulty in savings or repayment. Similarly, Figure 5 includes only those that stated conflict as their reason for leaving the group. The reversal of hazard rates across regions in these two figures is striking. Exit due to difficulty in saving and repayment is much more important in Keonjhar and reverses the relative position

of the aggregate hazard functions seen in Figure 3. As our summary statistics suggest in Table 7, conflict is more important in Raigarh.

Figure 4: Hazard Due to Difficulty in Saving: Member-Level Data

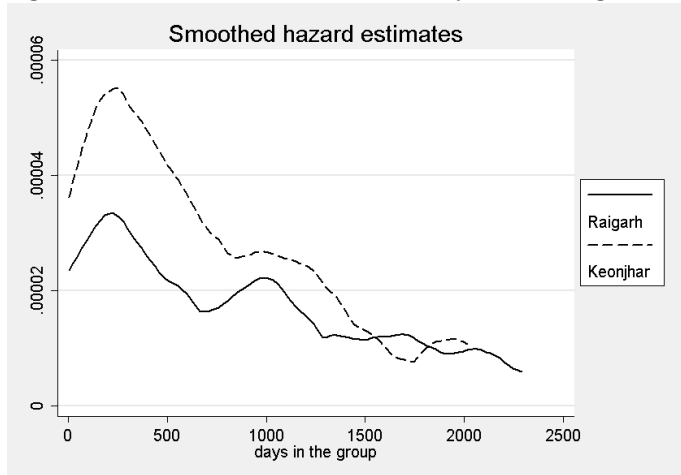
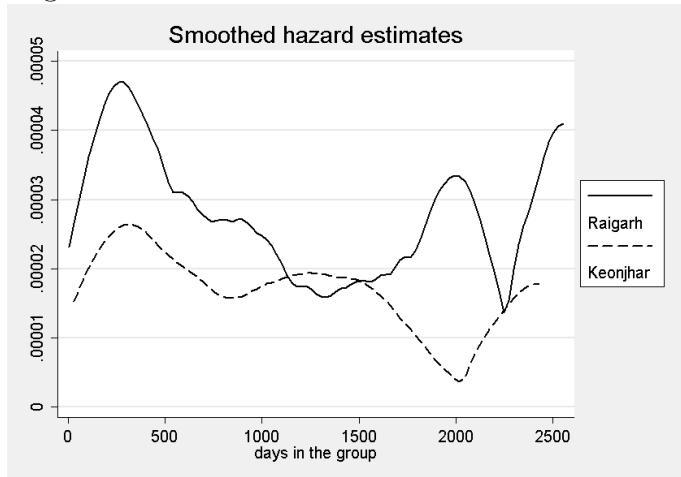


Figure 5: Hazard Due to Member Conflict: Member Level Data



## 5.2 Parametric Estimates

Weibull estimates using group-level data are in Table 9. Of the various characteristics that we consider, the only ones that systematically affect group hazard rates are the number of other PRADAN-initiated SHGs in the village and the maximum level of education within the

group. Both these lower the risk of group failure. In our most comprehensive specification, an additional year of education for the most educated member of the group lowers the hazard rate by 8% and an additional group in the same village lowers it by 18%. It is conceivable that the presence of an educated member facilitates interactions with banks and other officials and ensures better book-keeping. Other groups in the village may help either through the sharing of information or by making it more likely that a PRADAN professional frequently visits the area. We have not looked at these mechanisms directly and at this stage these are simply conjectures that are consistent with our data and have some anecdotal support.

Before proceeding to study the exit of members from functioning groups, it is worth noting that many of the factors that are commonly believed to affect collective action processes do not seem to matter for the group survival in our model. Group size, average landholdings, social networks or our various measures of social heterogeneity - none of these have statistically significant effects on group survival. In particular, the lower survival rates observed for tribal communities seem to result from their demographic characteristics rather than their tribal status per se. Survival is admittedly a crude signal of group success and it may be that these group characteristics do matter for the financial success of groups. We are currently in the process of collecting financial data on the SHGs in our sample and plan to explore these questions in future work.

Table 10 is based on our member-level data set and identify the determinants of member attrition from groups while these groups are still functioning. Member exit appears to be sensitive to both member characteristics and group composition. Women from the intermediate social category of *Other Backward Classes* have lower hazard rates than those from other castes. Education, children, and relatives within the group are also associated with longer life-spans. Separated women are less likely to leave their group, perhaps because they have greater need for the social network provided by it. The average age of members in a group and higher average landholdings are also positively associated with the survival of its members.

The role played by family connections within the group seems to be particularly important. Using the combined sample of all members and controlling for a large set of member and group characteristics (the last column in Table 10), we find that the hazard rate for a woman with one relative in the group is 92% below the hazard rate for a woman with no relatives. On the other hand, we find that the average density of family networks in the group puts members at greater risk. This suggest that the most vulnerable members are those with no relatives in groups where the other members are closely related. Finally, the existence of competing Pradan SHGs within the same village also encourages attrition, most likely by members who choose to participate in another group. This effect of competition is statistically significant but not large.

There is a sizable literature on the role of social heterogeneity and conflict in group settings.<sup>20</sup> Almost a fifth of the members in our survey who have left groups report personal conflicts as their main reason for leaving. We explore the role of heterogeneity in a variety of different ways. Our first approach is to construct a number of measures of social heterogeneity and use these as explanatory variables. We use our data on the *jatis* of individual members to construct a social fractionalization index that is commonly used in the literature. The value of the index is based on the shares of each caste or *jati* in the group and is obtained by subtracting the sum of squares of these shares from one. This variable therefore takes on strictly positive values whenever members of a group are of different castes even if they are all in the same official caste category. We also include a set of dummy variables; for groups where all members have the same caste and for those where they are of different castes but of the same caste category. We find that group fractionalization raises hazard rates. When we estimate the model separately for each of our four official caste categories, we find this effect of fractionalization especially marked for the Scheduled Castes and the Scheduled Tribes (columns 3 and 4 in Table 10). To illustrate, if we estimate our duration model using only the Scheduled Caste women in our sample, we find that a change in the fractionalization index from zero to one (the minimum and maximum values this index can take) causes the hazard function to jump up by 74%. This is double the value of the corresponding coefficient in our full sample of women.

Our second approach is to estimate the model only for those SHGs which have women from at most two official caste categories. This means, for example, that we exclude groups with a combination of SC, ST, OBC and FC women, but include groups that are constituted from any two of these categories. Our intention here is to examine whether the chances of exit vary based on whether a member forms part of a majority or a minority (in terms of these official categories) within the SHG. These results are shown in table 11. Group heterogeneity affects scheduled-tribe women the most. Scheduled-caste women leave heterogeneous and homogeneous groups at similar rates and those from the OBCs are more likely to leave heterogeneous groups only when they are in a minority. Somewhat surprisingly, the extent to which greater heterogeneity is associated with exit does not depend on whether the SHG is comprised entirely of tribal women or of a mixture of castes and tribes. These results point to a lack of solidarity among the Scheduled Tribes and are consistent with other research that demonstrates that, unlike the Scheduled Castes, tribal communities have not succeeded in establishing a common identity.<sup>21</sup>

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<sup>20</sup>See Banerjee, Iyer and Somanathan (2008) for a survey.

<sup>21</sup>Banerjee and Somanathan (2007) find the Scheduled Tribes received far fewer government financed public goods than the Scheduled Castes over the period 1971-1991.

### 5.3 Caste, Education and Family Networks

Our parametric estimates show that the attrition of women from SHG groups is selective along three major dimensions: caste, education and the number of relatives in the group. We now examine the role of these characteristics more carefully.

Table 12 contains survival rates for women in each of the four caste categories, separately for each region and for homogeneous and heterogeneous groups. Average attrition is greatest among the Scheduled Tribes. Over the first two years of membership, survival rates for homogeneous groups are higher than those for heterogeneous groups and higher for Keonjhar than for Raigarh, but at the end of three years about a quarter of scheduled-tribe women have left their group and this rate does not vary much across region or across homogeneous and heterogeneous groups. Scheduled Castes remain longer in their groups in Keonjhar, but not in Raigarh and castes that comprise the OBCs survive longer in both areas.

Table 13 presents results from a similar exercise, stratifying this time by education levels. In Keonjhar there is a marked difference in survival rates for uneducated women relative to those with some education. Over a quarter of those with no education left their groups within three years of joining them, while only 10% of those with some primary schooling did so. An interesting pattern seen in the table is the non-monotonicity of survival rates by education levels. In Keonjhar women with between one and five years of schooling stay longer in groups than those with some secondary schooling. Patterns in Raigarh are similar, though less marked. One plausible hypothesis is that uneducated members leave because they are discriminated against or because they find it difficult to meet the savings requirements of the group while the more educated ones leave because they have better prospects. This is worrying given our finding that group survival depends on the highest education level in the group.

Table 14 is based on a member's education relative to others in the group. For each group we compute quantiles corresponding to the education levels of the bottom quarter, half and three-quarters of the population. In Keonjhar, we observe the highest attrition among those below the first quantile and the lowest attrition is found in the group between the first and second quantiles. These differences in survival rates are not however large relative to those seen in Table 13. No systematic pattern is seen in Raigarh.

Table 15 compares survival rates across members based on their family networks within the group. Members are classified into two groups; those with no family relationships within the

group and those with at least one relative in the group. The last column in Table 15 shows that the differences across these types are large: in Keonjhar, members with no relatives have a survival rate of 74.8% while those with at least one relative have a survival rate of 83.1%. A similar difference can be observed for Raigarh (71.2% versus 81.7%). This differential attrition starts early and over the entire three year period, the survival function for members with relatives lies above the one for members with no relatives in the group.

To get a better idea of how these family networks might operate, we further distinguish between the attrition caused by groups becoming inactive and the attrition that results from members leaving functioning groups. These figures are shown in the first two columns of Table 15. Recall, that *present* members are defined as all those in active groups and those who remained in groups that are currently inactive and until the last group meeting. In Keonjhar, the differential attrition of connected and un-connected members arises mainly from women with no relatives leaving functioning groups at higher rates. In Keonjhar, 8.2% of women with no relatives in the group had left it by the end of the first year, while the corresponding figure for women with relatives is only 4.5%. At the end of three years, these rates are 17.8% and 11.1% respectively. In contrast, the rates of survival in *active* groups are not very different for those with and without relatives. Three years after joining a group, 90.9% of those without relatives and 92.4% of those with relatives are still in active groups. In Raigarh, departures from functioning groups and group closures seem equally important causes of attrition from the SHG network. These descriptive tables are consistent with the Weibull hazard ratios presented above. Social status, family networks and, to a lesser extent, education, are important predictors of the duration of women in a microfinance network of the type we consider.

## 6 Policy Implications

In spite of the phenomenal expansion of the Indian microfinance sector since the early nineties, and the dominant role played by Self Help Groups in the sector, little is known about the composition and the internal activities of these groups or length of time for which they function effectively. This paper has attempted to fill this gap. We use survey data from SHGs formed over the period 1998-2006 in selected regions of northern Orissa and Chattisgarh and estimate the life-spans of groups and members. We find that about one-fifth of those joining an SHG network at some point during our reference period have left it by the end of the period. This attrition is caused both by groups becoming inactive and by members leaving functioning groups.

We estimate duration models for groups and members separately and find that the maximum level of education in a group and the presence of a network of other groups in the village are both associated with longer lived groups. The life-span of a member within a group depends on her education, caste, family structure and, critically, on whether she has other family members in the group. Women with more education, intermediate (rather than low) caste status and relatives within a group stay longer.

The aggregate attrition rates we observe are not, in themselves, large enough to undermine the effectiveness of the SHG program. In fact some attrition is probably desirable if members use the group as an introduction to the formal banking system and proceed to enter into individual lending contracts with banks after they leave a group. Groups, with their regular meetings, rules and collective action problems are a costly way of linking rural women to the banking system and their most useful function may be as intermediary institutions which help borrowers make a transition from local moneylenders to banks. On the other hand, it is also possible that those who leave groups are excluded from them for various reasons and that their sources of credit outside these groups are very limited. Our results on the determinants of group and member duration support this latter hypothesis: Groups with educated members and those in villages with other SHGs are less likely to fail and it is therefore the remote, disadvantaged communities that are most likely to be deprived of credit through these institutions. It appears unlikely that women leaving groups are moving on to better opportunities and this should make attrition a matter of concern to policy makers.

Before concluding, we would like to draw the reader's attention to several sample selection issues that make it difficult to interpret the survival rates we observe in our data as representative of the SHG system in India. First, the villages selected by PRADAN for their program are not typical of most Indian villages and PRADAN as an organization is regarded as being especially effective. The villages we surveyed have large scheduled tribe populations and high rates of poverty and illiteracy. The attrition rates we observe may therefore be much higher than those for other parts of the country if, as our estimates suggest, these variables lead to shorter group and member life-spans. On the other hand, other parts of the country, most notably South India, have multiple organizations promoting SHGs in the same village or town and this denser network may lead to more competition and more attrition as members move to groups that best match their needs. Organizational effectiveness is also likely to be an important determinant of SHG success but this has been little explored because of the absence of comparable data from different SHG promoting institutions.

Another important issue relates to the non-random selection of SHG members within villages.



The survey data on which this paper is based is restricted to members of SHGs and it may be that members who choose to participate in these groups differ from other families in same village who decide not to participate. We cannot rule out biases from this type of selection but we do not believe these are large, both because the process by which PRADAN forms groups is quite inclusive ( all adult women in the hamlet are initially invited to join the group) and because existing work that compares SHG members and non-members in PRADAN villages elsewhere finds that they differ very little at the time that they enter the program.<sup>22</sup> We are in the process of collecting village-level demographic data and information on the credit and background characteristics of a random sample of non-members. We are also compiling weekly financial data for the groups in our sample. These data sets will a facilitate a more careful comparison of members and non-members and will also allow us to look beyond survival to other measures of the financial success of groups and members.

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<sup>22</sup> Dewan and Somanathan (2007) study poverty targeting in the SHG program and find that while the program neglects the bottom tail of the income distribution, for the most part, participants to newly formed SHGs in Jharkhand differ very little from non-participants.

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## 7 Tables

Table 1: Cumulated Bank Linkages, 1992-2007

Year (end-March)	No. of SHGs linked	Bank loans (Rs. crore)
1992-93	255	.29
1993-94	620	.65
1994-95	2122	2
1995-96	4757	6
1996-97	8598	12
1997-98	14317	24
1998-99	32995	57
1999-00	114775	193
2000-01	263825	480
2001-02	461478	1026
2002-03	717360	2048
2003-04	1079091	3904
2004-05	1618456	6898
2005-06 <sup>a</sup>	2238565	11397
2006-07 <sup>b</sup>	2580000	14479

Sources: Figures from 1992-2005 have been taken from Reserve Bank of India (RBI) (2006) while those for 2006-2007 are from RBI (2007).

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<sup>a</sup>provisional estimates

<sup>b</sup>upto end February 2007

Table 2: Number of PRADAN SHGs in India ( 31/03/06)

State	Location	Year <sup>a</sup>	First SHG	# SHGs
Chattisgarh	Raigarh	1998	1999	532
Jharkhand	Godda	1987	1989	314
Jharkhand	Barhi	1992	1992	411
Jharkhand	Lohardaga	1992	1995	449
Jharkhand	West Singhbhum	1992	1996	363
Jharkhand	Gumla	1994	1994	484
Jharkhand	Dumka	1995	1989	318
Jharkhand	East Singhbhum	1997	1996	392
Jharkhand	Khunti	2000	1997	314
Jharkhand	Koderma	2000	1992	359
Jharkhand	Petarbar	2000	1998	322
Jharkhand	Deogarh	2002	1989	280
Rajasthan	Dausa	1999	1999	171
Rajasthan	Dholpur	1999	2000	180
Madhya Pradesh	Kesla	1986	1996	300
Madhya Pradesh	Vidisha	2000	2000	44
Madhya Pradesh	Sidhi	2002	2005	49
Madhya Pradesh	Dindori	2005	2005	110
Orissa	Keonjhar	1990	1998	506
Orissa	Balliguda	2001	2001	201
Rajasthan	Alwar	1986	1987	162
West Bengal	Purulia	1987	1995	218
West Bengal	Bankura	2005	2000	142
Total				6621

<sup>a</sup>This refers to the year in which a PRADAN office was started in the area. The Deogarh and Dumka SHGs were initially under the Godda office and the Koderma and Peterbar SHGs were managed by the Barhi office. This is why the first SHG in these areas predates the opening of the PRADAN branch office.

Table 3: Year-wise formation and dissolution of SHGs: Survey Data, 1998-2006.

Year	Started		Inactive		Bank loan	
	Keonjhar	Raigarh	Keonjhar	Raigarh	Keonjhar	Raigarh
1998	4	0	0	0	0	0
1999	10	18	0	0	0	0
2000	51	61	0	0	0	3
2001	27	36	3	5	2	7
2002	155	30	4	5	14	23
2003	89	46	11	7	100	31
2004	95	172	9	8	95	100
2005	85	160	17	24	89	140
2006	16	47	2	20	62	91
Total <sup>a</sup>	532	570	46	69	362	395

<sup>a</sup>There are two main reasons why the totals in this table do not match those in table 2. First, we included all groups that were formed before the survey date, and some of these were created after March 2006. Second, table 2 is based on administrative data that do not always account for group failures since these are not consistently reported.

Table 4: Group Characteristics by Survival Status

	Keonjhar		Raigarh	
	Active	Inactive	Active	Inactive
Number of groups	486 (91)	46 (9)	501 (88)	69 (12)
Average duration (days)	1105	884	1129	620
COMPOSITION				
Total number of castes in dataset	88	22	96	45
Average number of castes	2.4	1.8	4.0	3.4
Average number of caste categories (st, sc, obc, fc)	1.8	1.3	2.3	2.2
Fractionalization index	0.26	0.17	0.51	0.46
HOMOGENOUS GROUPS (%)				
ST (% of homogenous)	34.8	52.2	10.2	13.0
SC (% of homogenous)	68.6	91.6	60.8	66.7
OBC (% of homogenous)	8.9	4.2	19.6	33.3
OBC (% of homogenous)	22.5	4.2	17.7	0
FC (% of homogenous)	0	0	1.9	0
GROUP ACTIVITIES LAST YEAR				
Midday meals (%)	9	0	12	1
PDS (%)	3	0	4	0
Panchayat meetings (%)	34	22	56	35
Exposure trips (%)	70	41	13	6
Federation meetings (%)	12	2	2	0
Meet government officials (%)	20	7	32	16
Involvement in family or village conflict or member in distress (%)	44	26	52	26
RULES				
Minimum weekly saving (%)	100	100	94	96
Saving compulsory (%)	30	20	38	39
Groups with absence fines (%)	97	67	38	26
Absence fine (Rs.)	3.1	2.6	3.8	3.2
Higher interest rates default (%)	15	13	92	91
OTHER CHARACTERISTICS				
Received a subsidy (%)	14	0	5	1
Developed a group project (%)	34	9	26	6
Accountant is a member (% accts)	68	41	59	62
MEMBERS				
Average number of members	16	15	15	15
Past member (%)	13	14	15	14
Literate (%)	33	12	29	25
No school (%)	59	87	64	70
Maximum education (years)	9	5	8	7
Mean education (years)	2.8	1.0	2.0	1.6
Mean land (Acres)	1.7	1.4	2.0	1.9

Table 5: Characteristics of Present and Past Members

	Keonjhar			Raigarh		
	Present	Past	All	Present	Past	All
Number of women	7473	1116	8589	6995	1216	8211
(%)	(87)	(13)	(100)	(85)	(15)	(100)
Average duration (days)	1002	491	936	1071	542	993
CASTE CATEGORY COMPOSITION						
ST (%)	60.8	62.0	61.0	46.7	52.2	47.5
SC (%)	10.6	10.9	10.6	19.3	23.0	19.8
OBC (%)	27.1	25.8	26.9	32.1	23.0	30.8
FC (%)	1.5	1.3	1.5	1.9	1.8	1.9
BACKGROUND						
Education (number of years)	2.7	2.5	2.7	1.9	1.6	1.9
No school (%)	61	65	61	65	68	65
Read and write (%)	31	29	31	30	24	29
Father's education (number of years)	2.2	1.5	2.1	2.1	1.3	2.0
Land (acres)	1.7	1.7	1.7	2.0	1.8	2.0
RELATION TO GROUP						
Relatives within group (%) <sup>a</sup>	12.0	7.6	11.4	8.2	5.8	7.8
In homogenous groups (%)	35.3	32.3	34.9	9.8	7.3	9.4
Previous SHG membership (%)	4.4	9.0	5.0	5.7	6.5	5.8
Joined other SHG after leaving (%)		20.4			18.3	
CHAIRMAN <sup>b</sup>						
membership < 2 years (%)	5.6	0.49	4.7	8.5	3.2	7.1
2 years < membership < 4 year (%)	7.7	3.3	7.3	9.1	3.7	8.7
4 year < membership (%)	8.3	0	8.1	8.7	5.8	8.5

<sup>a</sup>Percentage of members who have at least one relative in their group.

<sup>b</sup>Percentage of members who have been chairman, given the duration of their membership.



Table 6: Distribution of SHG members by caste

	Keonjhar	Raigarh
Scheduled tribe	5231	3878
(%)	(61)	(47)
Scheduled caste	916	1616
(%)	(10)	(20)
Backward caste	2397	2512
(%)	(27)	(31)
Forward caste	124	157
(%)	(2)	(2)
SCHEDULED TRIBES <sup>a</sup>		
Bhuiyans	1127	203
Kharia	15	466
Ho	444	5
Munda	533	12
Santhals	501	0
Bathundi	811	0
Gond	432	620
Ganda	375	127
SCHEDULED CASTES		
Harijans	421	11
Chauhan	0	886
OTHER BACKWARD CASTES		
Yadav	5	697
Mahanta	823	99
Kurmi	493	14
Teli	95	497

<sup>a</sup>Only the largest groups are reported here.

Table 7: Stated Reasons for Group Failure and Member Exit

	Keonjhar	Raigarh
<b>GROUP</b>		
Pradan withdrew support	18.2	11.8
Personal conflicts / leadership problems / accountant problems	45.5	38.2
Unpaid loans / irregular savings	27.3	25.0
Others	9.0	25.0
Total	100	100
Number of observations	46	69
<b>MEMBER</b>		
<b>PERSONAL REASONS</b>		
Illness / dead	8.3	8.1
Left village / married / seasonal migration / going to school	17.8	12.0
<b>RELATED TO GROUP</b>		
The family was not supportive	6.2	9.1
<b>Could not reimburse a loan taken / difficulty in saving</b>	<b>29.2</b>	<b>17.1</b>
Could not attend the meetings	9.8	12.8
<b>Personal conflict with the group</b>	<b>15.5</b>	<b>20.3</b>
Excluded by the group	4.9	1.0
<b>OTHERS</b>		
Wanted to join another group	0.5	6.5
Others <sup>a</sup>	7.8	13.1
TOTAL	100	100
Number of observations	1116	1216

<sup>a</sup>Others includes not understanding the working of the SHG, pradan official stopped visiting the group, the group is too big and no clear reason

Table 8: Borrowing and lending activities of groups

	Keonjhar			Raigarh			Both Areas
	Active	Inactive	All	Active	Inactive	All	
<b>GROUP LOANS</b>							
Lending from internal funds (%)	100	91	99	96	30	88	93
Members receiving loans (%)	88	14	78	63	10	55	68
Loans per member last year (#)	3.1	2.4	3.1	2.1	2.1	2.1	2.7
Borrowing per member last year (Rs.) <sup>a</sup>	2,792	1,831	2,769	1,320	1,024	1,312	2,220
<b>BANK LINKAGES</b>							
<b>At least one bank linkage</b>							
Total groups (%)	74	15	69	74	23	68	68
Number of linkages (#)	1.7	1.0	1.7	1.8	1.3	1.8	1.7
Total bank borrowing (Rs.)	46,555	13,500	45,924	52,206	23,571	50,958	48,518
Members receiving bank funds (%)	77	89	78	89	84	90	83
Loans per borrowing member (Rs.)	4,222	984	4,150	4,154	1,488	4,070	4,108
Duration of group since first linkage (days)	613	318	607	768	526	759	685
<b>Exactly one bank linkage</b>							
Total groups (%)	52	100	53	38	75	40	46
Average loan size per member (Rs.)	2,386	1,979	2,375	1,303	512	1,285	2,039
Members who received part of loan (%)	88	61	87	59	18	56	74

<sup>a</sup>For loans and borrowings, last year refers to the year before the survey for members of active groups. For inactive groups it is the last year for which they were active. In the case of women who left groups we refer to their last year of membership.

Table 9: Hazard Rates for SHGs, Weibull model

	(1)	(2)	(3)
Shape parameter	1.12	1.13	1.16
Homogenous SHG, caste	1.11		
	(0.37)		
Homogenous SHG, ST		1.20	1.18
		(0.41)	(0.41)
Homogenous SHG, SC		1.76	1.73
		(1.02)	(1.02)
Homogenous SHG, OBC		0.25	0.26
		(0.26)	(0.27)
Fractionalization	0.78	0.79	0.74
	(0.44)	(0.44)	(0.42)
Average relations in group	0.84	0.79	0.80
	(0.55)	(0.51)	(0.52)
Number of initial members	0.95	0.95*	0.95
	(0.03)	(0.03)	(0.03)
Maximum education in group	0.92**	0.92**	0.92**
	(0.02)	(0.02)	(0.03)
Average land (Acres)			0.97
			(0.06)
Average age			0.95**
			(0.02)
Average total children			1.12
			(0.21)
Average separated			3.9
			(3.52)
Concurrent pradan SHGs	0.82**	0.82**	0.82**
	(0.03)	(0.03)	(0.03)
Raigarh	1.63**	1.57*	1.72**
	(0.38)	(0.36)	(0.44)
Number of observations	1064	1064	1062
Number of departures	107	107	106

(\*) significant at a 10% significance level

(\*\*) significant at a 5% significance level

Table 10: Hazard Rates for SHG Members, Weibull model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			ST	SC	OBC	FC	
Shape parameter	0.75	0.75	0.75	0.76	0.76	0.58	0.75
Caste category, SC	1.18**	1.13*					1.04
	(0.07)	(0.07)					(0.07)
Caste category, OBC	0.91*	0.87**					0.84**
	(0.05)	(0.05)					(0.05)
Caste category, FC	1.12	1.00					1.01
	(0.19)	(0.17)					(0.18)
Education (in years)	0.98**	0.97**	0.96**	1.02	0.97**	0.84**	0.97**
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.05)	(0.01)
Land (Acres)	0.99	0.99	0.99	0.97	1.01	1.00	1.01
	(0.01)	(0.01)	(0.01)	(0.03)	(0.01)	(0.04)	(0.01)
Age	1*	0.99**	1.00	1	0.99**	0.96**	1.00
	(0.002)	(0.002)	(0.003)	(0.01)	(0.01)	(0.02)	(0.01)
Separated	0.83**	0.81**	0.83*	0.68**	0.96	0.45	0.82**
	(0.06)	(0.06)	(0.08)	(0.13)	(0.16)	(0.34)	(0.07)
Total children	0.89**	0.89**	0.90**	0.89**	0.88**	0.78*	0.89**
	(0.01)	(0.01)	(0.02)	(0.03)	(0.03)	(0.10)	(0.01)
Relation	0.34**	0.08**	0.09**	0.06**	0.09**	0.001**	0.08**
	(0.06)	(0.02)	(0.04)	(0.03)	(0.05)	(0.001)	(0.02)
Homogenous SHG, castes		0.91	0.90	1.26	0.84	0.26	0.86*
		(0.07)	(0.09)	(0.27)	(0.15)	(0.26)	(0.07)
Homogenous SHG, SC							1.18
							(0.19)
Homogenous SHG, OBC							0.99
							(0.15)
Fractionalization		1.36**	1.49**	1.74*	1.04	0.53	1.31**
		(0.16)	(0.23)	(0.49)	(0.26)	(0.63)	(0.15)
Average relations in group		7.97**	5.52**	16.56**	6.22**	251.21**	7.59**
		(2.35)	(2.37)	(10.74)	(3.59)	(614.50)	(2.26)
Number of initial members		1.03**	1.04**	1.01	1.04**	1.07	1.04**
		(0.01)	(0.01)	(0.01)	(0.01)	(0.06)	(0.01)
Maximum education in group		1.01	1.01	1.00	0.98	1.07	1.01
		(0.01)	(0.01)	(0.02)	(0.02)	(0.08)	(0.01)
Average land (Acres)							0.94**
							(0.01)
Average age							0.99**
							(0.01)
Average total children							0.99
							(0.05)
Average separated							0.87
							(0.22)
Concurrent pradan SHGs		1.02**	1.03**	1.00	1.03**	1.06	1.02**
		(0.01)	(0.01)	(0.01)	(0.01)	(0.05)	(0.01)
Raigarh	1.10**	0.99	1.01	1.18	0.81*	1.92	1.05
	(0.05)	(0.05)	(0.07)	(0.16)	(0.1)	(0.92)	(0.06)
Defunct	1.35**	1.48**	1.40**	2.36**	1.13	0.92	1.46**
	(0.10)	(0.11)	(0.13)	(0.41)	(0.25)	(0.69)	(0.11)
Number of observations	15895	15895	8619	2421	4586	269	15895
Number of departures	2087	2087	1175	368	509	35	2087

Table 11: Hazard Rates for Members by Caste Categories: Weibull model (Restricted Sample)

	ST	SC	OBC	FC
Shape parameter	0.78	0.78	0.77	1.09
Heterogeneous within the same caste category	1.44**	0.66	1.2	
	(0.16)	(0.24)	(0.33)	
Heterogeneous across caste categories and member of the majority caste category	1.31**	1.04	1.03	0.84
	(0.11)	(0.20)	(0.17)	(2.66)
Heterogeneous across caste categories and member of the minority caste category	1.23	1.19	1.68**	1.35
	(0.21)	(0.27)	(0.31)	(5.24)
Concurrent pradan SHGs	1.03**	1.01	1.06**	0.77
	(0.01)	(0.02)	(0.02)	(0.32)
Number of observations	6706	1321	2962	87
Number of departures	848	182	301	7

Table 12: Member Survival, by Caste

	Keonjhar		Raigarh	
	Homogenous	Heterogeneous	Homogenous	Heterogeneous
<b>ST</b>				
number of members	1945	2535	453	3064
1 year	92.4	91.2	90.8	87.8
2 year	82.5	82.6	84.5	80.2
3 year	75.3	76.3	75.0	74.4
<b>SC</b>				
number of members	210	530	163	1248
1 year	97.0	90.3	85.3	87.7
2 year	93.8	85.4	70.1	79.1
3 year	89.4	81.3	67.2	76.8
<b>OBC</b>				
number of members	495	1429	99	2210
1 year	93.3	92.8	100.0	89.1
2 year	90.5	88.2	98.7	82.7
3 year	84.0	83.9	98.7	79.4

Table 13: Member Survival, by Education

	Keonjhar	Raigarh
<b>no education</b>		
number of members	4512	4877
1 year	91.6	88.4
2 year	82.2	80.5
3 year	74.9	75.7
<b>class 1-5</b>		
number of members	1049	1694
1 year	95.1	88.8
2 year	92.2	82.3
3 year	90.2	78.2
<b>class 6-8</b>		
number of members	457	593
1 year	91.1	88.0
2 year	87.3	81.2
3 year	84.3	77.3
<b>class 9-12</b>		
number of members	1230	243
1 year	91.3	87.7
2 year	87.3	82.8
3 year	82.6	77.5

Table 14: Member Survival by Relative Education

	Quantile 1	Quantile 2	Quantile 3	Quantile 4
<b>Keonjhar</b>				
Number of members	3902	491	1033	884
1 year	93.4	93.5	93.3	93.2
2 year	88.6	90.3	91.0	89.5
3 year	85.0	89.2	88.5	86.9
<b>Raigarh</b>				
Number of members	4513	371	933	1084
1 year	92.2	93.8	93.2	93.6
2 year	87.7	88.4	90.0	89.2
3 year	84.6	86.3	87.4	86.6

Table 15: Member Survival, by Family Networks

	<i>Present</i> Members		In <i>Active</i> Groups		All Members	
	No relatives	Relatives	No relatives	Relatives	No relatives	Relatives
<b>Keonjhar</b>						
Number of members					3661	3545
1 year	91.8	95.5	98.3	98.5	90.2	94.0
2 year	86.4	92.5	94.1	95.8	81.2	88.5
3 year	82.2	89.9	90.9	92.4	74.8	83.1
<b>Raigarh</b>						
Number of members					3697	3723
1 year	90.7	94.0	95.3	96.2	86.5	90.3
2 year	85.5	90.5	90.2	93.8	77.0	84.9
3 year	81.8	88.3	87.0	92.6	71.2	81.7



# 8 Figures

Figure 6: Study Area

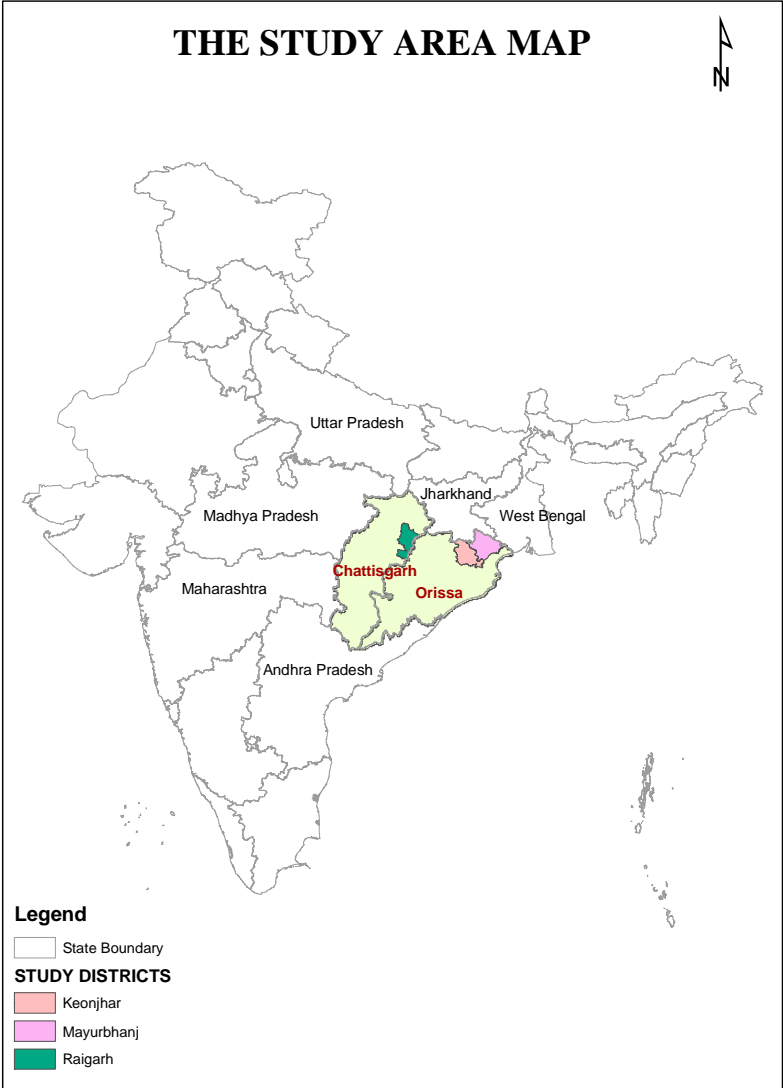


Figure 7: Keonjhar

Figure 8: Mayurbhanj

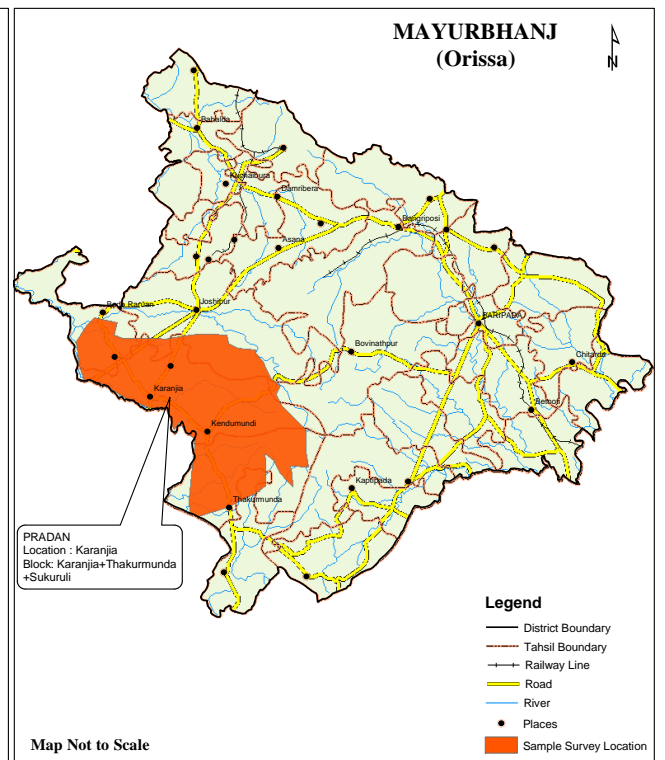
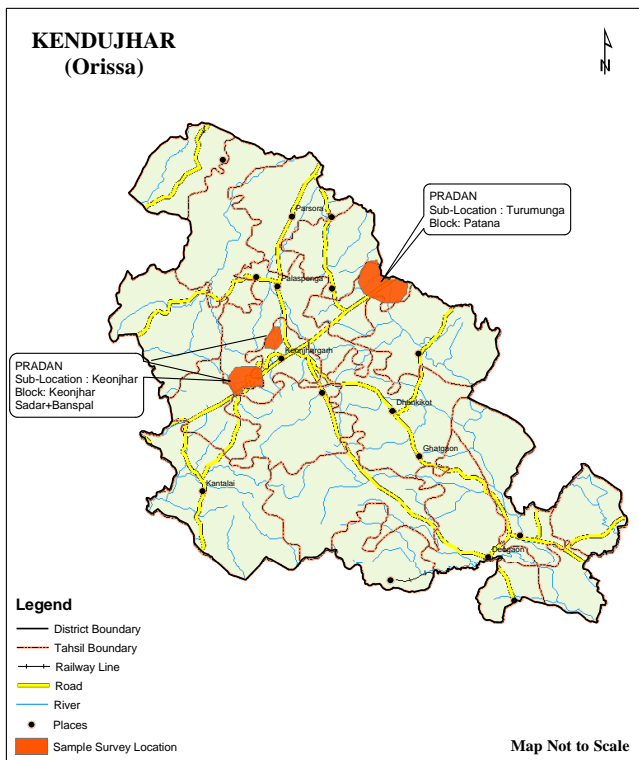


Figure 9: Raigarh

