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**Transaction Costs in Group
Micro Credit in India:
Case Studies of Three Micro Finance Institutions**

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“The lower the transaction costs associated with a particular contractual assembly of inputs, the more likely it is that self interested individuals will choose that method of organizing production” (Leffler, 1991)

1 Introduction

1.1 Transaction Costs In Microcredit

There are three kinds of costs that a lending institution incurs when it provides a loan: the cost of the money that it lends; the cost of prudent financial practices such as provisioning for loan defaults; and the cost of transaction, which includes the costs of identifying and screening the client, processing the loan application, completing the documentation, disbursing the loan, collecting repayments and following up on non payment.

Unlike the cost of funds and the cost of defaults, transaction cost is not proportional to the amount lent. The average microfinance loan size being smaller than most other loans - corporate and personal - the transaction cost on a percentage basis for a microfinance loan tends to be higher.

The group lending model adopted entails peculiar costs such as group formation costs, costs on training the borrowers on the procedures to be followed, a higher degree of supervision and a higher frequency of installment payments (usually weekly or bi monthly.)

The most popular model for the dispensation of microcredit in India is the group-lending model. As per Sa-dhan (Industry Association of Community Development Finance Institutions in India) data, group loans account for 93% of the microfinance in India.

1.2 Rationale For Study

Though the microcredit sector, by definition, caters to the economically disadvantaged, there is a degree of support for the view that microcredit providers should charge interest rates so that the lending programs become “sustainable” (Adams and Von Pischke 1992, Yaron 1992). Sustainability enables operations on a larger scale and coverage of a larger segment of the population. With demand for microcredit far exceeding supply, sustainability and subsequent increase in scale are important objectives. As per the Mi-

crobanking Bulletin (2004)¹ data, the average operational self-sufficiency of the of the 302 microfinance institutions (MFIs) on which data was presented was 123%, and the financial self sufficiency² was 110%.

Setting sustainable interest rates has resulted in higher interest rates in microcredit.. Chavan and Ramakumar (2004) observe that after the introduction of microcredit, an upward shift in the interest rates charged by formal institutions to rural borrowers in India has been noticed. Policymakers are concerned about the high interest rates since microcredit is meant for the economically weak. Helms and Reille (Cgap 2004) and Fernando (2006) argue that, interest rate ceilings are not likely to be a solution to these concerns of the policy makers. This is because they will retard the long term growth of availability of credit for the target set of borrowers). as if formal financial institutions are not able to cover their costs, they would tend to exit the market. This in turn would result in increase in dependence of the poor on informal sources of finance. It therefore follows that microcredit providers need to look at innovative ways to reduce costs, which would result in interest rates coming down in a sustainable manner.

Hence MFIs face the challenge of finding ways to reduce lending costs. While the cost of funds, default costs and transaction costs contribute to the total cost of lending in any sector, in the microcredit sector transaction costs have been identified as being an important contributor to lending costs (Goodwin-Groen Cgap 2003). Rosenberg (Cgap 2002) has outlined a method for estimating the interest rate that an MFI will need to realize on its loans if it wants to fund its growth primarily with commercial funds. In his model, he has stated that the administrative expenses of efficient, mature institutions tend to range between 10-25% of the average loan portfolio. Administrative expense covers all the annual recurrent costs - salaries, benefits, rents, utilities and depreciation - except the cost of funds and loan losses.

The reasons for high transaction costs in microcredit are numerous - the most important being that the average microfinance loan size is small and hence the transaction cost on a percentage basis for a microfinance loan tends to be higher. Further, the group lending model adopted entails peculiar costs such as group formation costs, costs on

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²Computed as Operating revenue / (Financial expense + loan loss provision expense + operating expense)

training the borrowers on the procedures to be followed, a higher degree of supervision and a higher frequency of installment payments (usually weekly or bi monthly). Though the cost structure of such a model is higher, it ensures the high repayment rates that microfinance loans are reputed for (Besley and Coate 1995, Armendariz de Aghion, 1999).

A better understanding of transaction costs - an important determinant of costs of an MFI - would be useful in evolving strategies to reduce lending costs in a sustainable manner.

2 Review of Relevant Literature

2.1 Literature From India

In their study of the microcredit programme of the nationalized commercial banks in India, Puhazhendi (1995) and Srinivasan and Satish (2000) microcredit concluded that the intermediation of non governmental organizations (NGOs) and self help groups (SHGs) in the credit delivery system reduced the transaction costs of both banks and borrowers. Tankha (2002) identified the factors that impacted group formation costs . The most important factors identified were : the number of groups handled by a field worker and his/her conveyance expenses, group training costs and average staff salaries in the region.. Karduck and Siebel (2004) studied transaction costs of borrowers and concluded that weekly as against monthly meeting schedules increase transaction costs by 34%. The Microcredit Ratings International Ltd (M-Cril) Microfinance Review 2003 (revised February 2004) mentions that the cost per borrower for the Indian MFIs is on an average 12.2 US\$ and that all the group lending models incur more than half of the total operating expenses on salaries.

2.2 Other Literature

Llanto and Chua (1996) studied the transaction costs of two Philippines based NGOs. They concluded that there is an inverse relationship between an organisation's transaction costs and its number of years in existence. Motivation and retention of NGO staff were critical for transaction costs. Gonzalez-Vega et al (1997) studied the transformation

of BancoSol from an NGO MFI to a licensed commercial bank. The ratio of total costs to average number of loans outstanding increased from US\$ 149 (1992) to US\$ 242 (1994). Most of this increase came from higher cost of funds, but the ratio of operational costs to the average number of loans also increased from US\$103 to US\$ 135. One reason was that the transformation was accompanied by an increase in the number of branches from 4 to 32. The increased investment in infrastructure, monitoring and communication systems, and additional staff did not immediately generate sufficient number of loans. BancoSol compensated by increasing the revenue generating capacity of each loan by increasing loan sizes and increasing maturities.

3 Construct Definitions

3.1 Transaction Cost

Transaction Cost comprises two components, direct and indirect.

3.1.1 Direct transaction cost

This is defined as the cost of the transactor (usually the field worker) doing the group loan transaction. Its three main components are group formation costs, cost of direct administrative activities and cost of monitoring.

Cost of group formation and training includes the cost of formation and training of the group with the objective of using it to deliver credit.

Cost of direct administrative activities comprises cost of appraisal, documentation, disbursement, other direct administration activities and the cost of branch manager supervision. Cost of appraisal is the cost of processes for appraising/ grading the group before the sanction of a loan. Cost of documentation is the cost of documents and the completion of documentation formalities relating to the loan. Cost of disbursement is the cost of completing formalities relating to disbursement of funds. Cost of other direct administrative activities is the cost of time spent by the field worker in completing administrative formalities such as report and format completion, reporting to immediate supervisor (usually the branch manager), filling up movement registers, filling up expense

claims for travel and bank related duties, if any. Since the branch manager closely supervises the entire loan process and in many cases also helps in appraisal / documentation / disbursement, the allocated (per loan) supervision cost of the branch manager is also included.

Monitoring cost is the cost of loan utilization checks and collection of installments. It was inferred from the field staff that additional time was spent with a group only if there was a problem / potential problem in the group - this varied from case to case. The cost of "avoiding default" is not taken into account in the study.

3.1.2 Indirect transaction cost

While direct transaction costs capture the human resource cost of the branch, there are other costs such as rent, electricity and facility maintenance, which also need to be allocated. Further, there are the expenses of the regional offices and head offices - which do not do direct business but supervise the branches - which also need to be taken into account. Indirect transaction cost basically includes allocated fixed costs of the branch office, regional office and head office. However, depreciation and taxation costs have not been included since these would make the results between MFIs less comparable.

3.2 Method of expression of costs

The various costs have been calculated for the first year of formation of a group and expressed as a percentage of the typical first loan given.

Costs have also been expressed on a life cycle basis. It is observed that most groups do not break up after the first loan, but are in existence for a longer period of time and avail of several repeat loans. Life cycle is the length of time that the groups are commonly in existence, and life cycle costs are taken as a percentage of the typical loan amounts given over the life cycle. MFI personnel at different levels estimated the length of time that groups are commonly in existence. Similarly typical loan amounts in each loan cycle were arrived at based on discussions with MFI. The cost of repeat loans is assumed to be similar to the cost of the first cycle, except that the costs for group formation and training are absent. The difference in other costs such as collection and administrative costs was

not observed. Interviews with field personnel also confirmed that the difference might be very minor or absent. It has also been assumed that indirect transaction costs remain the same over the period of the loan.

In order to calculate the life cycle cost of a loan, the following method was adopted: the present value (PV) of the costs and that of the loan amounts were calculated. The PV of costs was expressed as a percentage of the PV of the loan amount. For purposes of calculation of PV, a discount rate of 8% p.a. was applied, as that was approximately the prevailing cost of funds of the MFIs under study.

3.3 Research Method

Since the objective of the study was to gain in-depth insights based on observations and discussions on the processes being followed within each organization, the case study method was used. A questionnaire-based survey may have covered a larger number of organizations, but the quality of data might have been dubious since the details about time being spent on each activity would have been entirely self-reported. The advantage of case research is that it can delve more deeply into motivations and actions than structured surveys (Yin 1994).

3.4 Sample Characteristics

Three established MFIs mainly engaged in microcredit - using group lending model - were studied. Rosenberg (CGAP 2002) mentions that most MFIs tend to capture most of their economies of scale by the time they reach about 5,000 to 10,000 clients. All the MFIs studied had more than 10,000 clients each.

3.5 Selection of MFIs

The MFIs, one in North India and two in South India, were selected. As per data from Sa-dhan (Industry Association of Community Development Finance Institutions in India), South India is where 70% of Indian microcredit takes place.

The MFI chosen in North India works in a state which ranks low on human development indicators, while the MFIs in South India are in a state with high human develop-

ment indicators. The two MFIs are located in the same state but have reported different costs per borrower. Hence the two MFIs when studied together could give us insights into the variations in cost structure among MFIs.

3.6 Selection of branches within MFIs

In each MFI at least two branches were studied to ensure width of coverage. They, according to the senior officials of the MFI, were “typical branches” whose cost structure could be taken as being representative of the category they were in.

In MFI 1, which functioned mainly in rural areas, there were two models: one with 5 member groups, and another with 14-20 member groups; hence one of each kind was studied. Since MFI 2, functioned in semi-urban and rural areas, one semi-urban branch and one rural branch were studied. In MFI 3, which functioned mainly in semi-urban areas, a typical mature branch was studied. In addition, two branches started less than a year ago were studied. While both branches were started at around the same time, one was in an area where there was no competition and the other in an area where there was intense competition.

3.7 Method for estimation of costs

3.7.1 Direct transaction costs

In MFI 1 and MFI 2, a field worker was paid a fixed salary on a monthly basis; hence the cost of that salary was allocated to different activities, depending on the time he/she spent on them. In addition to the fixed salary, an incentive for particular activities such as group formation and monitoring was also paid, and it was added to the salary component

loan amount simultaneously after documentation while in others some members receive it initially and other members after two weeks.

3.8.4 Monitoring and collection

The field worker after disbursement makes loan utilization checks (usually one or more depending on the MFI norms). The loans are usually for a period of 50 to 55 weeks with weekly collections. Hence the groups meet every week.

3.8.5 Schedule of field workers

Most group meetings are held in the early morning hours. Each field worker has a schedule of group meetings to attend in the mornings. Thereafter he/she goes to the office to complete the administrative tasks. The evenings are kept for field work, either to form new groups or to provide training to newly formed groups. The typical schedule of a field worker is given in Annexure II.

4 Case 1: MFI 1: North India Based MFI focusing on rural areas

Profile

Region of Operation	: Northern India (Primarily rural)
Established in year	: 1996
Number of Branches	: 45
Loan Portfolio	: Rs. 270 mn
Number of active clients	: 60,000
Portfolio at risk (>30 days)	: 4%
Duration of a single loan	: 1 year
Expected Life of a group	: 4 years
Size of loans given	:

Year	Size of Loan (in Rs.)
Year 1	8000
Year 2	10000
Year 3	14000
Year 4	14000

Employee compensation method

Fixed salary and conveyance allowance and incentives for group formation and monitoring.

Number of groups per field worker in the branches studied

46 (Branch 1 following Model 1) and 16 (Branch 2 following Model 2).

Selection of Sample branches

Within this MFI, there are two models. The differences between the two models are summarized in the table below:

Model 1	Model 2
Group Size: 4-5	Group Size: 14-20
Has been in use for last eight years	Has been in use for last two years
MFI acts as financial intermediary, MFI uses monies borrowed from various banks for on lending	MFI works in partnership with a bank Lending directly by bank to the end user with MFI acting as bank's partner
Field workers report daily to the office	Field workers posted at their area of operation and have to report to the office only once or twice a week
Field worker reports to branch manager. Branch reports to district office which reports to head office (three sets of fixed costs)	Unit heads sit in the district office. Field worker reports to unit head who reports to district head who reports to head office. (Two sets of fixed costs)

One typical branch of each model was studied. Each of the branches was started around three years ago and both branches had very low levels of PAR (less than 0.5%).

Loan Process

Women form self-selected groups. One center consists of 3 to 4 groups. While the MFI has a training schedule of seven days with daily, hourly sessions, the field workers decide on the duration, depending on the ability of the particular group. After training, the groups are appraised. In the first stage, the branch manager, along with the field worker, visits houses of the group members to ascertain if they have been trained and if they qualify for the loan as per MFI internal guidelines. The divisional head supervises the actual GRT, though this may be delegated to the branch heads in certain cases. After the GRT, at the next group meeting, the field worker fills an appraisal format. The document to be signed is a Demand Promissory Note with a receipt using a 1 Rupee revenue stamp. Disbursement is given to 60% of the members in the third meeting and balance 40% on the fifth meeting. Disbursement is by bearer cheques. The MFI collects money every week for a period of 50 weeks. The amounts due are collected by the center leaders and deposited in the bank the day before the center meeting. Thereafter the deposit slips are

produced at the center meeting. The bank with which the MFI has an account insists that the MFI stations a staff member at the bank branch during banking hours to help in deposit and withdrawal transactions of the groups. Hence field workers are posted on rotation basis for bank duty.

Inferences from study of MFI 1 (Results presented in Annexure 3)

1. The average time required by a field worker to form one group (including conveyance time) was around 500 minutes for Model 1 and 1400 minutes for Model 2. In addition, training time required was 600 minutes for Model 1 and 1200 minutes for Model 2.
2. The direct transaction cost for the first loan to a group as a percentage of the typical first loan given is 6.2% in Model 1 and 3.7% in Model 2. Out of all the individual activities, collection was the single largest contributor to direct transaction cost, contributing 36% and 28% in Model 1 and 2 respectively. This is followed by group formation accounting for 20% and 23% respectively.
3. Indirect transaction cost is higher for Model 1 as compared to Model 2 as there are only two levels of fixed costs in Model 2 as against three in Model 1.
4. Total transaction cost for first loan to a group is higher at 11.3% in Model 1 and 8.1% in Model 2 as both direct and indirect transaction costs for Model 1 are higher.
5. Life cycle transaction costs are lower than first year costs. This is because the first year costs include group formation and training costs, which account for roughly a third of the first year costs, which are not present in subsequent years. Life cycle transaction cost is also higher for Model 1 at 7% as against Model 2 at 5%.

Managerial Implications

1. The total transaction cost in the case of Model 1 is found to be higher than Model 2 by 39% on a single loan basis and 37% on a life cycle basis. While Model 1 has 5 member groups, Model 2 has on average 14 members per group. There are also other organizational differences between the models.

While the above result on transaction cost indicates that more the number of members in the group, the more economical it is for the MFI, one has to interpret the result with caution. First, there are other differences between the models, and second, the experience of the MFI with regard to repayments in the two models must be taken into account before firm conclusions in this respect can be drawn.

2. The lower indirect costs for Model 2 clearly show the cost advantage in having lower number of layers of indirect costs.

5 Case 2: MFI 2: South India Based MFI focusing on rural and semi-urban areas

Profile

Region of Operation	: Southern India (Rural and Semi-urban)
Established in year	: 1997
Number of Branches	: 70
Loan Portfolio	: Rs. 340 mn
Number of active clients	: 70,000
Portfolio at risk (>30 days)	: 5.18%
Duration of a single loan	: 1 year
Average Life of a group	: 8 years
Size of loans given	:

Year	Size of Loan (in Rs.)
Year 1	10000
Year 2	14000
Year 3	18000
Year 4	22000
Year 5	26000
Year 6	30000
Year 7	34000
Year 8	38000

Employee compensation method

Fixed salary and conveyance allowance and incentives for group formation and monitoring.

Number of groups per field worker in the branches studied

114 (Semi-Urban Branch) and 87 (Rural).

Selection of sample branches

A rural branch and a semi-urban branch were studied. Both the branches were started around the same time and were typical branches of their kind. Each of the branches handled around 700 groups.

Loan Process

Women form self selected groups. One center consists of 4 to 6 groups. Thereafter, the MFI conducts a four-day training consisting of daily, hour-long sessions. On the fifth day there is a GRT, in which the branch manager along with the field worker visits houses of the group members to take a survey. He also ascertains if they have been trained and if they qualify for the loan as per MFI internal guidelines. At the GRT, the group members have to provide identity proof - ration card, voter's identity card or a letter from the village head. The documents to be signed are Proposal Form and Cash Payment Voucher using a 1 Rupee Revenue Stamp. The center leader and the deputy leader have to sign a recommendation letter for each member. Disbursement is by cash at the center meetings. At the first center meeting subsequent to GRT, 3 members sign the required documents and receive the disbursement in the following weekly meeting. The other two members sign the documents in the third meeting and receive the disbursement in the fourth meeting. Collection starts the following week after disbursement and is done in weekly center meetings for a period of 50 weeks. The center meetings are held in the morning hours. The amounts due are collected by the field worker and deposited at the MFI Branch, and the cashier tallies the figures with the branch office sheet.

Inferences from study of MFI 2 (Results presented at Annexure 4)

1. The average time required by a field worker to form one group (including conveyance time) was around 400 minutes in the semi-urban branch and 600 minutes in the rural branch.
2. Direct transaction cost for the first loan to a group as a percentage of the typical first loan given was 2.4% for the semi-urban branch and 2.6% for the rural branch. Out of all the individual activities, collection was the single largest contributor to direct transaction cost, contributing 37% and 34% in the semi-urban and rural branches respectively. This is followed by cost of branch manager supervision in the case of

the semi-urban branch (19%) and cost of group formation in the case of the rural branch (21%).

3. Indirect transaction cost is marginally higher for the semi-urban branch as compared to the rural branch due to higher running costs. For example, the rent paid for the semi-urban branch is higher than what is paid for the rural branch.
4. Total transaction cost for the first loan to a group was similar for both branches at 4.2% though direct transaction cost is lower for the semi-urban branch and indirect transaction cost was lower for the rural branch.
5. As in the case of MFI 1, life cycle transaction costs are lower than first year costs. This is because the first year costs include group formation and training costs, which account for roughly a third of first year costs, which are not incurred in the subsequent years. Life cycle transaction cost was also similar for both branches at 1.6%.

Managerial Implications

There is not much of a difference in the cost structures of the semi-urban and the rural branch in the case of this MFI. While group formation costs are marginally higher in the rural branch, the branch running costs are marginally higher in the semi-urban branch. So the net result is that the branches have similar cost structures both on a single year and on a life cycle basis.

6 Case 3: MFI 3: South India based MFI focusing on semi-urban areas

Profile

Region of Operation	: Southern India (Primarily semi-urban)
Established in year	: 1998
Number of Branches	: 225
Loan Portfolio	: Rs. 2360 mn
Number of active borrowers	: 386,000
Portfolio at risk (>30 days)	: 0.01%
Duration of a single loan	: 1 year
Average Life of a group	: 4 years
Size of loans given	:

Year	Size of Loan (in Rs.)
Year 1	7000
Year 2	10000
Year 3	15000
Year 4	17500

Employee compensation method

Fixed payment for group formation and for each meeting conducted on a per member basis. In this MFI there is no conveyance allowance but conveyance reimbursement is given.

Number of groups per field worker in the branches studied

Mature Branch	90
New Branch (Competitive Environment)	41
New Branch (Non Competitive Environment)	16

Selection of Sample branches

This MFI functioned mainly in semi-urban areas, and hence a typical mature branch was studied. In addition, two branches started just a year ago - one in an area where there was no competition and one in an area where there was intense competition - were studied. In the case of this MFI, cost structures of three branches were studied.

Loan Process

Women form self-selected ten member groups. The training consists of hourly sessions for five days. During the training period the field worker carries out house visits and fills up the format to ascertain that the group qualifies. On completion of the training, there is a GRT during which the branch manager is also present. The branch manager ascertains if the group has been trained and if they qualify for the loan as per MFI internal guidelines. The documents to be signed are application form and loan disbursement statement using a 1 Rupee revenue stamp. Disbursement takes place at centre meetings in cash for all the group members at the same time. Each member's husband also signs the application form at the disbursement meeting. Collection is on a weekly basis for a period of 50 weeks. The amounts are collected in cash by the credit officer and deposited at the MFI branch; the cashier tallies the figures with the branch office sheet.

Inferences from study of MFI 3 (Results presented at Annexure 5)

1. The field worker time required to form one group (including conveyance time but excluding training time) is immaterial to the MFI in terms of cost as the MFI pays the field worker a fixed amount for every group formed. However, it was found that the new branch in the area where there was no competition had formed only 65 groups during a six-month period while the branch in the area where there was competition had formed 165 groups during the same period. It was revealed during the interviews that the time for formation of groups in the mature branch was at times even zero since the awareness in the area about microcredit is so high that often the women themselves get together to form a group and call up the MFI branch. The problem faced in the mature branches was that they had already covered all the eligible people in the area and had hence reached a saturation point.
2. Direct transaction cost for the first loan to a group as a percentage of the typical

first loan given was 1.9% for the mature branch and 2.1% and 2.9% for the new branches in the competitive and non-competitive areas respectively. Out of all the individual activities, collection was the single largest contributor to direct transaction cost in both branches. Since this MFI pays the field worker on an activity basis for group formation, training and collection, irrespective of the actual time spent, uniformity of these costs across branches is observed. The difference in costs between branches emerges primarily on account of conveyance reimbursement. Field workers in branches having a fewer number of group loans spend more time trying to form more groups than in interacting with existing groups. Since formation of groups is spread over a period of time, the average monthly conveyance reimbursement is higher when allocated over fewer number of group loans as compared to the mature branch. It is also found that for certain activities such as documentation and disbursement no separate payment is incurred since these are expected to be done by the field worker in order to progress to the collection stage.

3. Indirect transaction costs are much lower for the mature branch as compared to the newer branches due to the advantage of allocation over a larger number of loans.
4. Total transaction cost for first loan to a group is also significantly lower for the mature branch at 3.2% as against 6.3% and 8.6% for the new branches in the competitive and non-competitive areas respectively.
5. As before, transaction costs are lower when viewed on a life cycle basis as compared to the costs in the first year of giving the loan. This is because the first year costs include group formation and training costs that account for a quarter of total costs, which are not present in subsequent years. Life cycle transaction cost is also significantly lower for the mature branch at 1.8% as against 3.6% and 4.7% for the new branches in the competitive and non-competitive areas respectively.

Managerial Implications

1. The branches have different cost structures. The mature branch has a far lower cost structure as compared to the new branches. Among the new branches, though both were started at the same time, the branch started in an area where there is

competition shows a lower cost structure primarily because the branch has formed more number of groups within the same time period and hence the allocated conveyance reimbursement is lower. The cost comparison among the branches of MFI 3 illustrates clearly the advantages of mature branches.

2. The comparison between the two branches started at the same time indicates lower group formation time in an area where competition is intense as against an area where competition is non-existent. It can be inferred that there is an advantage in group formation when there is a basic awareness of the microcredit concept.

7 Conclusions from Comparison across MFIs

Per Member Costs	MF11	MF12	MF13 (Mature)
First Year Transaction Cost (in Rs.)	651-903	421	228
First Year Transaction Cost (as % of first loan)	8.1 % to 11.3%	4.2%	3.20%
Lifecycle transaction Costs (as a % of loans given over life cycle)	5.0% to 7.0%	1.6%	1.80%

7.1 Transaction Cost Drivers

Direct transaction cost

1. A major proportion of direct transaction cost goes towards compensating the field worker. It is found that MFI 1, which works in a difficult location has to pay a higher compensation level for its employees.
2. When the field worker compensation does not have a fixed component, the MFI incurs the same cost for a particular activity irrespective of the time taken by the field worker to perform the activity. This may result in field workers being more productive as it is in their interest to speeden up the various activities. This could be one reason for MFI3 having lowest first year direct transaction costs. However in difficult locations it may be difficult to attract employees in case there is no fixed component due to the uncertainty involved in forming groups.
3. In cases where there is a fixed component to field worker compensation, the more the number of members the field worker handles, the lower the cost. In the case

of MFI 2, a field worker handles around 500 members as against MFI 1, where a field worker handles around 220 members. However, the number of members that a field worker can handle is dictated by the geography and the population density of the region. When groups are spread out over wider areas, the field worker can only handle fewer groups than when they are clustered together.

4. Group formation time is lesser in areas where there is greater awareness about micro credit. This can be observed from the time taken for group formation in semi-urban areas vis a vis rural areas in the case of MF1 2, and from the comparison of the two new branches in MFI 3.
5. It is found that the single activity that contributes the maximum to direct transaction cost is collection.
6. In all the MFIs the field worker effectively has only a couple of hours in the morning and couple of hours in the evening for field work - these are the times when the borrowers / potential borrowers can be reached. During the day the field worker is supposedly engaged in administrative activities in the office, but it is not clear if the time is effectively utilised.

Indirect transaction cost

1. Indirect transaction costs are linked to the number of layers of fixed costs in the system. The benefits of fewer number of layers is obvious from the study of MFI 1, where the model having fewer number of layers had lower indirect transaction costs.
2. Indirect transaction costs may be marginally lower in rural areas, as is clear from MFI 2.
3. The study of MFI 3 clearly illustrates the benefits of mature branches since the fixed cost is allocated over more number of loans.

Life cycle transaction cost

1. As may be expected, for all the three MFIs the transaction costs are lower when viewed on a life cycle basis as compared to the costs in the first year of giving the

loan. This is because the first year costs include group formation and training costs, which are not incurred in the subsequent years.

2. The benefit of having a longer life cycle for the group from the cost angle is evident from the comparison of MFI 2 and MFI 3. MFI 2 has a higher first year transaction cost than MFI 3; however, the situation reverses on a life cycle basis since the expected life of a group for MFI 2 is eight years as compared to four years in the case of MFI 3.

7.2 Implications for MFIs

Direct transaction cost

1. Field Worker Productivity

MFIs may not have much leeway on compensation levels since they are dictated by the market to a large extent. One important way to increase the number of groups per field worker and reduce conveyance costs is to have higher number of groups per square kilometer. This means that MFIs must aggressively look at increasing the intensity of coverage of a particular village before spreading to neighboring villages. By increasing the number of groups per field worker, the field worker's monthly income also tends to be higher since he earns more by way of incentives. Increasing the number of groups may require some flexibility in the working hours of the employees. For example, in case there are some potential borrowers who work in distant places and are free only on Sundays, group meetings should be held on Sundays for groups of such borrowers.

Since most of the fieldwork is done in the early hours of the morning or in the evening, the field workers should be trained to do other tasks such as accounting, data entry and audit of other branches during the day. They should also be encouraged to systematically collate daily the data gathered during the field visits, which should be built up as a database within the MFI. The data would be available even in case of employee turnover. MFIs could also look at sharing such data for a fee with companies interested in rural markets.

MFIs could look at introducing other products such as emergency loans, micro insurance and collateral-based individual loans. They can be offered to select existing customers at attractive rates and serviced and monitored with minimal incremental costs. In order to be able to identify such business opportunities, the field workers need to spend time understanding the other financial requirements of prompt members as against the current practice of spending additional time only with the defaulters.

2. Employee incentives based on profit

Most employee incentives are linked to the number of new groups formed or number of groups monitored. Instead, linking incentives to profit from portfolio of clients would make the employees more cost conscious.

3. Collection costs

Collection costs being the largest contributor to costs, MFIs need to examine if the same repayment rates can be achieved by switching over to fortnightly repayment schedules, thereby halving the collection costs.

Indirect transaction cost

1. Minimal layers of fixed costs

MFIs need to ensure that there are minimal layers of fixed costs in their system.

2. Branch viability

In order to be more viable, branches need to engage in other activities such as individual collateral based loans, insurance products and other products. While there may be initial costs involved in training the personnel to handle the new products, branch viability can be increased in the long run. Since MFIs already have a good presence in the villages, they could also look at becoming agents of general and life insurance companies, credit card companies and mutual funds, which could be offered to even those who are not customers. Insurance companies in particular would be interested in using their services since they also have to statutorily meet rural targets.

3. Alternatives to the Branch Model

MFIs could have mobile branches which function at a particular location on a particular day of the week so that field workers working in the area can report to the office on that very day and complete their administrative tasks. Fully equipped vans can make excellent mobile branches; MFIs are thus saved the trouble of setting up branches in each location.

Life cycle transaction cost

While it is clear that the longer the time period for which a group lasts, the lower the transaction costs on a life cycle basis, MFIs need to examine if there is variation in asset quality with age of the group. This could enable them to arrive at estimations of life cycle cost including the default cost.

MFI should also take into account the life cycle cost when pricing the loans. Merely looking at first year costs may result in overpricing of loans, which may have the effect of driving away some good borrowers. (Armendariz de Aghion and Morduch 2005)

7.3 Implications for Policy Makers

1. The Government needs to take into account transaction costs when examining the interest rates charged by microfinance institutions. Regional variations in transaction costs - higher in less developed areas - indicate that a uniform cap on interest rates may in fact drive away MFIs from difficult locations.
2. Since group formation time and consequently group formation cost is lower in areas where awareness about microcredit is high, the MFI industry would benefit if there is a campaign spreading basic awareness about the concepts of group microcredit in remote areas through local print / radio media. The costs of this campaign could perhaps be borne or shared by the Government.

8 Limitations and Scope for Further Study

Generalisations based on the case studies should be done with caution. The study is cross sectional and hence reflects the costs that prevailed during the period March-

December 2005. The effects of inflation have not been considered in projecting costs.

Since increase in number of members reduces transaction costs significantly, experimental research on optimal group size - which minimizes transaction cost without sacrificing asset quality - would be useful.

Collection contributes to the highest cost; therefore studies on the efficacy of fortnightly repayment schedules would be useful.

While it is clear that the longer the time period for which a group lasts, the lower the transaction costs on a life cycle basis, further research needs to be done on variation of asset quality with age of the group. This would enable conclusions to be drawn on whether extending the life of the group, is useful when default costs are also included in the analysis.

Further specific studies on costs incurred by MFIs on groups having repayment problems would be useful.

9 Conclusion

Existing literature indicates that transaction costs are a major contributor to high interest rates on microcredit loans. Hence a study using the case study method was done to examine the transaction costs of three established microfinance institutions.

Direct, indirect and life cycle transaction costs were examined. The results of the study indicate that the key drivers of direct transaction costs are field worker compensation and number of groups handled per field worker. While the market dictates the compensation level, geography and the density of population dictate the number of groups handled per field worker. Group formation time is found to be less in areas having greater awareness about microcredit. Collection activity is the single largest contributor to direct transaction cost.

Based on the above findings, implications are drawn for MFIs. It is suggested that MFIs in order to reduce direct transaction costs should increase the number of groups per square kilometer as this will save both field worker time and conveyance cost. MFIs should examine the possibility of reducing the collection frequency and the impact it could have on repayment. The ways in which field worker productivity could be improved

are by utilizing them better during the day hours when they are not in the field and linking their incentives to profit from their portfolio rather than merely to number of groups formed and repayment levels..

The key drivers of indirect transaction cost for an MFI are number of layers of fixed cost in the MFI system, geographical location of the MFI and proportion of mature branches. Geographical location of MFIs is based on various considerations. The proportion of mature branches in the MFI portfolio are a function of age of the MFI and its expansion policy. Hence both these factors cannot easily be changed to reduce transaction costs.

In order to reduce indirect costs, MFIs should minimize the number of layers of fixed costs in their system. It is also suggested that MFI branches examine alternative revenue generating activities that can be undertaken with minimal incremental costs. MFIs should also look at alternatives to the branch model.

Lifecycle transaction costs are found to be lower than first year transaction costs. MFIs need to examine life cycle costs including default costs over the group life cycle and take these into account when pricing loans.

The study also has implications for policymakers. Policymakers need to take into account transaction costs when examining the interest rates charged by microfinance institutions. The regional variation in transaction costs that has been found in the study is an important factor that suggests that no uniform view can be taken on the rates charged by MFIs in different regions. In order to spread microcredit to newer areas, Government funded campaigns could help in bringing down group formation costs and attracting MFIs to these areas.

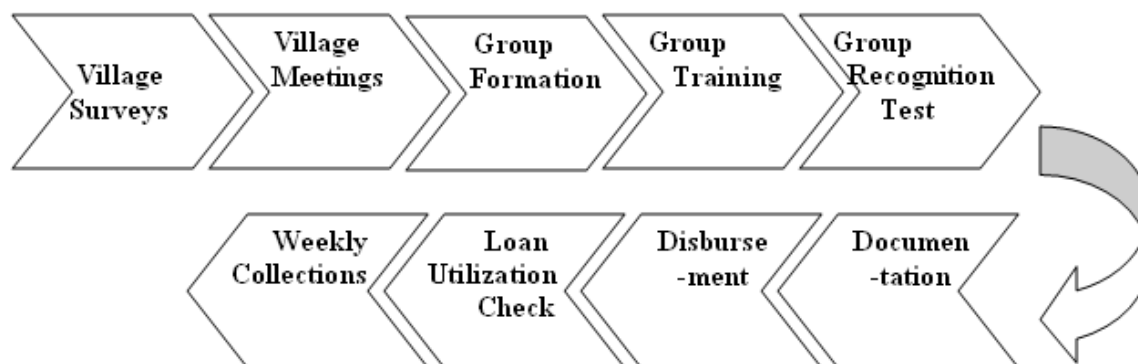
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10 Annexures

10.1 Annexure 1: Processes for First Loan to a Group



10.2 Annexure 2: Typical Day of a Field Officer

Time	Activity
6.30 a.m.	Report at the branch office/ Collect cash for disbursement if needed
6.30 a.m. to 7.00 a.m.	Travel to the field
7.00 a.m. to 9.00 a.m.	Group Meetings one after the other each lasting about half hour
9.00 a.m. to 9.30 a.m.	Breakfast
9.30 a.m. to 10.00 a.m.	Travel back to branch office
10.00 a.m. to 1.00 p.m.	Bank work/ Administrative work like filling up registers/ vouchers/ Reporting to Branch head
1.00 p.m. to 3.00 p.m.	Lunch Break
3.00 p.m. to 4.00 p.m.	Administrative work
4.00 p.m. to 4.30 p.m.	Travel to the field
4.30 p.m. to 7.00 p.m.	Village meetings for motivation for group formation/ Group Training for newly formed groups
7.00 p.m. to 7.30 p.m.	Travel back to branch office
7.30 p.m. to 8.30 p.m.	Planning for next day

10.3 Annexure 3: Transaction Cost Analysis for MFI 1

Transaction Cost Analysis for MFI 1³

Table 1 A: Direct Transaction Costs for the first loan to a group (Detailed Break-up) (in Rs.)

S.No.	Activity	Branch 1 (Model 1)			Branch 2 (Model 2)		
		Cost per group	Cost per member (5 members)	% Share	Cost per group	Cost per member (14 members)	% Share
1	Group Formation	487	97	20%	934	67	23%
2	Training	316	63	13%	583	42	14%
3	Appraisal	68	14	3%	53	4	1%
4	Documentation	42	8	2%	64	5	2%
5	Disbursement	15	3	1%	15	1	0%
6	Loan Utilization check	45	9	2%	60	4	1%
7	Collection	889	178	36%	1151	82	28%
8	Cost of other direct administrative activities relating to the loan	418	84	17%	744	53	18%
9	Cost of branch manager supervision	194	39	8%	540	39	13%
	Total	2474	495	100%	4144	296	100%

Table 1 B: Direct Transaction Costs for the first loan to a group (Summarised)

	Cost per member Model 1 (in Rs.)	Cost per member Model 2 (in Rs.)	As a % of typical first loan given (Rs. 8000) Model 1	As a % of typical first loan given (Rs. 8000) Model 2
Group Formation	161	106	2.0%	1.3%
Direct Admin activities	147	104	1.8%	1.3%
Monitoring	187	86	2.3%	1.1%
Total	495	296	6.2%	3.7%

³Percentages have been rounded up to the next decimal and hence may show marginal difference in total

Table 2: Indirect Transaction Costs for the first loan to a group

	Cost per member Model 1 (in Rs.)	Cost per member Model 2 (in Rs.)	As a % of typical first loan given (Rs. 8000) Model 1	As a % of typical first loan given (Rs. 8000) Model 2
Allocated Branch	106	0	1.3%	0.0%
Allocated Divisional Office Expenditure	111	164	1.4%	2.0%
Allocated Head Office Expenditure	191	191	2.4%	2.4%
Total	408	355	5.1%	4.4%

Table 3 : Total Transaction Cost for the first loan to a group

	Model 1	Model 2
Direct Transaction Cost (% of typical first loan amount Rs. 8000)	6.2%	3.7%
Indirect Transaction Cost (% of typical first loan amount Rs.8000)	5.1%	4.4%
Total Transaction Cost (% of typical first loan amount Rs.8000)	11.3%	8.1%

Table 4: Direct Transaction Costs over life cycle of a group (four years)

	Costs per member in Model 1 (in Rs.)	Cost per member in Model 2 (in Rs.)	Loan Amount
Year 1	495	296	8000
Year 2	334	188	10000
Year 3	334	188	14000
Year 4	334	188	14000
Total	1497	859	46000
Net Present Value	1,255.7	728.9	37,384.9
NPV of cost as % of NPV of loan amount	3.4%	1.9%	

Table 5: Indirect Transaction Costs over life cycle of a group (four years)

	Costs per mem- ber in Model 1 (in Rs.)	Cost per mem- ber in Model 2 (in Rs.)	Loan Amount (in Rs.)
Year 1	408	355	8000
Year 2	408	355	10000
Year 3	408	355	14000
Year 4	408	355	14000
Total			46000
Net Present Value	1,351.8	1,175.4	37,384.9
NPV of cost as % of NPV of loan amount	3.6%	3.1%	

Table 6: Total Transaction Cost over life cycle of a group (four years)

	Model 1	Model 2
Direct Transaction Cost (% of typical loan amounts over the life cycle)	3.4%	1.9%
Indirect Transaction Cost (% of typical loan amounts over the life cycle)	3.6%	3.1%
Total Transaction Cost (% of typical loan amounts over the life cycle)	7.0%	5.0%

10.4 Annexure 4: Transaction Cost Analysis for MFI 2

Transaction Cost Analysis for MFI 2⁴

Table 1 A: Direct Transaction Costs for the first loan to a group (Detailed Break-up) (in Rs.)

S.No.	Activity	Semi Urban			Rural		
		Cost per group	Cost per member (5 members)	% Share	Cost per group	Cost per member (14 members)	% Share
1	Group Formation	204	41	17%	273	55	21%
2	Training	78	16	7%	78	16	6%
3	Appraisal	20	4	2%	20	4	2%
4	Documentation	12	2	1%	12	2	1%
5	Disbursement	12	2	1%	12	2	1%
6	Loan Utilization check	39	8	3%	39	8	3%
7	Collection	443	89	37%	443	89	34%
8	Cost of other direct administrative activities relating to the loan	147	29	12%	192	38	15%
9	Cost of branch manager supervision	230	46	19%	230	46	18%
	Total	1185	237	100%	1298	260	100%

Table 1 B: Direct Transaction Costs for the first loan to a group (Summarised)

	Cost per member Semi Urban (in Rs.)	Cost per member Rural (in Rs.)	As a % of typical first loan given (Rs. 10000) Semi-Urban	As a % of typical first loan given (Rs. 10000) Rural
Group Formation	57	70	0.6%	0.7%
Direct Admin activities	84	93	0.8%	0.9%
Monitoring	96	96	1.0%	1.0%
Total	237	260	2.4%	2.6%

⁴Percentages have been rounded up to the next decimal and hence may show marginal difference in total

Table 2: Indirect Transaction Costs for the first loan to a group

	Cost per member Semi Urban (in Rs.)	Cost per member Rural (in Rs.)	As a % of typical first loan given (Rs. 10000) Semi-Urban	As a % of typical first loan given (Rs. 10000) Rural
Allocated Branch Office Expenditure	115	92	1.1%	0.9%
Allocated Regional Office Expenditure	-	-		
Allocated Head Office Expenditure	69	69	0.7%	0.7%
Total	184	161	1.8%	1.6%

Table 3 : Total Transaction Cost for the first loan to a group

	Semi-Urban	Rural
Direct Transaction Cost (% of typical first loan amount Rs. 8000)	2.4%	2.6%
Indirect Transaction Cost (% of typical first loan amount Rs.8000)	1.8%	1.6%
Total Transaction Cost (% of typical first loan amount Rs.8000)	4.2%	4.2%

Table 4: Direct Transaction Costs over life cycle of a group (eight years)

	Costs per member Semi-Urban (in Rs.)	Cost per member Rural (in Rs.)	Loan Amount (in Rs.)
Year 1	237	260	10000
Year 2	181	190	14000
Year 3	181	190	18000
Year 4	181	190	22000
Year 5	181	190	26000
Year 6	181	190	30000
Year 7	181	190	34000
Year 8	181	190	38000
Total	1501	1587	192000
Net Present Value	1090	1154.3	128,691
NPV of cost as % of NPV of loan amount	0.8%	0.9%	

Table 5: Indirect Transaction Costs over life cycle of a group (eight years)

	Costs per mem- ber Semi-Urban (in Rs.)	Cost per mem- ber Rural (in Rs.)	Loan Amount (in Rs.)
Year 1	184	161	10000
Year 2	184	161	14000
Year 3	184	161	18000
Year 4	184	161	22000
Year 5	184	161	26000
Year 6	184	161	30000
Year 7	184	161	34000
Year 8	184	161	38000
Total	737	644	64000
Net Present Value	1,058.2	924.6	128,691
NPV of cost as % of NPV of loan amount	0.8%	0.7%	

Table 6: Total Transaction Cost over life cycle of a group (eight years)

	Semi-Urban	Rural
Direct Transaction Cost (% of typical loan amounts over the life cycle)	0.8%	0.9%
Indirect Transaction Cost (% of typical loan amounts over the life cycle)	0.8%	0.7%
Total Transaction Cost (% of typical loan amounts over the life cycle)	1.6%	1.6%

10.5 Annexure 5: Transaction Cost Analysis for MFI 3

Transaction Cost Analysis for MFI 3⁵

Table 1 A: Direct Transaction Costs for the first loan to a group (Detailed Break-up) (in Rs.)

S.No.	Activity	Mature		New Branch: Competitive Environment		New Branch: Non-competitive Environment	
		Cost per group (of 10)	Cost per member	Cost per group (of 10)	Cost per member	Cost per group (of 10)	Cost per member
1	Group Formation	100	10	100	10	100	10
2	Training	0	0	0	0	0	0
3	Appraisal	15	2	15	2	15	2
4	Documentation	0	0	0	0	0	0
5	Disbursement	0	0	0	0	0	0
6	Loan Utilization check	0	0	0	0	0	0
7	Collection	750	75	750	75	750	75
8	Cost of conveyance re- imbursement	114	11	251	25	811	81
9	Cost of branch manager supervision	340	34	340	34	340	34
	Total	1319	132	1456	146	2016	202

Table 1 B: Direct Transaction Costs for the first loan to a group (Summarised)

Activity	Mature		New Branch: Competitive Environment		New Branch: Non-competitive Environment	
	Cost per member (in Rs.)	As a % of typical first loan (Rs. 7000)	Cost per member (in Rs.)	As a % of typical first loan (Rs. 7000)	Cost per member (in Rs.)	As a % of typical first loan (Rs. 7000)
Group Formation	17	0.2%	25	0.4%	53	0.8%
Direct Admin activities	34	0.5%	34	0.5%	34	0.5%
Monitoring	81	1.2%	88	1.3%	116	1.7%
Total	132	1.9%	146	2.1%	202	2.9%

Conveyance reimbursement costs has been clubbed partly (50%) with group formation and monitoring (balance 50%).

⁵Percentages have been rounded up to the next decimal and hence may show marginal difference in total

Table 2: Indirect Transaction Costs for the first loan to a group

	Mature		New Branch: Competitive Environment		New Branch: Non-competitive Environment	
	Cost per member (in Rs.)	As a % of typical first loan (Rs. 7000)	Cost per member (in Rs.)	As a % of typical first loan (Rs. 7000)	Cost per member (in Rs.)	As a % of typical first loan (Rs. 7000)
Allocated Branch Cost	45	0.6%	246	3.5%	349	5.0%
Allocated Head Office Cost	51	0.7%	51	0.7%	51	0.7%
Total	96	1.3%	297	4.2%	400	5.7%

Table 3 : Total Transaction Cost for the first loan to a group

	Mature	New Branch: Competitive Environment	New Branch: Non-competitive Environment
Direct Transaction Cost (% of typical first loan amount Rs. 8000)	1.9%	2.1%	2.9%
Indirect Transaction Cost (% of typical first loan amount Rs.8000)	1.3%	4.2%	5.7%
Total Transaction Cost (% of typical first loan amount Rs.8000)	3.2%	6.3%	8.6%

Table 4: Direct Transaction Costs over life cycle of a group (four years)

	Costs per member in Mature Branch (in Rs.)	Cost per member in New Branch: Competitive Environment (in Rs.)	Cost per member in New Branch: Non Competitive Environment (in Rs.)	Loan Amount (in Rs.)
Year 1	132	146	202	7000
Year 2	115	121	149	10000
Year 3	115	121	149	15000
Year 4	115	121	149	17500
Total	475	510	650	49500
Net Present Value	395.3	424.7	543.3	39,825.4
NPV of cost as % of NPV of loan amount	1.0%	1.1%	1.4%	

Table 5: Indirect Transaction Costs over life cycle of a group (four years)

	Costs per member in Mature Branch (in Rs.)	Cost per member in New Branch: Competition (in Rs.)	Cost per member in New Branch: No Competition (in Rs.)	Loan Amount (in Rs.)
Year 1	95	296	400	7000
Year 2	95	296	400	10000
Year 3	95	296	400	15000
Year 4	95	296	400	17500
Total	381	1186	1598	49500
Net Present Value	315.5	981.9	1,323.5	39,825.4
NPV of cost as % of NPV of loan amount	0.8%	2.5%	3.3%	

Table 6: Total Transaction Cost over life cycle of a group (four years)

	Mature Branch	New Branch: Competitive Environment	New Branch: Non Competitive Environment
Direct Transaction Cost (% of typical loan amounts over the life cycle)	1.0%	1.1%	1.4%
Indirect Transaction Cost (% of typical loan amounts over the life cycle)	0.8%	2.5%	3.3%
Total Transaction Cost (% of typical loan amounts over the life cycle)	1.8%	3.6%	4.7%