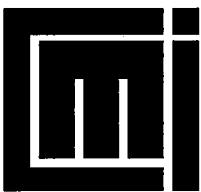


# **Microcredit programmes: Methods for solving dilemmas of credit expansion**

Arne Wiig

WP 1997: 12



**Working Paper**  
Chr. Michelsen Institute  
Development Studies and Human Rights  
Bergen Norway

---

ISSN 0804-3639



# **Microcredit programmes: Methods for solving dilemmas of credit expansion**

Arne Wiig

**WP 1997: 12**

**Bergen, August 1997**

**Microcredit programmes: Methods for  
solving dilemmas of credit expansion**

Arne Wiig

Bergen, August 1997

**Summary:**

Providing credits seems to be an effective tool for improving the welfare of the poor. It is expected that microcredit funding to poor people will expand rapidly over the coming years. If a sound monitoring mechanism is not developed, Wiig argues that such a credit expansion may create unintended negative effects.

Based on a Grameen Bank study, three problems or dilemmas related to credit expansion are analysed: (i) Does a larger supply of microcredit increase the possibility of cross-financing? (ii) Does capital deepening tend to favour the best ("richest") of the poor? (iii) Does economic success lead to poor repayment behaviour?

Survey methods revealing the extent of these problems are presented. It is argued that some of these methods should be replicated by the implementing agencies to improve the effectiveness of credit provision to the poor.

**Indexing terms:**

Microcredit  
Poverty  
Development banks  
Grameen Bank  
Bangladesh

*To be ordered from Chr. Michelsen Institute, Fantoftvegen 38, N-5036 Fantoft, Bergen,  
Norway. Telephone: +47 55574000. Telefax: +47 55574166*

# 1. Introduction<sup>1</sup>

With the signing of the Microcredit Summit declaration and other initiatives, it is expected that microcredit funding to poor people will expand rapidly over the coming years. This expansion in microcredit will first of all take the form of capital widening, i.e. the creation of new institutions supplying microcredit or existing institutions lending to new customers. However, credit expansion also involves capital deepening, i.e. additional credit to current borrowers from existing institutions. These two forms of credit expansion are interlinked. New credit institutions initially expand their credit through capital widening, while capital deepening becomes more important over time.

On the basis of a Grameen Bank (GB) study undertaken in 1995,<sup>2</sup> this paper will explore survey methods which may reveal whether such microcredit expansion is viable in the long run. Particular attention is given to the respective viabilities of the provider and the borrower.

The GB study focused on two problems which are common to most credit schemes and are probably most significant in a capital deepening process. The first is whether the credit contributed towards increasing outstanding debt, referred to as *credit escalation*. The second is whether additional borrowing was motivated by the need to service existing loans, referred to as *cross-financing*. With a clientele of poor borrowers, we needed specially designed methodologies, both quantitative and qualitative, to monitor such processes and assess their impact. Cross-financing deserves particular attention because, under conditions of steadily increasing supply of microcredit, it is methodologically difficult to reveal whether cross-financing occurs. If cross-financing occurs on a large scale, it may lead to a collapse of institutions when foreign donors withdraw their subsidies from such activities. The risk is that the whole idea of providing microcredit for the poor will then be questioned. In the process of considering withdrawing part of its aid to Grameen Bank, the Norwegian Agency for Development Cooperation (NORAD) was worried about such a scenario and commissioned the study referred to above.

From the findings of the GB study, I focus on three dilemmas it identified. Firstly, *an increased supply of microcredit will heighten the possibility of cross-financing*. An increased supply of credit could arise from capital deepening or widening or a combination of these. Secondly, *capital deepening tends to favour the richest of the poor* - not the poorest of the poor, which is the main target group of microcredit institutions. Thirdly, *economic success may lead to poor repayment behaviour*. Rich borrowers are not always the best borrowers from the point of view of a microcredit institution's financial viability. The paper discusses the possibility of distinguishing between 'good' and 'bad' borrowers. With such a screening method, it would be possible for an *implementing agency to target specific credit packages on different types of borrowers*.

---

<sup>1</sup> This paper was initially prepared as an input for the Consultative Group for Assisting the Poorest (CGAP) working group on Impact Assessment Methodology's Virtual Conference in April 1997. A grant was obtained from the Royal Norwegian Ministry of Foreign Affairs. I am indebted to Karin Ask, Alf Morten Jerve, Rashid Sumaila, Richard Morsom as well as the participants in the Virtual Conference for valuable comments on an earlier draft.

<sup>2</sup> Ask K., A. Wiig and E. Sigvaldsen. 1997. "Repayment of old loans through new loans. Is cross-financing a problem for the Grameen Bank?" Chr. Michelsen Institute, Bergen, Norway (R5:1997).

The GB case is important, not only because of the role of GB as a model institution, but because it is a mature microcredit institution which during recent years has experienced a tremendous growth in loan disbursement. There are reasons to believe that the problems experienced by GB may be repeated by other credit institutions in the future in their drive to increase credit to the poor. As the Summit's goal is put into practice, these problems may be serious if sound monitoring mechanisms are not developed.

Neither the credit provider nor a social scientist can pick good projects. What they can provide the borrower is a well functioning institutional system taking into account the incentive effects of different institutional arrangements on the borrower's decisions, as reflected in the dilemmas above. The focus of this paper is, however, on types of survey methods that can be applied to collect information on the extent of these dilemmas, and on the extent to which these methods can be adopted by an implementing institution. I will comment only briefly on issues of programme design and implementation.

In section 2, I will start by presenting the GB study and its approach with respect to credit escalation and cross-financing. The following three sections elaborate on the three dilemmas above. Section 3 summarizes the analyses of the extent of cross-financing at an aggregate level. Section 4 analyses the escalation of credits at an individual level and which borrowers have escalated their credits. Section 5 analyses variations in repayment performance between different groups of borrowers. Each section covers firstly an elaboration of the dilemma; secondly, statistical approaches dealing with the dilemma; and thirdly, whether the approaches can be adopted by implementing agencies. In section 6, I conclude by drawing attention to the particular problem of old borrowers (longtime current borrowers).

## 2. Organisation of the GB study and some lessons

The questions addressed in the GB study required both *quantitative* and *qualitative* research methodologies to assess both the *extent* of the problems of credit escalation and cross-financing and the *nature* of the financial decision-making taking place within the framework of GB member households. Accordingly, the study was organised in the form of a quantitative survey managed by myself, an economist by training, and a qualitative survey managed by my colleague, Karin Ask, a social anthropologist. Part of the qualitative survey preceded the quantitative survey and provided an input into the design of the quantitative survey.<sup>3</sup>

The quantitative survey was a formal questionnaire survey of GB member households within five GB branches under two zonal offices - Tangail and Rangpur. The respondents were GB members present at the time the study team visited the different GB centres. Both the five branches and the centres visited (five in each branch) were chosen by random

---

<sup>3</sup> The Bangladesh Institute of Development Studies (BIDS), with which CMI has enjoyed long-standing cooperation, collected the data for the quantitative survey. A strength in the methodological approach is the combined approach of quantitative and qualitative data gathering. However, budget constraints made it difficult to exploit this opportunity fully. Unexpected extra expenses are commonly incurred in comparing and integrating the figures collected by different research methodologies.

sampling. At each centre the team selected six respondents (with a few exceptions) among those who were accessible. In this way, the survey included 298 households - 148 in Tangail and 150 in Rangpur. The main objective of the quantitative survey was to generate data on the relations between loan portfolios and repayment liabilities. The quantitative survey also looked at differences in households' approaches to servicing of loans.

The qualitative survey used a semi-structured questionnaire to establish data on economic activities and strategies in 85 individual households in Tangail and 40 in Mymensingh. In addition, for comparison of data from the two sets of sources, 10 respondents were interviewed in Rangpur. We made a preliminary test of the questionnaire in Dhaka zone. The empirical focus of the qualitative survey was the economic strategies of the borrowers, i.e. their income generating activities, saving patterns, patterns of expenditure, and the manner in which these strategies are influenced by the decision-making processes of the household.

Additional information was gathered through conversations with GB staff at different levels and from a literature review. While visiting zonal offices in Rangpur, Dhaka, Tangail and Mymensing, we also had group discussions with borrowers at centre meetings.

On issues related to savings behaviour, several respondents declined to report their savings outside the GB, whether in cash or kind. In addition, we are sceptical about putting too much emphasis on the figures of gross and net income from projects funded by GB, partly because a typical household was involved in various activities financed by several different sources. It was therefore difficult to measure income generation from a particular GB project. Based on this observation, the analyses in sections 4 and 5 are based on data for assets rather than on income figures.

In the terminology of Sebstad et.al. (1995),<sup>4</sup> the study was based on a *one time shot*. It was not based on time series, except for the respondent's recall of previous weekly payments to GB and some other variables. The surveys did not include any reference or *comparison group* outside the GB system, since the main object of the study was cross-financing, not whether GB members perform better than non-members. By analysing regional differences, where we distinguished between old and new GB regions, development over time was indirectly incorporated in the study.

### **3 Increased supply of credits may lead to cross-financing**

It is generally assumed that there is a close relationship between the viability of the provider of credits and the viability of the borrower. This may direct the focus of analysis

---

<sup>4</sup>Sebstad J., C. Neill, C. Barnes and G. Chen. 1995. Assessing the impacts of microenterprise interventions. A framework for analysis. USAID Managing for Results, Working paper no 7. Center for Development Information and Evaluation.

either to the borrower (intended beneficiary school) or to the provider (intermediate school).

According to Hulme (1997)<sup>5</sup> the intermediate school, mainly focuses on institutional outreach and institutional sustainability while analysing impacts of rural financial institutions (see Yaron, Benjamin and Piprek 1997).<sup>6</sup> If outreach and institutional sustainability are enhanced, the viability of the borrower is assumed to have improved.

From our GB study, however, we established that the viability of the microcredit institution (MFI) is neither a necessary nor a sufficient condition for the viability of the borrower or vice versa (at least in the medium term). Borrowers may use several sources for repayment (e.g. other loans, own assets, income from other projects or members of the household). Where the MFI has strict monitoring mechanisms and borrowers have access to several sources for funding, the financial viability of the MFI is high while the viability of the borrower is low. Only focusing on institutional viability is therefore misleading. In section 5 we argue that the polar case, only focusing on the welfare effects on poor clients, is also misleading. Both client and provider aspects need to be taken into account when analysing impacts.

### **3.1 Elaboration of the dilemma and some indicators**

The viability of any credit institution ultimately depends on the rate of repayment among its borrowers. Many factors influence this rate, but in essence it is a function of two particular factors: the borrowers' financial ability to repay and the credit institution's ability to enforce repayment discipline. GB is regarded as a success on both counts. Studies show that GB borrowers in general have improved their economic well-being, and GB reports a very high repayment ratio. The latter has to a large extent been attributed to the core principles of the GB-model, namely *group-based lending and peer monitoring*. The monitoring undertaken by the group members is, according to Stiglitz (1990), largely responsible for the successful financial performance of GB.<sup>7</sup>

There has, however, been growing concern that the high repayment ratio may partly be sustained through increased borrowing. The availability of credit for poor people in Bangladesh has improved dramatically over the last decade. GB has rapidly expanded its membership, and so have several NGOs providing credit. In addition, the informal credit market is still very much alive.

Borrowing from several sources is not a new practice in Bangladesh and the internal family economy is basically a cash economy where money is raised from whatever source is available, according to the daily needs. Borrowing to repay another loan is thus obviously not something that GB has introduced to rural Bangladesh: it has been there for

---

<sup>5</sup>Hulme, D. 1997. Impact assessment methodologies for microfinance: A review. Discussion paper. CGAP working group on impact assessment methodologies.

<sup>6</sup>Yaron, J.,M. Benjamin and G.Piprek. 1997. Rural finance: Issues, design and best practices, Washington DC: Agriculture and Natural Resources Department, World Bank

<sup>7</sup>Stiglitz, J. 1990. "Peer monitoring and credit markets" The World Bank Economic Review, vol. 4, no. 3, p 351.



a long period and is also a practice common in developed countries. Some cross-financing will always happen in connection with seasonal fluctuations in income and other events requiring quick money. Cross-financing is therefore not always bad. In general terms, cross-financing becomes a problem when the borrower does not have the capacity to repay and service the total outstanding debt.

The borrower faces several dangers by engaging in cross-financing. Cross-financing depletes the capital of the loan, and reduces the value of the new loan that is used to repay or service the old. It can turn into a vicious circle as smaller and smaller investments yield less and less return, thus necessitating even higher loans the next time around to repay the original loan. It cuts away the profit from whatever activity the borrower has undertaken, especially if a high interest loan is taken, e.g. from local money lenders.

The practice can be sustained for some time through taking more loans to repay ever higher debt obligations, especially at a time where available credits from various sources increase. However, it is doomed to collapse sooner or later, especially when the supply of credit shrinks. The bank is then left with a defaulted loan and a borrower in high debt, possibly in a situation even worse than when the person joined the credit institution. It is very difficult to assess the moment at which borrowing from several sources crosses the boundary from being acceptable "overdraft" financing, to being a problem.

Due to imperfect information, microcredit institutions may allow members to borrow more than they can repay. The checking of loan usage has always been difficult, but appears even more difficult in times of credit widening and deepening. The number of members per centre in the GB system has been raised from 30 to 40, while the average borrower has generally increased both the number of loans and the size of each loan. The result may be a reduction of the *monitoring capability* of GB. If the monitoring undertaken by the group is not influenced by credit escalation or the introduction of additional types of loans, such a reduction is, however, not a serious threat. Our study has little information on these issues.

### **3.1.1 Indicators of credit escalation and cross-financing**

We analysed the loan portfolio (general loans, seasonal loans, housing loans, loans from group funds, and tube-well loans) of the GB members covered by the quantitative survey. *Disbursements* and *outstanding amounts* for each type of loan were averaged for all respondents. Comparing loans disbursed with outstanding loans (*outstanding in percentage of disbursed*) gave us an indication of the extent of credit escalation, or in other words the extent to which GB members enter new loan obligations before full repayment of previous loans. Since we did not collect a time series of outstanding loans, our reference point was regional variation in outstanding loans as a percentage of disbursements. This share was generally higher among respondents in regions/branches where GB had been involved for a long period. The credit escalation documented in old branches was mainly found to be the result of the introduction of *new types of loans* (such as housing loans) to old borrowers (a capital deepening process).

While outstanding loans and the number of active loans are treated as static variables, and time dynamics are only indirectly treated by the concept of new and old borrowers/zones, our final indicator of credit escalation was a dynamic one. The respondent's weekly

payments at the time she joined GB, one year ago and currently were collected. A tremendous increase in weekly payments was found, indicating that an increasing proportion of their income was used for repaying GB.

We also analysed two different sources for cross-financing.

### 3.1.2 Indicators of sources for cross-financing: Access to outside sources or additional types of loans

In general, there are two ways that cross-financing can take place: either by combining different types of loans from one particular microcredit institution, or by combining an internal loan with an outside source (loans from other microcredit institutions, friends or moneylenders). In the GB context the two options were therefore:

#### *i) GB loan combined with an outside source*

The borrower can take an outside loan to repay instalments and/or interest on a GB loan. This would happen at the end of the GB loan, when interest is due in week 51 and 52. The outside loan will then be repaid immediately after receiving a new GB loan. If the outside loan is financed by moneylenders, this would be an expensive type of cross-financing for the borrower as the interest rate on the outside loan may be substantial. Borrowing from the outside is normally more expensive than using GB loans, and there are thus seldom direct financial incentives for the borrower to engage in cross-financing of this sort. Since borrowers are not eligible to repay more than one instalment at a time (except for the last 10 instalments), it is even more costly to borrow from external sources to repay GB loans.

The costs of borrowing from other microcredit institutions are possibly lower than from moneylenders. However, GB borrowers are not eligible to borrow from other microcredit institutions, even though this is difficult to control. An escalation of credits to microcredit institutions may lead to a situation where such institutions are *competing* for borrowers, making cross-financing more likely (see Ebdon, 1994).<sup>8</sup> This is a scenario to avoid when the Summit's goal is put into practice.

Borrowing from friends and relatives is a normal practice in rural Bangladesh, but generally such loans are small and not interest-bearing.

Respondents were asked to indicate other sources than GB loans they had *access* to (other NGOs, banks, farmers and traders, and friends and relatives) and whether such access was higher than one year ago. If found to be higher, it may indicate that cross-financing might develop. We were particularly concerned with moneylenders, since such borrowing at high costs may lead the borrower into a debt trap. Generally, we found that the importance of moneylenders was *less* than one year ago, indicating that if the extent of cross-financing have increased during this period, the availability of external sources, e.g. money-lenders, was not the critical variable in explaining it.

---

<sup>8</sup> Ebdon, R. 1994. "NGO expansion and the fight to reach the poor: Gender implications of a growing trend of encroachment in Bangladesh." Paper presented at IDS, Sussex, 3-5 Nov. 1994.

Questions were also designed to analyse the size of external loans and whether such loans had escalated during the borrower's membership period (see sections 4 and 5).

*ii) Combining GB loans*

This method involves using one GB loan to repay another. After the introduction of several new loan types, it is, for instance, possible to take a seasonal loan at the end of the general loan period and use it to repay the general loan. The next step in the cycle would be to use the new general loan to repay the seasonal loan. This method may be sustained longer than the first due to the lower interest rate on the loans involved.

The typical GB respondent had three active GB loans at the same time, which indicates that cross-financing is possible for the majority of GB members. We analysed the bivariate distribution between number of active loans and years of membership. Not surprisingly, we found that *older GB members had a larger number of active loans, indicating that cross-financing might develop.*

In section 3.2, the results of plots of borrowers' loan portfolios are presented, indicating the possible extent of such internal cross-financing.

The two methods can also be combined, with both outside loans and several GB loans mutually supporting each other. The end result is likely to be default (see section 5).

### **3.1.2 Indicators of when cross-financing becomes a problem**

Cross-financing becomes a problem only when associated with a situation of long-term inability to repay and service outstanding loans. We investigated some of the factors determining *repayment ability*, looking at the economic units responsible for repayment - their present status and their economic decision-making, the economics of some typical GB-financed projects, and lastly the monitoring by GB of these factors. The indicators applied and our main findings are presented below. Looking at repayment abilities, we distinguish between:

i) *The economic status of GB members* (their ownership of land and non-land assets, their sex, age and education and finally their present occupation and whether it has changed during their membership). The typical GB-member in our study was a married woman past her child bearing age, with little or no education. She was part of a larger household with more than one male income earner and with some land. It was typically a household with a potential for improving its economic status.

ii) *The organisation of the household economy* (gender division in households, engagement in multiple intra- and inter-household activities, patterns of income generation-, expenditure and loan repayment behaviour, non-project sources for repayment and attitudes to payment of interest). We found that securing high and stable repayment rates of GB loans depended upon *internal negotiations* within the household to allocate proceeds from different activities into debt servicing, and was not merely a matter of income generated by the GB-funded projects.

### **3.2 Statistical method: Plots**

A rough indicator of whether the borrower from a particular microcredit institution may use one type of loan, say A, to finance instalments and interest payments on another type of loan, say B, is the time-span between the disbursement of A and the termination of B. If, for instance, one respondent uses part of the seasonal loan to repay her general loan, one would expect the disbursement of the seasonal loan to be some weeks ahead of the termination of her general loan.

Such an indicator of cross-financing depends on whether the borrower invests her loans quickly or not. For all GB loans, we found that 90 % of the respondents invested at least half of the loan during the first month of disbursement. It is costly not to invest the money immediately after disbursement, and we assumed that funds were invested very soon. By analysing the borrower's total portfolio of loans (date of disbursement and expiry and loan size), we were to some extent able to discover the *possibility of* whether cross-financing took place. Since the problem was expected to be highest for seasonal loans, we plotted the disbursement date of the seasonal and general loans for each respondent in both zones.<sup>9</sup>

If this plot had a specific pattern (e.g. if the plot is concentrated along, below or above an angle of 45 degrees, both axes having the same scale), it indicated that the borrowers were using one type of loan to repay another type of loan. This is based on the assumption that funds are invested very soon. On the other hand, to the extent that seasonal loans generally are given in specific months, we expected the plot to be concentrated along vertical line(s), reflecting the season.

On such a basis, we were unable to observe any specific correlations between the months of disbursement for the two loans. Hence, measured by this indicator of timing of disbursement, we were *unable* to conclude that respondents were using seasonal loans on a large scale to repay general loans or vice versa. Similar plots for other types of loans confirmed this result.

In the qualitative survey, we asked the respondents whether cross-financing occurred, and nine respondents confirmed it, but we expected respondents to under-report such activities. This was also one reason for using indirect methods, such as the plots described above.

### **3.3 Replication by the implementing agency**

Similar plots, or even more sophisticated plots and analyses (for instance estimation of correlation coefficients), can easily be obtained by the monitoring unit in any microcredit institution. By grouping borrowers according to some main characteristics and comparing such plots at different points in time, it may be possible for the microcredit institution to discover any specific pattern in repayment behaviour and whether borrowers act strategically in their repayment behaviour.

---

<sup>9</sup>Since general loans are given on a regular basis of one year, we used month of disbursement as a proxy for month of expiry. See appendix 1 for a presentation of the plot for Tangail.

In the GB case, data on disbursements and outstanding loans for each respondent are available at the branch level and computerised at the central level (such a system was introduced recently in some but not all branches). Such data may be applied to the monitoring of borrowers' performance and their escalation of credits in terms of both capital deepening and widening. However, applying these plots will only reveal the possibility of internal cross-financing. It will not reveal the extent of cross-financing through other external sources. Neither will it reveal whether cross-financing is a problem or not. These problems will be taken up in sections 4 and 5, respectively.

## 4 Capital deepening tends to favour the 'rich'

GB as well as CGAP's ultimate goal is to reach the poorest of the poor by providing credits. On the basis of the GB study, this section analyses whether GB in fact reaches the poorest and if not, propose a mechanism which explains why.

### 4.1. Elaboration of the dilemma

From a credit institution *financial viability* point of view, it is best that those borrowers having high outstanding loans generally correspond to those who are best able to service the loans. A borrower's ability to service a loan depends on the income of the household from multiple projects of which parts are funded by credits from the credit institution in question. The pooling of income therefore makes it difficult to measure the impact on household income of a particular loan (see sections 2 and 3.1.3).

There is an *internal growth dynamic* in the supply of microfinance, both in the sense that a borrower does not achieve additional loans of a particular type before current loans are repaid, and because acquiring new types of loan requires good repayment performance on old loans. Normally, additional loans of the same type are higher than the old ones and entering new types of loans adds to outstanding debt. The credit escalation documented in section 3 was mainly a result of *capital deepening* (old borrowers taking new types of loan).

To the extent that repayment of previous loans is an indicator of the project's *success*, capital deepening indicates that borrowers are climbing up the social ladder and are likely at some point to move out of the very poor group. This is also the ultimate goal of any microcredit institution such as GB. While these borrowers represent the evidence of the institution's success, at the same time their economic transformation may alienate the bank from its ideological foundation as a bank for the 'poorest'.

From a microcredit institution's *ideological* point of view, giving a large part of their credits to the successful borrowers may not conform with their social objectives, but may increase the financial viability of the institution. A conventional bank will never punish a successful borrower by refusing additional loans under such circumstances, but a microcredit institution ought to have some principles or thresholds determining when a borrower is not eligible for additional borrowings, even though the incentive effects of ending further loans to successful borrowers may be severe. GB also found it difficult to terminate repeat lending to the successful borrowers.

## **4.2 Statistical method: regression analysis of what determines the size of loans**

Credit escalation takes the form of increasing the disbursement of loans. This section focuses on what factors determine the amount of credit allowed to individual borrowers. Is it generally the case that borrowers with high loans are also those with the best ability to service loans? More specifically, is it the case that the 'rich' generally obtain larger loans than the 'poor'? Whether the rich, in fact, perform better than the poor is analysed in section 5.

We applied a regression analysis where the dependent variable was the respondent's total disbursement of GB loans at a particular time.<sup>10</sup> Our independent variables were factors perceived to influence repayment ability.

If loan size increases with the respondents' available assets, this would be a good sign for potential repayments to GB. In the last instance, the borrowers' economic viability influences the viability of GB. As a bank which gives non-collateral loans, GB needs the borrowers' assets or incomes from their projects to enable them to maintain or reduce their liabilities to the bank. We also expect that the viability of the bank will decrease with the level of the respondents' financial loans outside the GB system.

In the analysis of *assets and income*, we distinguished between several variables: ownership of land, the extent of land purchasing, non-land assets (value of cattle etc.) and the number of male/female earners in the household, but did not include any direct indicator of income. In addition we registered zone. Regarding non-institutional loans (from the informal sector), we distinguished between those borrowers who at present have higher and lower informal loans than at the time of joining GB.

In addition to assets and income, we also expected that the viability of GB would increase with the quality of information gathered about the respondents. We used the period of membership and the borrower's repayment behaviour (the frequency of missed instalments) as proxies for information.

*The results showed that respondents who (i) have been members of GB for a long period and (ii) have bought land and have high assets generally have larger loans than other respondents.*

In addition, the zone is significant in explaining the borrowers' loan size. The number of earners per household and the extent of borrowing in the informal market are insignificant variables. Those borrowing more from non-institutional sources now than at the time they joined GB have smaller loans. The above variables explain nearly 50 per cent of the variation in the loan size.

---

<sup>10</sup>Total loan except housing loans. We have also undertaken analyses including housing loans, but the results are generally the same. See appendix 2 for a presentation of the results. No independence test has been carried out for the independent variables. This could be a possible improvement of the analysis in the future.

From GB's financial viability point of view, the above results seem positive. Borrowers who (i) have large loans from the informal market, (ii) miss their instalments frequently and (iii) have an extremely low level of assets do not have large loans in GB. In relation to its ideological foundation, however, the results indicate that the 'best of the poor' have higher access to loans than the very poorest. In fact we found that the average land holdings of the respondents were higher than the criteria of eligibility for acquiring loans in the GB system.

As pointed out by the GB, the land holdings were high as a result of its success. However, we did not have time series to test such a hypothesis.

### **4.3 Replication by an implementing agency**

Any microcredit institution with the primary object of reaching the very poor requires information on the distribution of its loans between different categories of borrowers. Borrowers may be categorised in terms of i) their economic status, e.g., whether credits are going to the destitute or to other poor groups, and ii) household characteristics, for instance the number of earners in the household. Concerning i), we found it easy to collect credible data on sex, age, education and household assets and expenditure, but not on income. Concerning ii), respondents were not unwilling to report household characteristics. Except for the danger of overloading, the monitoring information unit in a microcredit institution could probably obtain similar data of key classification variables for its borrowers. An additional requirement for giving loans could be that borrowers provide such information. As far as I know, such individual data sets have hardly been used by any microcredit institution in monitoring its borrowers.<sup>11</sup> On the other hand, in formal credit markets such tools are very common.

From the financial viability point of view, it is probably of equal importance that borrowers are able to service their loans than for loans to reach the target group. For example, to the extent that the destitute are not able to service their loans, a contradiction may arise between these two objectives. Obtaining information on key classification variables, as well as on borrowers' outstanding debt, makes it possible to reveal whether one reaches the target group or not. One is also able to ascertain the financial viability of the institution's loan portfolio.

It will probably be difficult to collect unbiased figures for external loans, as attempted in our GB study. It should be possible to collect data on other variables, such as assets (land, cattle, etc.) and the number of earners in the household. On such a basis, the implementing agency may analyse factors determining the size of the borrower's loan. It could also be possible to undertake time series analysis. Such an analysis could be used further in determining when loans are to be terminated.

---

<sup>11</sup>Monique Cohen brought to my attention during the Virtual Meeting that ADEMI in the Dominican Republic tracks their clients' enterprise assets, sales and levels of employment. Richard Morsom has later informed me that the Zimbabwe's Social Development Fund has undertaken a similar practice.

## **5 Economic success may lead to poor repayment behaviour**

A distinction should be made between ability and willingness to repay loans. Even though an impact assessment analysis shows that borrowers are improving their welfare, such a welfare improvement may lead to a change in repayment behaviour as the borrower's outside opportunities may rise. If welfare improvement leads to weaker financial discipline in terms of repayment behaviour, it may threaten the viability of the credit institution in question. Hence, the improved viability of the borrower does not necessarily lead to improved viability of the MFI.

### **5.1 Elaboration of the dilemma**

The spirit of the Microcredit Summit declaration is, of course, based on the assumption that providing poor people with credit has a positive impact on their welfare, but equally important is the assumption that poor people generally act as good borrowers. However, there may be important socio-culturally determined differences in attitudes towards paying interest and coping with debt, and borrowers may develop different strategies for coping with debt. In a social context where it is normal not to repay loans, as, for instance, with formal lending in Bangladesh, the escalation of credit to the poor may not be viable in the long run.

Coping strategies may also change during a borrower's membership period. For instance, 'old' borrowers may increase their available assets as well as their outside opportunities. They may also become less risk averse. Under such circumstances, the termination of additional loans may not act any longer as a disciplining device for encouraging good repayment behaviour. Borrowers who are assumed best able to repay their loans, for instance, those with high assets (see section 4), may in fact cause serious problems to a credit institution.

### **5.2 Statistical method: logistic regression of inter-group variation in servicing of loans**

We distinguished between two types of borrowers: good and bad borrowers. In our analysis good borrowers were defined as those who only seldom or never miss their instalments, while bad borrowers were those who often or occasionally missed their instalments.<sup>12</sup>

We began by analysing indicators of how 'good' and 'bad' borrowers serviced their loans, and proceeded with a statistical analysis.

*'Good borrowers'*

---

<sup>12</sup> The categories are defined according to the borrowers' own perceptions. Our plan was to use defaulters as a classification variable, but hardly anyone categorized themselves as a defaulter, which made this impossible.



The respondents who answered that they missed their instalments seldom, rarely or never, were asked how the household was able to service their loans to GB. The respondents rated the degree of importance of different explanations. The single most important source of financing instalments was *the income generated by the activities which were funded by GB loans*. The second most important source of financing was *wages*. This means income from activities outside the GB system and possibly from other household members (male labour). *Neither formal nor informal loans were found to be important in the process of repaying the loans.*

#### *'Bad borrowers'*

The respondents having difficulties paying their instalments were asked to rate the importance of five possible explanations for this. We found that for those borrowers having problems in terms of paying their instalments, the incomes generated from the projects financed by GB loans seemed to be too low. Illness seems to be an additional explanation of the problems faced by the respondents.

#### *Results from a logistic regression analysis*

This analysis is an attempt to test the degree of importance of different variables explaining irregular behaviour (missed instalments) and particularly whether economic success and credit escalation had a significant effect on borrowers' behaviour. As mentioned in section 3, cross-financing is hardly a problem for the bank as long it does not influence repayment behaviour. Here, we used a logistic regression analysis (a regression analysis where the dependent variable has two values), and as above we distinguished between two types of borrower.

The explanatory variables used to distinguish good from bad borrowers were grouped as follows:

i) indicators of economic success:

- the borrowers' assets (e.g. land area, value of other assets as animals), but not their income
- land bought during the previous year
- land shared in/out during last season (aman)
- period of time as a GB member.

ii) Indicators of credit escalation and cross-financing:

- total loans from other sources than GB
- whether they have increased their borrowings outside the GB system during their membership period (e.g. from the informal credit market)
- number of active GB loans.

iii) Other possible explanations

- the number of earners per household
- the zone.

Some comments on the choice of independent variables are in order. *The period of time as a GB member* is important for at least two reasons: firstly, according to Khandker et al

(1995:92),<sup>13</sup> the longer the branch works the more likely it is to lend to bad borrowers or projects. Different and opposing processes may apply to new and old members. On the one hand, both the borrower and GB acquire more information through experience. Over time GB acquires information about the borrower's type and repayment behaviour (whether she is an irregular borrower), while the borrower acquires business experience. On the other hand, borrowers may have a decreasing return to investment, i.e. new members may generate good projects while old members add on bad projects. In addition, old borrowers may be richer, become less risk averse and have better outside opportunities than new borrowers. The threat of termination due to defaults may therefore be a stronger disciplining device for new members.

Other mechanisms may work for old members. Bank workers may become more relaxed towards the monitoring of projects undertaken by old members, and borrowers may learn how to fool the system. What is the net effect of these opposing mechanisms? Is it the case that being an old member increases the probability of being a bad borrower?

Regarding the *borrowers' assets* as a variable, in a country like Bangladesh where land is such a scarce resource, one may expect that investment in land is the paramount goal of the borrower. Is it the case that borrowers who invest in land are more concerned with securing access to land than with repaying their instalments to GB on time? Or is it the case that those who have invested heavily in land generally acquire a surplus and therefore act as regular borrowers? Do borrowers having assets of one type or another pay their instalments more regularly than others?

By using the *number of earners per household* as a proxy for the extent of income pooling in the household, we tested the effects of pooling on the repayment ratios. We also tested whether irregular borrowers had *increased their loans from the informal credit market* and whether there were *regional differences in repayment behaviour*.

These questions were addressed by a logistic regression analysis.

The main findings were the following (see appendix 3). Only two variables were *significant* in explaining the frequency of missed instalments. *The probability of irregular behaviour increased with the number of years of GB membership, while the probability decreased with the number of earners per household.* These results may support the hypotheses of decreasing returns to scale, and that the pooling of resources in the household makes it possible to handle repayments to GB.

Even though it was found that the number of loans taken at the same time by the respondent increased the probability of missed instalments, this relationship was not significant. It is also noteworthy that the borrowers' assets in terms of land *increased* the probability of irregular behaviour. Land owned was significant at a 10 per cent level.<sup>14</sup>

---

<sup>13</sup> S.R. Khandker, B Khalily and Z. Kahn. 1995. "Sustainability of Grameen Bank: What do we know?" Paper presented at a workshop in Dhaka, 19-23 March, 1995.

<sup>14</sup> Even though investments in land increase the probability of missed instalments, this is not a serious problem to the GB as long as the borrower may use her assets or income to repay her obligations and thereby avoid being a defaulter. In a Bangladeshi context one would expect that investments in land would generate a surplus while at the same time acting as a type of collateral.

Based on the analysis above, one can hardly conclude that increasing the loan portfolio increases the probability of irregular repayment behaviour. We also found that irregular behaviour tended to increase with economic success, measured both by the number of years as a GB member and by borrowers' available assets. Based on these results, we warned against a misplaced institutional emphasis on the number of loans. A topic that should be addressed, however, is the problem of irregular behaviour among old members (see section 6).

### **5.3 Replication by an implementing agency**

Any financial institution needs information about its borrowers' financial situation. If particular groups face common problems, it may be possible to initiate specific programmes for them.

In addition to the data on indicators of economic status and household characteristics (see section 4.3), it should be possible to collect and computerise data on whether a borrower is a defaulter or not. It could also be possible to computerise the extent of missed instalments. Whatever indicator is chosen for irregular behaviour, it could be possible to analyse what factors determine it. As long as the independent variables are computerised, such an analysis is easy to implement.

The main operational recommendation following from the analysis of this section is the principle of screening borrowers according to their ability and willingness to repay their loans. Based on such a screening process, credit institutions may be targeting different loan packages to different groups of borrowers. While the importance of such a screening process is evident to 'mature' credit institutions, in which capital growth takes the form of capital deepening, such screening is even more important in a context where reaching 100 million poor people by successful microcredit schemes is the ultimate goal, as reflected in the Summit's goal. Only strict monitoring mechanisms can justify such an expansion. The screening of borrowers form one part of such a monitoring process.

## **6. Conclusion - or what to do with old borrowers**

The Microcredit Summit's goal of credit expansion may have some unintended effects. Expanding credits from whatever source makes it easier for the borrower to use one type of loan to repay another type of loan (cross-financing). It can have adverse effects on the monitoring capability of the credit institution as well as on the monitoring at group level. An increased supply of credit reduces its price and may lead particular types of borrowers to engage in risky projects. These effects may lead to bad repayment behaviour, which subsequently undermines the whole idea of giving credit to the poor. To sustain the growing levels of public support for microcredit, microcredit institutions will have to develop additional monitoring tools which make it possible to reveal such effects. Without adequate counter-measures, the increase in credits to the poor may not give the expected results.

Based on a Grameen Bank study, three dilemmas related to credit expansion were analysed and possible survey methods revealing the extent of these problems were presented.

The following problems were raised:

- i) *Does an increased supply of microcredit increase the possibility of cross-financing?*
- ii) *Does capital deepening tend to favour the richest of the poor?*
- iii) *Does economic success lead to poor repayment behaviour?*

With *established* microcredit institutions, it is argued that cross-financing is most likely to occur through additional internal borrowing (capital deepening). GB has experienced single defaults in the magnitude of TK 50,000 (USD 1200), where the borrower had obviously been allowed to borrow above her capacity to repay. For old branches, the potential for dangerous cross-financing is the highest. The oldest branches have members of many years' standing. They have been allowed a number of different loans and have increased their total outstanding debt gradually.

For *new* institutions, cross-financing is more likely to take the form of borrowing from different microcredit institutions at the same time. An escalation of credit or grants to microcredit institutions may lead to a situation where such institutions are competing for borrowers, which makes cross-financing more likely.

From the surveys undertaken for the GB study, however, there is *no evidence that credit escalation had developed into a pathological state of cross-financing*. Nevertheless, it appears that old borrowers are more likely to become 'bad' borrowers, but not as a result of impoverishment. To the contrary, most old borrowers have improved their economic situation.

The GB study shows that those having big loans generally tend to be 'rich' in terms of assets. While capital widening tends to favour the poor, *capital deepening tends to favour the rich*, and GB has no institutional mechanisms preventing further lending to successful borrowers.

Old borrowers raise *new challenges* for the Bank. In as much as they represent the evidence of GB's success, their economic and social transformation gradually alienates them from the ideological foundation of GB as the 'poor women's bank'. The rural middle class in Bangladesh represents cultural values and economic strategies different from the exploited poor. It is within the framework of such middle class values and strategies that speculative investments, credit escalation and cross-financing become more probable.

Even though their knowledge of business and financial matters has improved, it also seems likely that ways of 'fooling' the system have been learnt. At this level of financial competence, one way of doing it is by lending to each other and engage in risky business without GB's knowledge. A factor making old borrowers more likely to engage in risky business ventures is that the Bank workers at old branches themselves may become more relaxed and not as rigorous in their loan checking as they would have been at a newer

branch. Members who have repaid loans regularly for ten years are not likely to have their personal financial status rechecked every time they apply for a loan.

Discipline is likely to be more slack among older borrowers and in some instances the groups and centres may actually be difficult to control for the branch workers. The internal culture at some branches may in other words be conducive to adjustment. The final result may be that old borrowers add on bad projects. If this is the case, as our study indicates, *the problem faced by GB is not cross-financing per se, but how to tackle the specific problems faced by one particular group, the old members.*

GB is still considering how older members can be better accommodated and how the increased disparities in activity profiles can be adequately covered by the programme. The current system, with a number of loans for very specific purposes, may need to be changed. Several options are available. One option is a system where everybody is given an individual credit limit for the basic types of loan, and eventually a credit limit for all GB loans. A second option is to improve the capacity to appraise projects. A third option is adhering more strictly to rules for terminating the membership in case of default. An additional option would be a limited period of eligible membership.

At a more general level, any microcredit institution should diversify its credit instruments to adjust for changes in borrowers' economic situation, social and economic aspirations and attitudes towards financial institutions. However, it requires a sophisticated screening process of members, some of which are discussed in this paper. Most of these methods can be replicated by implementing agencies in their monitoring of credit expansion. What is needed is a computerised database of individual borrowers' performance and characteristics (tracking records). Without such a screening or monitoring process, expansion of microcredit may have severe undesired effects.

## Appendix 1

Disbursement months of respondents having general and seasonal loans. Tangail<sup>1</sup>

	1	2	3	4	5	6	7	8	9	10	11	12
12		1			1	1	1				1	1
11		1	2				1				2	
10	1		1	2		1					2	2
9	2	5	2			1	1					
8	1	1	1			2				3	2	1
7	2	2	1		1						2	1
6		1		1		2	1		2			1
5	1		1					1		1	4	1
4		2	1			3	1		1	2	1	1
3	3		1		1	2			1	2		
2				1	1		2	1		2	1	
1	2	1	3	1		2	1		2		1	

<sup>1</sup> 112 respondents have both seasonal and general loans in Tangail while the corresponding figure is 123 in Rangpur. The numbers given in the scatter plots reflect the number of cases having a specific combination of month of disbursement for the two types of loans.

## Appendix 2 What determines the loan size? Results from the regression analysis

### Variable(s) Entered on Step Number

- 1.. DIST           Zone; 0 = Rangpur  
                      1 = Tangail
- 2.. TNLAEXC      Value of other assets in TK (goat, cattles, poultries and machinery, but not housing)
- 3.. GBMEM        No. of years the respondent has been a member of GB
- 4.. AVEEARN      Male + female earners/ Household size
- 5.. LBT           Land bought in last one year
- 6.. HOFTEN       Missed installments;  
                      0 = Seldom, rarely or never  
                      1 = Often or occasionally
- 7.. NONINSTL     The respondent is currently borrowing more from moneylenders or non-institutional sources than before joining GB.  
                      0 = No  
                      1 = Yes
- 8.. LOWND        Land owned (decimals)

### Variable(s) Removed on Step Number

- 9.. AVEEARN
- 10.. NONINSTL

Multiple R                     .68611  
 R Square                      .47074  
 Regression; 6 degrees of freedom  
 Residual; 277 degrees of freedom  
 F = 41.06235      Signif F = .0000

### ----- Variables in the Equation -----

Variable	B	T	Sig T
DIST	4806.35	9.2	.0000
TNLAEXC	.07	5.4	.0000
GBMEM	546.85	7.5	.0000
LBT	76.72	2.6	.0094
HOFTEN	-1494.86	-1.7	.0857
LOWND	7.83	2.6	.0102
(Constant)	2388.63	3.9	.0002

### ----- Variables not in the Equation -----

Variable	T	Sig T
AVEEARN	-.734	.4634
NONINSTL	-1.271	.2046

## Appendix 3

### What determines being a 'good' versus 'bad' borrower?

#### Results from a logistic regression analysis

Dependent variable: How often missed instalments

1 Often or occasionally

0 Seldom/never

Independent variables:

DIST	Zone; 0 = Rangpur 1 = Tangail
TNLAEXC	Value of other assets in TK (goat, cattles, poultries and machinery, but not housing)
GBMEM	No. of years the respondent has been a member of GB
AVEARN	Male + female earners/ Household size
LBT	Land bought in last one year
NONINSTL	The respondent is currently borrowing more from money lenders or non-institutional sources than before joining GB. 0 = No 1 = Yes
LOWND	Land owned (decimals)
AMANIN	Land shared in during aman season
OUT	Land shared out during aman season
TOTTK	Total loans to others than GB
GB LOANS	Number of current GB loans

Results:

Variable	B	Sig
GBMEM	.2752	.0000
AVEEARN	-2.4999	.0436
Constant	-3.5104	.0000
-----		
LOWND	3.0036	.0831
TNLAEXC	.9622	.3266
DIST	2.6802	.1016
LBT	2.8823	.0896
AMANIN	.4498	.5024
AUT	.3010	.5833
GBLOANS	.0768	.7817
NONINSTL	.0962	.7564
TOTTK	1.4787	.2240



## Recent Working Papers

- WP 1996: 13 LØNNING, Dag Jørund  
*Dealing with the good and the evil. Introducing morality as an anthropological concern* Bergen, December 1996, 27 pp.
- WP 1996: 14 FJELDSTAD, Odd-Helge  
*Tax evasion and corruption in local governments in Tanzania: Alternative economic approaches.* Bergen, December 1996, 33 pp.
- WP1997: 1 SUMAILA, Rashid Ussif  
*Strategic dynamic interaction: The case of Barents Sea fisheries.* Bergen, January 1997.
- WP 1997: 2 BØE, Turid  
*Share-tenancy within the household unit.* Bergen, February 1997, 27 pp.
- WP 1997: 3 BØE, Turid  
*Evolutionary game theory and the battle of the sexes.* Bergen, March 1997, 16 pp.
- WP 1997: 4 BØE, Turid  
*Teoriskapt virkelighet? Ny-klassisk teori og kvinnelige økonomiske aktører.* Bergen, mars 1997, 17 s.
- WP 1997: 5 NORDÅS, Hildegunn Kyvik  
*Terms of trade and economic growth in a world of constrained capital mobility.* Bergen, March 1997, 25 pp.
- WP 1997: 6 ANGELSEN, Arild  
*The evolution of private property rights in traditional agriculture: Theories and a study from Indonesia.* Bergen, April 1997, 40 pp.
- WP 1997: 7 ANGELSEN, Arild  
*State - local community games of forest land appropriation.* Bergen, April 1997, 32 pp.
- WP 1997: 8 PAUSEWANG, Siegfried  
*Can national identity be built on local democracy?* Bergen, May 1997, 16 pp.
- WP 1997: 9 SUMAILA, Ussif Rashid  
*A review of game theoretic models of fishing.* Bergen, June 1997, 19 pp.
- WP 1997: 10 MOORSOM, Richard  
*Underdevelopment and labour migration: the contract labour system in Namibia.* Bergen, June 1997. 83 pp
- WP 1997: 11 SUMAILA, Ussif Rashid  
*Fish as vehicle for economic development in post-independent Namibia.* Bergen, July 1997, 31 pp.