Research note

GRAMEEN BANK BORROWER VIABILITY: FINDINGS FROM FIELD SURVEYS

Monayem Chowdhury

ABSTRACT

Bangladesh Bank and Mahabub Hossain survey of Grameen Bank borrowers is examined. It is observed that the borrowers have gained substantially in income following the use of credit. Income gain, however, is not sufficient to repay credit under the stipulated terms.

I. INTRODUCTION

The Grameen Bank (the Village Bank) in Bangladesh is an innovative credit institution. Its spectacular success in extending credit to the rural poor has attracted attention world-wide. A feature article on its operations appeared in a Sunday issue of The New York Times (July 12, 1987). The Grameen Bank founded by an eminent Professor of Economics Muhammad Yunus, has its origin in an action project in Chittogong, Bangladesh, during 1976 (Nuruzzaman, Chapter III). The project aimed at testing whether credit to the rural poor, particularly women and illiterate having virtually nothing to offer as a collateral, can be a viable proposition. Some of the innovative features of the project were: a) The concept of lending to a small group, b) frequent (weekly) repayment schedule, c) compulsory savings, and d) use of peer (group) pressure to further loan recovery. The loan repayment record was reported to be close to 100 percent. This remarkable performance eventually led to the formal establishment of the Grameen Bank in 1983.

The loan recovery experience of the Grameen Bank can be termed as miraculous in the context of Bangladesh. Amounts recovered during the
calendar year of 1986 equalled 165 percent of outstanding credit in the case of Grameen Bank (Mahabub Hossain, Table 6, p. 33), whereas the same stood at 17 percent in the case of Krishi Bank (Agricultural Bank) during 1985-86 fiscal year (Ministry of Finance, p. 174).

Why is it that the Grameen Bank borrowers are characterized with such an excellent loan repayment behavior? Certainly, many factors are involved including institutional. What we propose to do is to shed light upon some of the objective elements termed as borrower viability. We will draw upon survey findings on the Grameen Bank borrowers. It would have been instructive to undertake a comparative study of Grameen Bank and Krishi Bank borrowers. But this is precluded due to non-availability of information. We will now proceed to indicate the field-surveys chosen by us, followed by an enumeration of the factors affecting borrower viability. We will next present: the survey findings with respect to some of these variables.

**CHOICE OF FIELD SURVEYS**

There have been several field surveys of the Grameen Bank borrowers, some at the request of the bank management, and some initiated independently. We have chosen the one undertaken by the Bangladesh Bank (Central Bank of the country) in 1981 and the other at the Bangladesh Institute of Development Studies in 1985. The Bangladesh Bank study (to be referred as BB) conducted under the supervision of auazi Rafiquddin represents the earliest attempt using refined analytical techniques at a comprehensive evaluation. The Bangladesh Bank did become a sponsor of the Grameen Bank in 1979, and this particular field survey we commissioned in order to assess whether the Bangladesh Bank would lend its support to spread the Grameen Bank concept to the rest of the country (BB, page 18). It is of interest to indicate that following the survey, the Bangladesh Bank contributed to the establishment of the Grameen Bank as a formal credit institution in 1983. The study conducted by Mahabub Hossain at the Bangladesh Institute of Development Studies (to be referred as MH) was undertaken at the request of the Grameen Bank and is a follow-up of an earlier study by the same author in 1983 (MH, page 12). It is of interest to indicate that there is no reference of the Bangladesh Bank survey in his study. A survey, which was undertaken prior to that by the Bangladesh Bank was by Shahzaman Majumdar in 1980 as part of a
M. B. A. degree. Some of his findings were referred to in a paper by Alimur Rahman (1983), a professor at the same institution.

The two field surveys chosen by us will allow for a comparison over time. The sample size and some of the aggregative characteristics of the borrowers can be seen in Table 1. It will be noticed from there that the sample sizes were adequate from the viewpoint of drawing reliable inferences. The differences in the matter of operational landholding, family size and proportion of female borrowers are minimal. The average loan size is much higher in the survey conducted by Mahabub Hossain. But this is expected in view of inflation and more repeat borrowers over time. Thus borrowers in these two surveys can be considered as homogenous. There is, however, no information on, such variables as level of education and age distribution.

BORROWER VIABILITY

We cannot have a viable credit system unless credit is repaid. This in turn depends upon a number of factors. In the first place, credit should not be diverted for non-productive uses, particularly consumption. Such uses are unlikely to generate the wherewithal to repay the credit. Again, even if the credit is being used for productive activities, it is important to ensure that such pursuits coincide with the original purpose of granting credit; otherwise, inappropriate sectorial growth rates might creep in. Secondly, use of credit should result in an output growth. The physical productivity of credit in turn will depend upon the appropriate and timely use of inputs, given that no natural calamities befall upon. Thirdly, output growth needs to be translated into money income. Production decisions demand factors as well as rural infrastructure in terms of accessibility to markets are vital here. Fourthly, once greater income is realized, this additional income has to be saved towards repayment of credit. Finally, there has to be a willingness to repay the loan. Apart from the moral problem, there could be incentives to use the savings to accumulate productive and other assets.

SURVEY FINDINGS

Of the various factors identified by us affecting borrower viability, no information is available in these two surveys on (a) physical productivity of
Table 1. Characteristics of Grameen Bank Sample Borrowers in the Bangladesh Bank and Mahabub Hossain Studies

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sample Size</td>
<td>175</td>
<td>975</td>
</tr>
<tr>
<td>2. Sample Size as percent of Bank membership at around the time of the survey</td>
<td>0.83</td>
<td>0.57</td>
</tr>
<tr>
<td>3. Percentage of females in the sample</td>
<td>49</td>
<td>55</td>
</tr>
<tr>
<td>4. Percentage of females within the Grameen Bank membership at around the time of survey</td>
<td>39</td>
<td>66</td>
</tr>
<tr>
<td>5. Size of operational landholding (in acres)</td>
<td>0.37</td>
<td>0.32</td>
</tr>
<tr>
<td>6. Family Size</td>
<td>5.7</td>
<td>5.2</td>
</tr>
<tr>
<td>7. Average size of the last loan (in taka)</td>
<td>1468</td>
<td>3040</td>
</tr>
</tbody>
</table>

[Notes: The Bangladesh Bank study indicated 19000 members as on June 1981 (page 10) and of 21000 borrowers who participated in the Grameen Bank project (page 20). We have taken the latter figure in our calculation of Grameen Bank membership.

The percentage of females within the Grameen Bank membership at around the Bangladesh Bank survey is obtained from Nuruzzaman (page 12). Family size figure with respect to the Mahabub Hossain study has been derived by dividing household income of the borrowers (18134 taka) by per capita income of the same group (3524 taka) as reported in table 38 (page 66).

Operational holding in Mahabub Hossain study refers to the column "Lend Operation" in Table 18 (page 45). The average size of operational landholding is not given in Bangladesh Bank study. The same has been derived from the estimated coefficients of a regression relationship with operational landholding as one of the explanatory variables (page 33). We have used the statistical identity that in a regression relationship, the mean value of the explanatory variables multiplied by their respective regression coefficients.]
credit, (b) savings out of additional income, and (c) willingness to repay. However, the physical productivity of credit will be reflected in part in money income growth. Then again, a study of willingness to repay is not that crucial in the context of Grameen Bank borrowers in view of excellent recovery experience. But, it would have been helpful to have information on savings. In order to assess to what extent repayments are real, in the sense of being associated with an increase in net worth.

**Leakage of credit**

The close supervision of borrowers by the Grameen Bank personnel and group pressure makes seepage of credit into unauthorized activities very difficult. The Bangladesh Bank study did collect information on the spread of loan diversion, but not on its magnitude. It is observed that 38 percent of the borrowers did use a part of the credit for purposes other than that stipulated in the loan agreement (Tables 5.11A and 5.11B, page 38). The percentage of borrowers who switched credit to productive uses such as cow and goat fattening, milk cow, small business and agriculture for which the Grameen Bank lends money represented 16 percent. Those who diverted credit for inadmissible purposes other than consumption, but without involving a change in net worth, such as repayment of Grameen Bank old loans did constitute 11 percent. Finally, those who channelled a part of the credit towards consumption defined as the sum of the categories of "Household Consumption" and "Ceremonial Expenditure" formed the remaining 11 percent. The magnitude of diversion for consumption is not known. However, if one hazards the guess that (a) not more than one-third of the loan amount was diverted by such borrowers, and further that (b) the amount of credit obtained by such borrowers did not differ from the rest of the borrowers, we can estimate the consumption switch as 4 percent.

The Mahabub Hossain study did compile information on the magnitude of loan diversion, but not on its spread. It is noticed that leakages into consumption defined as the sum of the categories of "Consumption" and "Social Ceremony" did constitute 5 percent of total credit (Table 22, page 50). This figure is virtually the same as that inferred (4 percent) from the Bangladesh Bank survey undertaken four years earlier. Thus, there is practically no evidence of a greater shift towards consumption over time. Mahabub Hossain study
does provide a detailed cross-classification of credit by its original purpose and subsequent utilization (Table 23, page 51). It is noticed that seepages into consumption were the lowest (1 percent) for loans taken for the "purpose of crop cultivation" and the highest (6.3 percent) for the purpose of "processing and manufacturing." Diversions for productive purposes were the lowest (7.3 percent) for loans taken for "Transport operations and other Services" and highest (50.9 percent) for those taken for the purpose of "Processing and Manufacturing." The net impact of reallocation has been a greater percolation of credit into "Crop Cultivation" in relative terms and a sharply reduced inflow into "Processing and Manufacturing." In our estimate, diversions of credit for productive purpose, adds up to 29 percent of total credit. If it is assumed that the proportion of borrowers who undertook such diversions were at least equal to the proportion of total credit so diverted, then we notice a far greater rechanneling of credit by the borrowers over time. We have about 29 percent of borrowers engaged in credit reallocation in 1985 as against 16 percent in 1981.

Income

The Bangladesh Bank study did observe that the sample borrowers had an average income of 5805 taka before joining the Grameen Bank. The same went up to 9166 taka (an increase of 58 percent) after joining the Grameen Bank (Table 5.7, page 30). The difference in income is found to be statistically significant based on a T-test. Thus the hypothesis that the borrowers gained in income by associating with the Grameen Bank is statistically established.

However, we need to go further than this. Over time, it is natural to expect that the income of the borrowers would move more or less in unison with the growth rate in per capita GDP (gross domestic product) in current prices. Therefore, if only we observe that the income of the borrowers have registered an increase in excess of the growth rate in per capita GDP, then we might be on a stronger ground to attribute the differential income gain to the beneficial impact of Grameen Bank credit. It is estimated that the sample borrowers would have experienced an income gain of 39 percent (sum of column 2 multiplied by column 3 in Table 2) as a result of per capita GDP growth. The gain in income after joining the Grameen Bank, as indicated earlier,
is 58 percent. Thus the borrowers experienced an additional income growth of 14 percent. The average years of association with the Grameen Bank works out to be 2.2 years (sum of column 1 multiplied by column 2 in Table 2). This gives us an annual income gain of about 6 percent on the top of per capita GDP growth. Now if it is assumed that the borrowers did not have a recollection of what their incomes were five years earlier, and hence limited their response to an income comparison up to a maximum of preceding three years, then the income gain comes to about 10 percent. It may be of interest to indicate that the Survey Questionnaire limited information on some key variables like loans received to preceding three years (Question No. 13, Appendix A, page 73). In any event, the proposition that the Grameen Bank credit have contributed to an increase in income of the borrowers is firmly established.

The Bangladesh Bank study has also provided us with a quantitative estimate of the impact of credit upon income through a multiple-regression analysis (pages 33-35). The estimated relationship is as below:

\[ Y = 6862 + 1.03X_1 + 1032.69X_2 - 42.64X_3; R^2 = 0.39 \]

\[ (3.20) \quad (5.10) \quad (-9.32) \]

Where \( Y \) = current income of the sample borrowers
\( X_1 \) = credit amount from the Grameen Bank
\( X_2 \) = active labor force in the family
\( X_3 \) = size of operational holding

figures within parentheses represent “t” values

It will follow from the above that an increase in credit by one taka is expected to lead to an increase in income of slightly more than one taka (1.03). We have earlier mentioned that the borrowers might have experienced an increase growth of 10 percent as a result of credit. Now this figure, in turn, indicates that an increase in credit by one taka is expected to lead to an income increase of 0.57 taka (see footnote 2 for derivation). Thus we obtain differing estimates of impact of credit upon income. It is however important to indicate that the estimated regression coefficients for the credit and the labor force variables as well as the constant term—all might have suffered from an upward bias. This is so as the variable operational landholding is associated with an inappropriate negative sign, possibly due to multicollinearity. Our estimated elasticities being 14.67 percent for credit, -17.21 for landholding and 36.50 percent for labor force; the magnitude of bias is likely
Table 2. Bangladesh Bank Sample Borrowers by Years of Association with the Grameen Bank and Corresponding Growth Rate in Per Capita GDP

<table>
<thead>
<tr>
<th>Years of Association with the Grameen Bank</th>
<th>Percentage of Sample Borrowers</th>
<th>Growth Rate in per capita GDP in Current Prices Corresponding to years of Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>93.91</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>102.43</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>49.16</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>29.27</td>
</tr>
<tr>
<td>1</td>
<td>35</td>
<td>15.49</td>
</tr>
</tbody>
</table>

[Notes: The Grameen Bank started as an experimental project in Jobra in 1976. The survey was conducted in 1981. The survey was limited to branches that were in operation for a year or more (page 19). Thus the sample borrowers had an association with the bank for at least a year and a maximum of five years.

The figures under column (2) have been estimated by us. Twelve percent of the sample was drawn from the Jobra branch where membership increased from 202 in December 1976 (Rahman, Table 1) to 1448 at around the time of survey in June 1981 (Table 3.1). Thus the percentage of borrowers with a membership of five years become 12 if everyone in the sample is a 1976 borrower, and a low of 1.67 if the proportion of such borrowers within the sample is the same as that within the membership. We have chosen a figure of 5 percent as somewhat intermediate. Amounts disbursed under the loan (256,500 taka, Table 5.16, page 44) equalled 48.43 percent of all loan disbursements (529,600 taka, Table 5.9, page 32). Given that the average loan size progressively increases over time, the percentage of borrowers with a year of association must have been considerably lower than the above percentage. We have placed at 35 percent. The Grameen Bank operations expanded following sponsorship by the Bangladesh Bank in 1979. Thus we would expect an acceleration in membership after this date. This is reflected in the estimate of borrowers with a three-year and a two-year membership respectively.]
The per capita GDP in current prices is computed from International Financial Statistics Year Book 1986, International Monetary Fund, Washington D. C. The figure of 93.91 under column (3), for instance, refers to percentage increase of 1980-81 per capita GDP over that of 1975-76 reflecting the change over a period of five years corresponding to column (1). In the same way, the figure 102.43 refers to percentage increase of 1980-81 per capita GDP over that of 1976-77.

To be considerable. Thus we might be on a safer ground with the lower estimate (0.57 taka).

Mahabub Hossein has compiled detailed information on income and its source of (1) Grameen Bank sample borrowers in the five project villages, (2) non-borrowers of similar economic status as measured by landholdings in the same five project villages, and finally (3) non-borrowers of similar economic status in two control villages (pages 64-66). Thus the income effect of Grameen Bank credit can be assessed by comparing the income situation of the sample borrowers with those of other two groups. We prefer to limit comparison between sample borrowers (group 1) and non-borrowers within the same project village (group 2). It is noticed that per capita income of the Grameen Bank sample borrowers at 3524 taka are higher by 22 percent compared to non-borrowers (Table 38, page 66). That this income gain can be attributed to the Grameen Bank credit is strengthened when we look at the income source. Income from agriculture is more or less the same as between borrowers and non-borrowers. The main difference is in income from non-agricultural activities such as "processing and manufacturing", "trading" and "transport operations" which are financed by the Grameen Bank. The average length of Grameen Bank membership has been estimated as 2.25 years (footnote to Table 29, page 59). Thus we obtain the annualized growth rate in income as a result of credit as approximately 10 percent. This figure is similar to that observed in Bangladesh Bank study. The impact of a Taka increase in credit upon income works out to 0.54 taka (calculated the same way as illustrated in footnote 2). Again, this figure is very close to that obtained from the Bangladesh Bank survey of 0.57. Thus both the studies confirm the general belief that Grameen Bank lending has moved the borrowers up in the income ladder, and further have come out with more or less similar quantitative impact of credit upon income.
Repayment

The repayment performance of the sample borrowers in both the surveys are in accord with the aggregative behavior. The Bangladesh Bank study did indicate that of the last loan taken by the sample borrowers, 3.4 percent was overdue (Table 5.16, page 44). In Mahabub Hossain study, the respective percentage was virtually identical at 3.3 percent (Table 26, page 52). The range of information provided in the Bangladesh Bank study does allow us to compute overdue amount as percentage of installments which actually fell due (=amount repaid - amount overdue = 140,776 taka) rather than the loan amount. The same works out to 6.28 percent. The borrowers also seem to have unpaid balances from earlier loans. The overdue amount on account of prior loans (=158,071-140,776; Table 5.15B, page 43) as percent of last loan amount comes to 6.74 percent. We do not have comparable information in Mahabub Hossain's study.

The borrowers who did not repay loan installments regularly constituted 43 percent of the sample in the Bangladesh Bank study (Table 5.15A, page 42). The same is observed to be much lower at 22 percent in Mahabub Hossain study (Table 25, page 52). Thus it appears that the Grameen Bank has enforced greater discipline in the repayment habits of the borrowers over time. It is important to indicate that given the system of weekly loan payment schedule, some irregularity is rather natural. In some of the loan-financed activities such as goat fattening, income is realized after a considerable time lag; while in some others income flow might be intermittent.

We would now examine to what extent the Grameen Bank credit generates the wherewithal to repay the loan under the stipulated terms. This aspect is important since a considerable part of bank endings were not towards financing of working capital. The Bank does require that the loan amount together with interest be repaid in 52 weekly installments. The interest payment comes to 8.12 percent of the loan amount (MH, page 29). Thus if the loan is to be self-liquidating, then the borrower has to realize a return of 108.12 percent on the loan amount within the year. We have earlier noticed that the return on credit comes to 57 percent in Bangladesh Bank sample and 54 percent in Mahabub Hossain sample. These figures fall short of that needed to ensure that the loan amount is repaid on schedule entirely out of income.
flow arising out of the use of credit. Thus the borrowers are required to lean upon cash flows generated from elsewhere in order to fulfill repayment obligations. Therefore, what is needed is a matching of loan repayments with income flows.

CONCLUSION

The survey findings as analyzed here do indicate that the Grameen Bank borrowers have applied credit towards productive purposes. Diversions of credit where they have occurred have been mostly channelled into income-producing activities. Seepages into consumption have been minimal. There has been a substantial gain in income following the use of credit. Our estimates do indicate that an increase in credit by one taka leads to an income increase of slightly over 0.50 taka within the year. Such a realized rate of return is indeed impressive and greatly contributes towards a viable credit system. Nonetheless, the income gain is not large enough to liquidate the loan amount in course of a year as the Bank does demand. Thus even with the best of intentions, credit cannot be repaid in accordance with the stipulated terms, unless there is a simultaneous cash inflow in terms of fresh credit, or from other income producing activities.

Notes

1 Calculated by combining information from Table 23 (page 51) and Table 21 (page 49). The percentage of total credit diverted for productive purposes under "Processing and Manufacturing," for instance, is calculated as (92.8—41.9) x 24.4 percent. There is no breakdown of loans by purpose separately for "trading" and "shopkeeping" in Table 21. The same has been estimated by assuming that the relevant breakdown would be in the same proportion as the number of borrowers reporting the above categories as their main occupations. Thus, given that the number of borrowers reporting "trading" as their main occupation was 274 and that of "shopkeeping" was 45 (Table 35, page 64); the combined credit percentage of 33.8 has been broken down as 29.03 percent for "trading" and 4.77 percent for "shopkeeping". The Tables referred to (Table 21, 23, 35) are taken from Mahabub Hossain Study.

2 The average loan amount taken during the current year is 1466 taka (Table 1 in text). The current income is 9166 taka (Table 5.7, page 30). Since
the contribution of credit is a 10 percent income increase, then income prior to receipt of credit is 8332 take (=9166/1.1). The difference in income works out to 834 (=9166-8333). Now, we obtain the contribution of one take increase in credit upon income as 0.57 (=834/1466). Since Grameen Bank loans are generally repaid in full in one year, the amount of outstanding credit in the beginning of the income period is assumed to be zero. Hence the total amount of current loan has been considered as equivalent to an increase in credit.

REFERENCES


Rahman, Aminur (1983) : "Rural Credit for the Landless Poor: A case study of the Jobra Project."