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Grameen Bank

Performance and Sustainability

Shahidur R. Khandker
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(Continued on the inside back cover)

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Shahidur R. Khandker is an economist in the Gender Analysis and Policy group of the World Bank's Poverty and Social Policy Department. Baqui Khalily, a consultant to the Bank, is a professor in the Department of Finance and Banking at the University of Dhaka, Bangladesh. Zahed Khan is a consultant to the Bank's Poverty and Social Policy Department.

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CONTENTS

FOREWORD

The achievements of the Grameen Bank, in Bangladesh, has made it well-known in the world as a successful group-based credit program which is being widely acclaimed and replicated elsewhere. However, the various aspects of its credit delivery and social development model have not yet been systematically examined to identify the reasons for its success, its costs and benefits, and its sustainability as well as the potential for its expansion and replication.

Providing credit to the rural poor and developing viable credit institutions within the broader objectives of poverty alleviation is a well established development policy, but there are few good studies of effects and sustainability. The research project RPO 676-59 "Credit Programs for the Poor: Household and Intrahousehold Impacts and Program Sustainability" was designed with appropriate research methods to examine these important issues. Bangladesh was selected as a suitable location to apply such methods because it has a number of targeted programs with varying designs, including the Grameen Bank, the BRAC and the BRDB's RD-12 operated by the government and non-government organizations.

The objectives of this research was to develop a methodology to estimate the costs and benefits of group-based credit programs. It included the identification of program effects on household and individual outcomes as well as the analysis of the participation of women in these credit programs and the ensuing effects on household and intrahousehold outcomes by gender.

Another objective was to analyze the financial and economic efficiency of the credit programs, which depend on resource-intensive group formation and monitoring. While peer monitoring reduces the transaction costs of lending to the poor, group formation and monitoring is costly and group members may not be able to bear the full costs of a program. The aim was to estimate the cost structures of the programs and examine how the programs operate and whether and under what conditions such group-based credit programs are sustainable.

This paper is one of several papers produced as a research output under this research project. It discusses how the Grameen Bank provides credit and ancillary services to the rural poor and at what costs, its organization, and whether it is sustainable. It provides evidence concerning the viability of such group-based schemes elsewhere and the replicability of Grameen-type credit delivery models by the World Bank and other development agencies. The recent "Consultative Group to Assist the Poorest (CGAP) - A Microfinance Program" initiative is indicative of the Bank's interest in sponsoring micro-credit programs, for which the findings of this discussion paper on the Grameen Bank are relevant.

Ishrat Husain
Director
Poverty and Social Policy Department
Human Capital Development and Operations Policy

ABSTRACT

The Grameen Bank, in Bangladesh, has attracted worldwide attention by providing small loans to the rural poor and recording high repayment rates. It has over two million members spread over 35,000 villages, 94 percent of whom are women. This paper discusses what the Grameen Bank is, what it does for the rural poor and at what costs, its sustainability as well as its potential for expansion and replicability. The Grameen Bank's success as a bank is only sustainable if it is institutionally, economically and financially viable, and also if it generates sustainable benefits to borrowers that help reduce poverty. Subsidized funds and grants were instrumental for outreach and institutional development of the Grameen Bank. However, over time it has demonstrated its ability to operate with resources from the market, relying less on subsidized funds. Professor Muhammad Yunus and his committed leadership is an important ingredient in the Grameen Bank's growth. It has nevertheless developed a decentralized management structure with a cadre of dedicated professionals that is capable of operating effectively on its own. The Grameen Bank has recorded loan recovery rates above 90 percent consistently and has had a positive impact on rural wages and poverty reduction, which indicates that the benefits to its borrowers from program participation must be significant and sustainable. The long-run sustainability of the Grameen Bank in Bangladesh ultimately depends on its ability to expand its lending for more growth-oriented activities and achieve cost efficiency on a sustained basis. The Grameen Bank's achievements have led to its many replications in over forty countries and the World Bank has taken the initiative to sponsor Grameen-type schemes. Successful replications would depend not only on subsidized resources initially, but also on committed and dynamic leadership that is able to carve out market niches.

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Executive Summary

The Grameen Bank is a rural bank in Bangladesh that provides credit and organizational help to the poor, who are otherwise excluded from the formal credit system because they lack material collateral. This financial institution has replaced physical collateral requirements with group responsibility; by organizing poor individuals into groups, it has created the social and financial conditions enabling them to receive loans. The Grameen Bank also promotes social development by making the poor individually and socially accountable. Such intermediation improves the productivity and income of the poor. This, in turn, also improves their loan repayment rate and, hence, contributes to the Grameen Bank's financial viability. The Bank's loan recovery rate has consistently remained above 90 percent, one of the highest among the development finance institutions providing rural credit.

The Grameen Bank's success has made it one of the best known group-based lending programs in the world, and it is one of the few programs that is being widely studied. Yet the Grameen Bank's credit and social intermediation model has not been systematically studied to identify the reasons for its success and its potential for expansion and replication. Only a few studies have rigorously analyzed whether the Grameen Bank is a sustainable financial institution. The objective of this report is to understand what the Grameen Bank is, what it does for the poor, how it provides services and at what cost, and whether it is sustainable. This study also examines the potential for expanding the Grameen Bank in Bangladesh and replicating it elsewhere. These findings have significant implications for development policy in general, as well as for World Bank operations. The recent formation of a Consultative Group to Assist the Poorest (CGAP) is indicative of the Bank's interest in sponsoring micro-credit programs to address poverty.

What is the Grameen Bank?

The Grameen Bank operates in rural credit markets that are characterized by imperfect information and imperfect enforcement. Lending is a risky activity and the high probability of loan default undermines the viability of rural financial institutions. Informal moneylenders avoid the problem of asymmetric information and, hence, the risk of loan default by lending to neighbors or by selecting borrowers based on patron-client relationships. Conversely, formal lending agencies, such as commercial banks or other

development finance institutions, grant loans on the basis of asset ownership and repayment potential, on the assumption that credit risk and transaction costs (relative to transaction size) are inversely related to an individual's asset holdings.

The viability of lenders depends on their ability to enforce contracts and the likelihood that borrowers will repay their loans. Informal moneylenders, being from the same community as borrowers, are better able than formal lenders to enforce contracts. Moreover, the monopolistic nature of informal lending renders credible threat of cutting off credit in case of default, increasing borrowers' incentive to repay. By contrast, formal lenders are constrained by their lack of information about borrowers' activities, since they are not an integral part of the community and it is costly to collect such information. Moreover, formal lenders have little ability to enforce contracts in the absence of an appropriate legal framework for doing so. As a result, loan recovery rates are low in the formal credit markets of many developing countries.

The Grameen Bank was established in 1983 as a challenge to the existing collateral-based system. It operates exclusively for the poor on the premise that rural people, who own too little land to support themselves as farmers, can nevertheless make productive use of small loans and repay them on time.

The Grameen Bank has developed its own method of tackling the problems of asymmetric information and imperfect enforcement that plague the credit markets. First, it offers group-based lending where the individual's continued access to credit is linked to the group's repayment behavior. Individuals borrow from the Grameen Bank by forming a group of five to guarantee and monitor one other. Grameen Bank employees organize and train the group. Strict observance of the norms of group behavior forces the members to be socially and economically accountable to each other. This creates pressure among group members to monitor and enforce the contracts, and helps to screen out bad borrowers.

Mobilization of member savings is also an integral part of Grameen Bank lending. Each member is required to save regularly in a number of different accounts, such as group and emergency funds. Requiring borrowers to save promotes financial discipline and provides an alternative source of finance for consumption-smoothing. It also acts as a deterrent against group collusion, since part of the savings is forfeited if the group disbands, and insures both the borrowers and the lenders against disaster. This mechanism was developed to cope with the absence of an insurance market.

The Grameen Bank also aims to ease rural poverty by providing credit and organizational assistance to the poor, especially women. The Bank holds that the lack of access to credit is the biggest constraint on the poor. They need no other outside inputs to increase their incomes and are themselves the best judges of how to use the credit extended to them.

The Grameen Bank has instituted a social development program that sets out guidelines for some activities and codes of conduct for borrowers. It also provides organizational support to help the poor make productive use of their credit and income. This type of social intermediation improves the viability of both the borrowers and the lender by increasing the borrowers' productive and human capital.

Grameen Bank coverage and expansion

Group lending is costly for both borrowers and lenders. It requires regular participation in and oversight of group-based activities. Depending on the borrowers, both the pecuniary and opportunity costs of borrowing can be high. However, for some, particularly women, group activities may generate pecuniary returns through group solidarity and changes in social status. Generally, Grameen Bank members are those for whom the opportunity cost of attending weekly meetings is low and who have much to gain from program participation. Since many rural poor live at the subsistence level, rapid program expansion was possible within less than a decade, also facilitated by grants and subsidized funds. These funds helped absorb the cost of group mobilization, lending, and training.

By 1994, the Grameen Bank served half of all villages in Bangladesh. In 1994 alone, it lent about US$ 385 million, and mobilized an additional US$ 306 million as savings and deposits with a cumulative loan outstanding of US$ 281 million. Its total membership was over 2 million, of whom 94 percent were women. Women received over 90 percent of the total cumulative disbursement of Taka (Tk) 44,640 million (US$ 1.1 billion) and accounted for 76 percent of all savings mobilized by the Grameen Bank so far.

Between 1985-94, annual membership growth averaged 29.5 percent, loan disbursement averaged 40.9 percent, and savings mobilization averaged 51 percent. Disbursement from Grameen Bank branches includes general loans, which, given to individual members, comprise the bulk of its lending and must be repaid in one year, and collective loans, given to groups or a center for joint enterprises. In response

to borrower demand, the Grameen Bank has diversified its lending into other categories, including technology loans, short-term loans for family members, and longer-term housing loans.

Although its membership is almost exclusively female, mobilizing women to join was not initially a deliberate policy. Since 1985, it has specifically channelled credit to women, who are less empowered among the rural poor, to better alleviate poverty. Not only would credit help poor women acquire self-esteem, but their extra income would bring about better living conditions for other family members, especially children. While general loans have helped women to initiate income-earning activities, house-building loans have enabled women to become legal title-holders of their homesteads.

Institutional development and financial viability

The rapid expansion and high repayment performance of the Grameen Bank during the last decade was partly due to the able leadership of its founder and partly to its decentralized management structure. The organization, emphasizing learning and adaptability, is staffed by motivated workers who are trained extensively in its underlying norms and administrative processes and are compensated through a competitive incentive scheme.

In 1994, the Grameen Bank had a network of 1,045 branches staffed by 10,861 employees. In order to remain financially viable, the organization must bear the borrowing costs, training and salary costs, and institutional development costs. The grants received from donors for various central activities also influence its profitability or financial viability. The Grameen Bank recorded profits at the program level each year during 1986-91, incurred losses in 1992, and again reported profits in 1993 and 1994.

The situation is different for branches, which operate as independent profit-maximizing units, obtaining funds for on-lending from the head office at the market interest rate. Data for 118 branches in 1985-91 reveal that it takes about five years before a branch turns a profit. Since the head office determines both the on-lending and borrowing rates for branches, the profitability of a branch largely depends on its financial margin. However, econometric analysis suggests that staff and member training contributes to branch profitability, as does the granting of technology loans. Among local area characteristics, the presence of roads increases branch profits, while the presence of other commercial banks decreases profits.

The Grameen Bank's cost effectiveness is estimated using the cost efficiency criterion and by identifying the break-even interest rates. For the 118 branches surveyed, the break-even rate was about 13 percent in 1986-90, increasing to 21 percent in 1991 following a nationwide salary increase. The gap between the lending rate and the break-even rate explains the loss incurred at the branch level in 1992. Meanwhile, at the program level, the break-even rate varied between 17 and 23 percent over 1987-93, the highest being in 1991. Program-level rates are higher because expenditures for training, research and development, monitoring and evaluation, and institutional development are borne by the head office. The program as a whole required financial subsidy only in 1992, which was met to a large extent by grants and concessionary loans from various foreign and domestic sources.

In addition to the financial subsidy, the Grameen Bank receives economic subsidy in the form of inexpensive funds and grants from donor agencies. Given cost and revenue figures, subsidy dependence calculations revealed a monotonic increase in the subsidy dependence of the Grameen Bank during 1987-90. This declined over 1991-94, reflecting the lending rate increase from 16 to 20 percent, the reduction in administrative cost, and the overall expansion in membership and disbursement. However, the presence of subsidies (an average of 17 percent of loans outstanding per year) implies that, given the present cost structure and the amount of loans outstanding, the Grameen Bank has to increase its average on-lending rate to 20 percent, from 16.5 percent in 1994, in order to self-sustain its operation. Alternatively, the Grameen Bank could eliminate its subsidy dependence by increasing lending per borrower or increasing both membership and lending per member.

A cost function analysis of branch-level data found that the marginal cost of mobilizing and lending to a member is much lower than the additional revenue generated, implying that economies of scale are present in Grameen Bank operations. This suggests that the Grameen Bank can break even by expanding its membership and loan disbursements without further raising its on-lending rate. It is exploiting these economies of scale in the operation of its branches by raising its lending volume by almost 70 percent in recent years. Increasingly, the Grameen Bank is behaving like a commercial bank, relying more on market resources. It has also managed to reduce the administrative cost from 48 to 31 percent of its total cost. The Grameen Bank's experience suggests that it is possible to develop a profitable financial institution that exclusively works with the poor.

Borrower viability

In addition to the program's financial and institutional viability, its long-term sustainability hinges on the viability of its members. The benefits accruing to members and their financial performance are important indicators of the Grameen Bank's success in alleviating poverty. In addition to the analysis of household-level outcomes, borrower viability can be analyzed by examining the effect of program placement on rural wages. The results show that the Grameen Bank has had a significant positive effect on men's and children's wages.

The viability of its members and the extent to which Grameen Bank loans are constrained can also be measured by the annual dropout estimates, which increased from 3.5 percent in 1986 to 4.6 percent in 1994. In 1994 4.5 percent of the women and 6.4 percent of the men dropped out, compared to 4.2 percent of the women and 3.8 percent of the men in 1985. The branch-level data on dropout rates reflect the underlying costs and benefits of program participation with respect to area and branch characteristics. Branch age and the incentives given to branch managers are supply-side factors that significantly influence dropout rates. Among the demand-side factors, electrification increases branch dropout rates, while educational development reduces them.

Loan repayment performances are also indicators of borrower viability. At the national level, the Grameen Bank has been judged a success because of its low percentage of defaulters. Analysis of branch-level data for overdue loans suggests that local development indicators, such as roads, electrification, and educational infrastructure, and branch characteristics such as age and managers' incentives, influence loan repayment performance. Bad loans are, therefore, not an outcome of erratic behavior of certain borrowers; they depend partly on both demand- and supply-side factors determining the volume of lending.

A more direct measure of borrower viability would be the growth in their savings. Grameen Bank members' annual per capita savings have increased from Tk 647 in 1987 to Tk 1,293 in 1994. The low dropout rate, the high repayment rate, and the increase in savings suggest that the benefits from membership are enough to ensure borrowers' viability.

The Grameen Bank requires subsidies to provide other non-credit services and to further its institutional development. In 1993 it operated with about 12 percent subsidy (both economic and financial), but in 1994 this declined to 3.7 percent per taka loan outstanding. If this subsidy is treated as a net transfer to the rural poor, each taka transfer generated private savings of Tk 7 in 1994. Furthermore, the transfer may also lead to social gains by improving health, nutrition, and education. An in-depth analysis of household survey data confirms that the Grameen Bank's impact on poverty alleviation and other indicators of social welfare is indeed substantial.

Expansion and replicability

The Grameen Bank can expand if it becomes a sustainable financial institution. Overall, the program is able to operate without relying on subsidized funds for the near future. Given its performance in loan disbursement and savings mobilization with respect to its cost structure, Grameen Bank branches can expand membership and disbursement in order to be profitable. There is also ample room for expansion, given the socioeconomic environment in Bangladesh.

The Grameen Bank's success in providing credit to alleviate poverty has led to its replication in other countries. Its group-based organization can be applicable where an imperfect credit market prevents adequate screening, monitoring, and enforcement. However, the size and modalities of the group-based organization must be shaped according to the local sociopolitical factors surrounding poverty. The criteria for group membership and loan sizes and types will depend on local conditions. The disbursement and recovery processes must be designed for maximum cost effectiveness.

Generally, successful replication will depend on the staff's ability to learn, be innovative, and adhere to several basic principles of program design. A motivated and adaptable program staff is critical to the development of an institution. Yet more important is the availability of funds for on-lending and for program services. Even with available funds, the program must attempt to break even in order to attain financial viability. This is tied to the viability of borrowers, who must be financially and socially disciplined.

CHAPTER ONE

The development of rural credit institutions and the Grameen Bank

An inadequate supply of credit is an important constraint on production in many developing countries. Making credit available, particularly to the rural poor, is thus considered essential to alleviate poverty and promote economic development. Although informal credit markets operate widely in rural areas, moneylenders typically charge very high interest rates, inhibiting the rural poor from investing in productive income-increasing activities. Governments have been encouraged to respond by providing cheaper credit to the rural poor.

Many countries have introduced programs to develop rural credit institutions, aided by bilateral and multilateral donor agencies such as the World Bank and the United States Agency for International Development (USAID), without fully understanding the workings of rural credit markets. These interventions were undertaken because credit programs were easier to implement than other policies, such as land reform, and because they would benefit agriculture (Braverman and Guasch 1989). Evaluations of many credit programs sponsored by the World Bank and other agencies revealed that most financing institutions were unable to break even and that most of the credit supplied did not reach the intended beneficiaries (World Bank 1975). Often the net income transfers deriving from negative real interest rates or defaults accrued to wealthier rural households that had access to formal financial institutions and did not need cheaper credit. Subsidies, low recovery rates, and the erosion of portfolios due to low (often negative) real interest rates undermined the solvency and viability of many rural credit institutions (Hoff and Stiglitz 1990). Although financial liberalization policies have improved conditions in many countries, many credit institutions still depend on continued government support (Cho and Khatkate 1989).

Critics have argued that these rural credit programs failed because of the limited role of the interest rate and savings mobilization (Adams, Graham, and Von Pischke 1984). They also view credit as a process of intermediation rather than as a production input and consequently focus on improving this process through the market mechanism. However, neither financial intermediation nor higher interest rates will solve the problems of asymmetric information and imperfect enforcement that are endemic in developing countries (Hoff and Stiglitz 1990). Nor does better financial intermediation ensure that crucial groups, such as the rural poor and women, will be able to obtain formal credit or that they will be able

to overcome trade barriers and reduce production and consumption inefficiencies (Feder et al 1988; Rashid and Townsend 1992).

When market imperfections persist, lenders face the problem of managing the risk of loan default (Von Pischke 1992). They seek insurance against loan default by various means. For instance, to avoid selecting risky borrowers and projects, lenders seek information about the actions of borrowers and the characteristics of loan applicants. However, it is costly to determine the risk of default for each borrower (screening problem), ensure that borrowers take actions facilitating repayment (incentive problem), and enforce contracts (enforcement problem). These moral hazard problems, products of asymmetric information and imperfect enforcement, force the interest rate to act as a price and incentive screening mechanism. Thus, raising the interest rate does not resolve such problems (Stiglitz and Weiss 1981).

Small-scale producers lack access to formal credit because the transaction costs per unit of lending for small loans are much higher, small borrowers are considered riskier than large borrowers, and patronage and corruption in the lending institutions reduce the share of credit for small borrowers (Braverman and Guasch 1989). Furthermore, when formal lending is entirely dependent on physical collateral because lenders perceive credit risk to be inversely related to asset ownership, the poor and women are left out of the formal credit system.

The failure of formal institutions to serve the rural poor led to the evolution of alternative systems of rural financial intermediation, such as credit cooperatives and lending groups (Huppi and Feder 1990; Holt and Ribe 1991). These group-based credit systems addressed the problems of screening, incentives, and enforcement by incorporating joint liability and monitoring. It was then expected that the risk of default and transaction costs would be reduced. In practice, however, several countries, including Egypt, India, Kenya and Venezuela, have had problems with credit cooperatives and group-based lending. On the other hand, this approach has been successful in Bangladesh, Cameroon, Malaysia, and the Republic of Korea due to better incentive, control, and monitoring systems (Von Pischke, Adams, and Donalds 1983; Yaron 1992).

Few studies have systematically identified the sources of the successes or failures of various programs.[1] Several studies have examined some aspects of the performance, coverage, and impact of selected credit programs (Hossain 1988; Holt and Ribe 1991). Others have examined the subsidy issue in the context of the financial viability of selected credit programs (Gonzalez-Vega and Chavez 1993; Yaron 1992). However, none of these studies comprehensively analyzed the short-term effects and long-term development concerns related to the sustainability of both the lending institutions and the borrowers.

This report is based on the experience of the Grameen Bank of Bangladesh, which in 1994 had over 2 million members and 1,045 branches. In addition to its rapid expansion in Bangladesh, the Grameen Bank model is being replicated in a number of countries. Although the Grameen Bank has been the focus of many studies, very few have analyzed the sustainability of Grameen Bank as both a development finance institution and a program to alleviate poverty.[2] For the most part, they were narrow in scope and lacked methodological rigor in analyzing the costs and benefits of the credit programs. There have been several internal reviews and reports on the Grameen Bank, but most have been evaluations and future projections of the program's organization and financial performance. Another publication (Wahid 1991) compiled wide-ranging papers on the Grameen Bank, but its analyses were not consistent.

The purpose of this study is to understand what the Grameen Bank is, what it does, whom it serves, how and at what cost, and whether it is sustainable. The analysis is based on Grameen Bank data, collected from its aggregate-level records and from a selected sample of branches. The aggregate program-level data spans the 1985-94 period. The panel data from 118 branches for 1985-91 was complemented by yearly thana-level data on rainfall, roads, electrification, schools, and some time-invariant characteristics, such as agroclimate and locational factors. These branch- and program-level data are used to determine whether the Grameen Bank is sustainable in its dual role as a source of credit for the rural poor and as a program for poverty alleviation.

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[1] Several theoretical papers (for example, Stiglitz 1993; Varian 1990) have used the principal-agent framework to explain how peer pressure among the groups makes the Grameen Bank-type group-based lending successful. Our focus is not on theory but on empirical issues such as program impacts and sustainability.

[2] A number of studies have documented the Grameen Bank model as a program of financial intermediation with the objective of poverty alleviation. The study by Hossain (1988) is the authoritative one to date. However, this study is also incomplete as it does not address the causal impact of credit or program intervention on poverty alleviation, nor does it rigorously analyze the issue of the Grameen Bank's sustainability.

Although the household-level impacts of the Grameen Bank are analyzed separately using household-survey data, these impact studies are not covered in this paper. This paper does, however, examine some macro-level effects, such as the Grameen Bank's impact on rural wages. The data on wages and other relevant variables were collected in three rounds from 87 villages during 1991-92. This village-level data has been used to document the Bank's impact on rural poverty. The key finding of this study is that it is possible to reduce poverty through sustainable financial intermediation.

The Grameen Bank lends to the rural poor in a credit market characterized by incomplete information about borrowers and imperfect contract enforcement. Recent developments in the rural credit market literature have identified two stylized facts that are important determinants of the viability of a rural financial institution. First, unless innovative policy interventions are introduced to combat market imperfections, rural financial institutions may not succeed. The process of development is itself unlikely to resolve market imperfections (Stiglitz 1993). Second, unless the survival concerns of borrowers are integrated into the credit delivery design, commercial and development banks will not be viable because the survival of both lenders and borrowers hinges on the same production risks that characterize rural areas (Binswanger and Rosenzweig 1986).

The second chapter discusses the program design the Grameen Bank has adopted to overcome the problems of market imperfections and to ensure the mutual viability of the borrowers and the lender. Unlike its formal counterparts, such as commercial banks and development finance institutions, the Grameen Bank has explicitly targeted the poor. In doing so, it replaces the conventional requirement of physical collateral with a form of group responsibility, where group performance determines continued access to credit. Like informal lenders, the Grameen Bank closely monitors its borrowers. However, bank members primarily bear this responsibility themselves.

Savings mobilization has also been an integral part of Grameen Bank operations. Unlike other lenders, its explicit objective is to alleviate poverty. But since the rural poor generally lack both financial and social discipline, the Grameen Bank has provided social development inputs to improve individual and social accountability. It has deliberately targeted credit and social services more toward women rather than men, because women are relatively poorer due to restrictions on their mobility and on their employment outside the home.

Providing both credit and social development inputs to the poor is a high-cost activity. As such, the Grameen Bank has required grants and subsidized funds for its institutional development and expansion. Chapter Three reviews the role of international and domestic sources in providing grants and subsidized funds. It also describes how its determined leadership, aided by donors, expanded the Grameen Bank to serve almost half of Bangladesh's villages within less than a decade. By 1994, the Grameen Bank had mobilized more than 2.0 million members and had disbursed Tk 44,639.7 million (or US$ 1115.9 million). In the same year, it recorded loans outstanding of US$ 281 million and mobilized US$ 306 million as savings and deposits. The chapter also discusses the evolution of the Grameen Bank's portfolio mix and its provision of social development inputs.

Chapter Four analyzes the sustainability of the Grameen Bank. The issue of sustainability is related to institutional viability, financial viability, and the viability of the program participants. *Institutional viability* refers to the program's ability to deliver services on a sustained basis. *Financial viability* means that the program can match the cost per dollar lent with the price it charges for lending to its borrowers. *Borrowers are viable* when the benefits from projects funded by the program meet the cost of borrowing and when the borrowers have an incentive to repay their loans. All three aspects of sustainability are interrelated and essential to promoting stability. This chapter describes various measures of program sustainability and concludes with a discussion of how subsidy and subsidy dependence can be calculated.

Chapter Five focuses on the Grameen Bank's institutional development. It has been led by its founder, Dr. Muhammad Yunus, since its inception as a research project in 1976 and as a bank in 1983. In addition to his leadership, a decentralized system of administration has been instrumental in its growth and institutional development. This chapter discusses the determinants of the pay structure and the incentives this structure provides for the staff. It also examines whether Grameen Bank program placement is influenced by unchanging area and agroclimate characteristics which determine the nature and extent of production risk. Since financial institutions that aim to maximize profit always attempt to avoid a risky environment (Binswanger and Rosenzweig 1986), the response pattern of the Grameen Bank with respect to other commercial banks and development financial institutions may reveal its underlying objectives. The results may have important implications for the Grameen Bank's institutional viability.

Chapter Six presents estimates of financial viability and subsidy for the Grameen Bank. Financial subsidy is required if the program's revenues cannot cover its costs. Both branch- and program- level data are used to calculate the break-even interest rates, defined as the rates at which revenue equals or exceeds the cost per unit of principal lent. Since the cost structures of the national-level program and branches differ, the break-even interest rates are expected to differ. Calculating the Grameen Bank's profits reveals that the program as a whole earned profits during the 1986-91 period and thus did not require any financial subsidy. As a result of staff salary increases of more than 25 percent in 1991, it recorded losses in 1992, but since then has recorded profits.

Until recently, most of the on-lending funds utilized by the Grameen Bank were subsidized, since these were either grants or inexpensive funds, borrowed at lower than market interest rates. As such, the program enjoyed economic subsidy, which amounts to the difference between the actual and the opportunity cost of these funds, evaluated at the market interest rate. However, there is no single market interest rate applicable to calculating the opportunity cost, since it varies depending on the nature of the portfolio. In this report, the market rate is defined as the rate on long-term maturity loans, such as funds deposited for more than thirty-six months. Our estimates suggest that the average subsidy (both economic and financial) for lending has drastically fallen from 23 percent in 1987 to 12 percent in 1993 and about 4 percent in 1994.

An analysis of the Grameen Bank's branch-level cost function reveals that significant economies of scale exist in its branch-level operations. This suggests that it can eliminate the need for subsidy by expanding both loan disbursement and membership. In fact, recent data show that the Grameen Bank is taking advantage of economies of scale and is thus moving in the right direction.

Chapter Seven examines the viability of Grameen Bank borrowers. Borrower viability indicates the extent of potential market constraints on the Grameen Bank's expansion. It can be measured as the member dropout rate, the borrower repayment rate, or the impact on borrowers' income and receipt of other benefits. Although household survey data are necessary to accurately measure the viability of borrowers, program- and branch-level data were used to calculate the members' dropout and repayment rates, while the village-level aggregate wage data were used to quantify the Grameen Bank's impact on rural poverty. About 5 percent of Bank members dropped out in 1994, while the average loan repayment rate for the same year was 99 percent, according to the Bank's own estimates. The low dropout rate and

high recovery rate indicate that its members have attained a high degree of viability. At the same time, the village-level impact study suggests that the Grameen Bank has had a sustainable impact on rural wages, indicating that it has been successful in tackling poverty in the rural areas of Bangladesh.

Chapter Eight presents the conclusions of the report and discusses new policy directions and the possibility of replicating the Grameen Bank in other countries. With the support of the government, the Grameen Bank model has been successfully replicated in, for example, Malaysia. The program is also being replicated in several other countries (Appendix C). However, in the absence of a thorough analysis of these efforts over time, it is too early to conclude that the Grameen Bank model is generally replicable.

However, in principle, a number of the Grameen Bank's innovative features (for example, group-based lending) can be replicated in countries where the credit market is subject to similar imperfections. Moreover, if social and individual accountability are important both for loan use and repayment, Grameen-type social intermediation may be essential for the successful implementation of any group-based credit delivery model. Given that poverty varies with agroclimate, culture and other socioeconomic factors, the Grameen Bank model must be customized according to the perceived constraints of specific environments.

This chapter also discusses the constraints on expanding the Grameen Bank in Bangladesh. Expansion is both feasible and profitable for its long-run viability.

CHAPTER TWO

What is the Grameen Bank?

The Grameen Bank is a rural bank in Bangladesh that provides credit to the rural poor, particularly women, who own less than half an acre of land or whose assets do not exceed the value of one acre of land. Unlike traditional commercial bank loans, Grameen Bank loans need not be secured by collateral. This serves the landless in Bangladesh who are left out of the conventional banking system.

Dr. Muhammad Yunus, an economics professor, started the Grameen Bank in 1976 as a research project. He held that rural people, owning too little land to support themselves as farmers, could nevertheless make productive use of small loans borrowed without collateral, and would repay loans on time. Lack of access to credit was perceived as the biggest constraint for the rural poor. The Grameen Bank believes that with the appropriate support, the poor can be productively employed in income-generating activities, including processing and manufacturing, transportation, storing and marketing agricultural produce and raising livestock.

The Grameen Bank also maintains that if the rural poor are provided credit on reasonable terms, they can judge for themselves how best to increase their incomes and need only those inputs that they can purchase themselves. Based on these notions, the Grameen Bank creates the social and financial conditions enabling poor men and women to receive credit by identifying for themselves a source of self-employment and by agreeing to guarantee and monitor others in their self-selected group.

The Grameen Bank ultimately aims to improve the well-being of the poor. In addition to financial intermediation, it conducts social intermediation to make the poor both socially and individually accountable. Such accountability leads to more effective use of loans and consequently ensures loan recovery. The Grameen Bank, unlike commercial banks or development financial institutions, addresses the survival concerns of both the borrowers and the lender. Although these concerns may seem to conflict,[3] the Grameen Bank has developed a credit delivery model augmented by a social development

[3] For various reasons, the survival concerns of borrowers may not match those of the lenders. Lenders are concerned with loan repayment and how much can be recovered if the borrowers default. On the other hand, borrowers are concerned with how much they can make beyond the amount of the loan, which does not interest lenders. This misalignment of interests is the moral hazard problem of lending. For more discussion, see Stiglitz and Weiss (1981).

program to attain these dual objectives. This chapter discusses the principles underlying the Grameen Bank's role as an institution for financial intermediation and poverty alleviation, and then assesses how well this unique model works.

The credit delivery model

The Grameen Bank has integrated group organization with credit delivery to assist the rural poor. Individuals take the first step in the banking process by organizing themselves into groups of five. Men and women form separate groups in accordance with the sociocultural norms of rural Bangladesh. Membership in a particular group is strictly limited to people who do not own more than half an acre of land, are not members of the same household, have similar economic resources and, therefore, equal bargaining strength, enjoy mutual trust and confidence, and live in the same village. Past experience suggests that the spatial and social cohesiveness developed among individuals of the same gender, residing in the same village, and having similar economic backgrounds were important factors in the smooth functioning of these groups.

Each group elects a chairperson, who is responsible for the discipline of group members, and a secretary. Both hold office for one year. Each group member must have a chance to be elected before office-holders can be reelected. Members have weekly meetings where they practice, learn and discuss the rules of the Grameen Bank and other group activities.

Two to three weeks after the formation of groups, during which all group members make small savings deposits (Tk 1 per week) and are trained by Grameen Bank employees, credit is issued to individual group members if they conform to the discipline of the Grameen Bank. Initially, two members of a group are given credit and observed for one or two months. If they pay their weekly installments and maintain group discipline, new loans are given to the next two members. The group leader is customarily the last to receive credit. Grameen Bank loans are small (about Tk 2,000 - 5,000 with an upper limit of Tk 10,000) and must be repaid in equal weekly installments over one year. If any member defaults, the whole group becomes ineligible to receive additional loans from the Grameen Bank. This rule compels group members to pressure one another to keep up with regular payments. Thus, although credit is given to an individual member, the group is ultimately responsible for repaying loans, as well as for maintaining financial and social discipline.

The loans are provided for activities identified and selected by each member, and members are expected to guide one another. Selections are discussed at group meetings and at meetings of centers, typically composed of five to eight groups and led by an elected center chairperson and secretary. Each center is assisted by a Grameen Bank employee, who visits several on a weekly basis. The group chooses meeting discussions and transactions by consensus, and every member is required to attend all group and center meetings. The chairpersons conduct center meetings and enforce members' attendance, weekly payments, and discipline. Each center chief holds office for one year and a new chief is elected every year. If a center chief does not behave properly, he or she can be replaced by a new chief. Center chiefs and group chairpersons jointly monitor loan utilization on a daily basis. These elected officeholders are not given any remuneration for organizing the group and center activities. Loan use is also monitored at the outset by Grameen Bank staff, which has improved borrower performance. Any irregularity is reported at the center meeting, where group performances are discussed with a Grameen Bank employee in attendance.

A unique feature of the Grameen Bank is the transparency of its credit transactions: all are openly conducted at the center meetings. The virtue of these open procedures is that they mitigate problems or "entrenchment of vested interests and constellations of power" as well as deterring individuals from taking anti-group actions (Fuglesang and Chandler 1988). This peer monitoring mechanism works both within the group and at the center, eliminating the danger of group collusion when the groups are self-selected.

The Grameen Bank, unlike many other development financial institutions, considers savings mobilization to be an integral part of lending. Each member is required to save at least 1 taka every week, which is deposited at the weekly meeting. In addition, each borrower is required to contribute 5 percent of their borrowed amount to the "group fund". The group fund is self-managed and can be used for mutually agreed upon purposes. A borrower is also required to contribute 25 percent of the total interest due on the principal to the "emergency fund".[4] The Grameen Bank manages this fund for use as insurance against potential default due to death, disability, or other misfortune. This fund is also used to provide life and accident insurance to all group members, to repay bad debts, and to undertake activities that will improve group members' health, skills, education and investment opportunities (Yunus

[4] This requirement has been changed since July 1, 1991. Currently there is no emergency fund contribution for any loan up to Tk 1,000, but for large loan amounts a contribution of Tk 5 per 1,000 is levied.

1983). In addition to mandatory saving, each member can purchase a Grameen Bank equity share worth Tk 100. Members thus have a stake in Grameen Bank operations, because they own its shares and because they will lose valuable access to a reliable source of credit and lose face among their peers if they default.

Conceived of as a vehicle to bring banking facilities to the people rather than force the people to come to the bank, the Grameen Bank's lending procedures consist sequentially of group formation, training, loan application and approval, disbursement, supervision, and repayment. The system encourages local monitoring and enforcement among members.

The social development program

Early on, the Grameen Bank leadership realized that in addition to high recovery rates and financial viability, borrowers must receive social benefits. To that end, the Grameen Bank developed a comprehensive social development program, outlined by the "sixteen decisions," in order to promote social and financial discipline among the rural poor (Appendix A). These decisions are guidelines for some activities and codes of conduct that members are encouraged to adopt. For example, the members are encouraged to plant trees, grow kitchen gardens, and build houses and sanitary latrines, which are also intended to address environmental concerns.

The Grameen Bank has deliberately targeted women, realizing that their participation in social development is necessary for economic development because of their primary role in providing health, education, and nutrition. Historically, women have been neglected by development projects, removing them from the growth and development process. Because women are poorer than men, the Grameen Bank actively promotes their membership out of concern for equity. Moreover, over time Grameen Bank has observed that women are better credit risks than men and are more eager to properly use bank loans.

The Bank's social development program also includes a comprehensive training program in maternal health, nutrition and child care. As a result of this training, demand for basic services has increased and the nutritional status of participating women and their children has improved (Quanine 1989). The social development program encourages borrowers to establish schools to tutor and prepare their children to enter the mainstream schooling system and to serve as day-care centers when members

are engaged in business activities. The social development program also supplies tree seedlings and seeds for kitchen gardens in order to improve both living conditions and the environment.

The Grameen Bank's approach to poverty alleviation

The Grameen Bank has initiated a credit-based poverty alleviation program for the rural poor, who largely depend on their own labor as a means of support. In the past, a large number of experimental projects were implemented in Bangladesh in an attempt to find a viable antipoverty scheme. It is, therefore, important to examine how the Grameen Bank approach originated and where this model falls in the spectrum of poverty alleviation schemes.

Bangladesh is a predominantly rural economy whose labor force grows by 2.4 percent annually but whose agriculture, industry and service sectors can accommodate an annual growth rate of only 1.7 percent. Since the agricultural sector supplies 78 percent of rural employment and is unable to absorb additional labor, increasing the productivity of the poor through self-employment and human capital development may be the only available way to alleviate poverty.

In the 1960s, policymakers promoted growth-oriented development policies. Issues of distribution in poverty alleviation were considered peripheral, as it was thought that the trickle-down effect would resolve these problems. The basic thrust of this growth strategy was the development of capital-intensive industry and implementation of Green Revolution technology. The latter required supplying subsidized credit and inputs, such as fertilizer, high-yield seeds, and pesticides. Proponents of the Green Revolution believed that an increase in agricultural production would reduce poverty by creating new demand and employment opportunities.

A prominent example was the Integrated Rural Development Program, based on the Comilla pilot project, introduced through two-tier cooperatives to help promote the Green Revolution. However, the rural elite accrued most of the benefits from subsidized inputs and credit delivery and dominated the cooperatives. Such an agricultural growth-based strategy failed to make the rural poor productive and

self-supporting, since the subsidized inputs encouraged capital-intensive methods of agricultural production and discouraged demand-induced growth.[5]

During the 1970s, a target group approach to poverty alleviation (not based on credit) evolved when policymakers realized that the homogenous community-based approach had bypassed the poor and benefitted only the rich and powerful. In the aftermath of war and natural disasters, the government introduced many relief-oriented schemes, such as the Food for Work Program, the Rural Works Program, and the Vulnerable Group Development Program, which later evolved into more direct anti-poverty programs. Some targeted programs, such as the Food for Work Program and the Rural Works Program, were introduced to provide basic necessities through transfers or employment for cash or in-kind income. However, the development of sustainable income generation and employment activities for the rural poor was limited because of their temporary and seasonal nature. For example, the Rural Works Program created rural infrastructure that should have had secondary effects on income generation and employment in the rural areas. However, the infrastructure, such as roads, that are built with these transfers are often washed away by floods or become useless due to poor maintenance. Any generated benefits have accrued largely to the landed households that had the necessary productive means to utilize these facilities.

A similar non-credit targeted approach was introduced by a number of NGOs, notably the Bangladesh Rural Advancement Committee (BRAC), with help from international donor agencies. Their purpose was to reduce poverty by providing needed goods and services to the poor. They soon realized, however, that poverty had to be confronted on a sustained basis and that services such as adult literacy, skill training, and primary health care were not enough to sustain poverty reduction among the rural poor (Hotsberg 1990).

Of the wide range of activities undertaken by the NGOs to alleviate poverty through transfers as well as income generation, supplying credit to the rural poor was found to be quite significant. The experiences of different organizations led NGOs and the government to reconsider their development

[5] Similarly, the government provision of institutional credit through financial intermediaries largely benefitted the landed elite. A rural credit survey indicates that land and other immovable property are the dominant form of collateral (74 percent) in the credit transactions of the financial institutions in Bangladesh (BBS 1989). Thus, insufficient mortgaged land (33 percent) followed by high transaction costs (26 percent) were reported to be the main reasons why poor households did not apply for bank loans. The failure of subsidized credit to alleviate poverty, for example, is largely because it was designed to create conditions for the alleviation of poverty, but not to directly address the income and employment of the poor. Further, evidence suggests that the provision of such credit through formal financial institutions undermined their viability.

strategies and subsequently to shift toward a target group approach focusing on providing credit and other inputs to the poorest 50 percent of the population. There is a strong belief that making credit available to the poor is a more sustainable means of generating income and employment and reducing poverty than a targeted non-credit program such as the Food for Works Programs (Hotsberg 1990)

The Grameen Bank evolved from a model that targeted the poor, incorporating the notion that the poor, like the rich, must have access to formal credit (Yunus 1983). Although the Bank's initial plan was to alleviate poverty through credit, it soon realized that credit alone was not enough. The poor lacked social and financial discipline, so the Grameen Bank began providing social development inputs to help the poor become more productive.

The Grameen Bank differs from other NGOs in its approach to poverty alleviation: it believes that the most immediate need of the poor is credit to create self-employment opportunities. Unlike some NGOs, such as the Bangladesh Rural Advancement Committee, which provide skill training and other organizational inputs before distributing credit, the Grameen Bank disburses credit before providing these inputs. Another notable difference is that the Grameen Bank has deliberately targeted poor women more than poor men.

Although the sequencing may vary between the Grameen Bank and other NGO or government programs, credit provision and organization of target groups are recognized as the crucial links to sustained poverty alleviation. A credit-based poverty alleviation program has enormous potential in rural Bangladesh, since the rural poor harbor a large unmet demand for institutional credit. Transactions with formal lending agencies, including the Grameen Bank, comprise only about 28 percent of the total credit transactions in the rural market. Informal sources, such as professional moneylenders and relatives, still provide about 72 percent of the credit used by the rural population (BBS 1989). More strikingly, the volume of credit formal institutions provide the poor is even lower: the Grameen Bank supplies only 2.5 percent, and together with other agencies only 8 percent, of the credit used by the poor (Hossain 1988).[6]

[6] The need for formal credit is justified in that credit from informal sources with high rates of interest is not worthwhile for longer-term investment. However, for emergency and consumption-smoothing purposes, informal sources may still be the only source available for short-term loans on short notice.

The Grameen Bank's approach to poverty alleviation may be an effective tool for rural poverty reduction, since it supplies credit to improve the physical productive capacities of the poor and human development inputs to improve their overall productive capacities. Although preliminary data analysis shows that the Grameen Bank reduces poverty (see, for example, Hossain 1988), whether it does so on a sustained basis is a proposition that needs to be rigorously tested.

The Grameen Bank's approach to financial intermediation

The Grameen Bank seeks to promote social and economic development through financial intermediation. Providing credit to the poor, however, must not come at the expense of financial viability. Unlike many other financial institutions, the Grameen Bank's credit delivery model is designed to ensure its viability.

As mentioned in the first chapter, imperfections characterizing rural markets emanate from the asymmetric information and imperfect enforcement which undermine the development of a viable rural credit system. Moreover, both lenders and borrowers face the same production risk, although lenders face the additional risk of loan default which may be independent of the production risk. A successful lender must confront these risks as well as market imperfections. The success of a lending institution depends on how effectively it manages such risks (Von Pischke 1992).

The Grameen Bank has incorporated innovative features to tackle both market imperfections and production and other risks. Its greater success over counterpart development financial institutions and commercial banks suggests that it is possible to develop a viable financial system in a rural credit market. The recovery rate for commercial banks in Bangladesh has reportedly been 5 percent; however, when the amount recovered after the due date is accounted for in the calculation of the recovery rate, it is about 45 percent. This is much lower than the Grameen Bank's recovery rate, which has been recorded as more than 90 percent.

The Grameen Bank's emphasis on lending to groups of people with similar backgrounds and bargaining power is one of its defenses against the problems arising from asymmetric information and imperfect enforcement. In an imperfect world where information is costly to collect, group lending enables the Bank to circumvent potential adverse selection problems. This approach helps to develop effective communication between borrowers and Bank staff and makes borrowers' activities transparent.

Group lending relies on peer pressure to monitor and enforce contracts, provide an incentive for the borrowers to repay, and help screen good borrowers from bad borrowers. All of these tasks would be difficult to accomplish otherwise.

The Grameen Bank's savings mobilization scheme, on the other hand, is designed to address production and other risks as well as market imperfections. The deposits made in "group funds" provide additional much-needed loanable funds for the poor. This type of savings fosters financial discipline and helps borrowers smooth out consumption if they incur income losses due to production failure. An "emergency funds" scheme provides insurance against disaster for both lender and borrowers where the market for insurance is incomplete or absent.

The Grameen Bank allows members to buy shares with part of their savings, giving borrowers a stake in the Bank's financial performance. The proportion of its equity held by members has gradually increased over the years since its incorporation, when the government was its sole shareholder. The members' share of equity has increased from 55 percent of the paid-up capital in 1987 to nearly 80 percent in 1991. This involvement increases the incentive of borrowers to repay their loans as well as to continue saving with the Bank. This, in turn, contributes to the institution's viability.

The Grameen Bank has responded to its borrowers' needs, providing increased services and facilities as required. For example, house-building loans offered at lower interest rates with higher ceilings and longer repayment periods have enabled many rural households to improve their housing situation. In particular, such loans have enabled many women to own houses, assuming they hold title to the dwelling area, previously unthinkable in rural Bangladesh. Similarly, when natural calamities have struck, such as cyclones and floods, the Grameen Bank has undertaken special relief programs to reduce the hardship for its members. These have included a temporary freeze and rescheduling of loan repayments as well as establishment of new credit lines.

Given its increasing resource base and its members' demand for other types of credit, the Grameen Bank has recently expanded its portfolio to include short-term loans. These loans, also screened and monitored by the self-selected groups, include family loans, which enable other members of the households to undertake income-earning activities, and short-term loans (repayable in less than a year), which can be used for almost any activity, including speculative trading.

In keeping with the overall objective of social development, as embodied in the sixteen decisions, the Grameen Bank has undertaken various tasks to improve the welfare of its members and their families. In addition to emphasizing household activities, schools have been opened at the centers to tutor members' children and training is provided to female members to improve their families' health and nutrition. The Bank's efforts to prohibit dowries in marriage is a social intervention that can promote both social and economic development. The Bank has realized that, if this custom continues, credit provided to the poor would be used to pay for dowries and wasteful marriage ceremonies instead of increasing borrower viability. Although these programs are designed to promote social development, they also enhance the financial viability of the bank, as its existence and sustainability depends on a productive clientele.

Similarly, the emphasis on female membership will have a long-term impact on economic development. Women were previously considered high-risk borrowers due to childbearing and other associated health hazards. However, the Grameen Bank has proven that women are better credit risks than men, since loan recovery rates have been higher for women than for men. In 1992 the recovery rate for general loans was 97 percent for women, compared to 89 percent for men.

Targeting credit

To address the twin problems of asymmetric information and imperfect enforcement in rural credit markets, credit-providing institutions target clientele in order to reduce the risk of default. Traditional moneylenders target clientele from their neighborhoods or select borrowers based on patron-client relationships (through employment or other transactions), having near-perfect information on the activities of potential borrowers. On the other hand, commercial banks or other development finance institutions lend, by government mandate, on the basis of asset ownership to avoid adverse selection of borrowers. In order to reduce transaction costs and default risks, formal lenders target a clientele that is able to provide collateral often worth two to three times more than the loan itself. Such a collateral-based targeting scheme has been standard policy in many developing countries, based on the notion that credit risk and transaction costs relative to transaction size are inversely related to individual asset ownership.

On the other hand, the Grameen Bank targets the landless, low-income strata of the rural population that are willing to bear the costs of group formation and training and monitor each other's

activities. Since these people often lack alternative sources of credit at low rates of interest, the Grameen Bank has created a market niche or franchise (Von Pischke 1992).

As such, the Grameen Bank is no different from any formal or informal lender who provides credit in an imperfect market. For the latter, targeting is implicit, while for the Grameen Bank, it is explicit. Informal moneylenders usually bear the full costs of monitoring and screening and thus charge high interest rates. Since informal lenders are part of the community, they often use the community network or other personal contacts to retrieve the loan if a borrower defaults. On the other hand, formal lenders are not part of the community and thus find it difficult to screen out bad debt. Moreover, because the legal system is not effective in enforcing loan contracts, formal lenders cannot enforce them even if they require land and other assets as collateral from borrowers.

By contrast, the Grameen Bank has utilized self-selected groups to monitor the activities of borrowers, encourage them to repay loans and enforce contracts. Unlike other lenders, it has introduced borrowers' active and direct participation in the lending process. Thus it has a better incentive and enforcement mechanism to deal with the problems of asymmetric information and imperfect enforcement.

Given the design of the Grameen Bank's credit delivery model, the self-selection process may render explicit targeting unnecessary to create its franchised credit market. In other words, even if there were no membership requirement of owning less than half of an acre of land, the impact may not have been different from what is currently observed. If the Grameen Bank did not restrict membership, it is likely that a large number of members would have soon dropped out because of the higher transaction costs of borrowing from it. A high dropout rate would, however, cause the Grameen Bank to incur a large overhead cost for membership growth. Whether the Bank can afford to withdraw its explicit targeting criterion and absorb high membership costs, or to extend membership to small- and medium-size farmers, depends on its cost structure, its source of funding, and the entrepreneurial ability of its borrowers.

The implicit targeting of women is another important aspect of the Grameen's targeting mechanism. Although the Bank claims that its targeting of women is an equity-motivated scheme, this action by itself cannot be an effective tool for poverty alleviation if group members have unequal bargaining power. When members' active participation in the lending process becomes an important

constraint on lending, unequal bargaining power promotes only the vested interests, undermining the viability of the groups as well as the bank as a whole. Therefore, targeting people by approximate equality of bargaining power, not by gender, is crucial for successful group lending. If landholding or other asset holding is a proxy for bargaining power, targeting by landholding may be a cost-effective way of alleviating poverty through sustainable financial intermediation. Testing this proposition requires a rigorous analysis of the Grameen Bank's performance as a financial institution and as a program for poverty reduction.

CHAPTER THREE

Funding, organization, and beneficiaries

The Grameen Bank's objective in providing credit and other services to the rural poor is to enable them to improve their income and employment status through entrepreneurial activities. As such, it helps them, especially women, enhance their asset entitlement, economic power and social status. It also strives to build socioeconomic infrastructure and instill financial discipline in the poor, as well as increase its own financial strength.

In its drive to attain these objectives, the Bank has grown into an organization of over 10,800 employees working at 1,045 branches covering more than 30,000 villages in rural Bangladesh. It has been successful in obtaining subsidized funds from a number of donors that have helped it build its organizational structure.

This chapter describes the Grameen Bank's sources of funding in its development. It also discusses the expansion of the organization, its activities and products, and the gender composition of its membership. The findings indicate that the Grameen Bank has expanded rapidly during the twelve years of its existence, extending its services primarily to poor rural women. The number of operating branches has grown rapidly, leading to increases in the number of employees, although this trend was reversed during 1991-93. Ninety-four percent of Grameen Bank members are women, who receive more than 90 percent of the total cumulative loans disbursed and contribute 74 percent of the total members' savings mobilized by the Grameen Bank.

Financing Grameen Bank operations: sources of funds

The Grameen Bank, since its establishment as a financial institution by government ordinance in 1983, has financed its activities with funds obtained at concessionary rates from external and domestic sources, including the central bank of Bangladesh. Donors provide most of these resources as grants and low-interest loans (Table 3.1).

Initially, the International Fund for Agricultural Development (IFAD) provided most of these funds at a 3 percent interest rate; funds available from this external source were Tk 180.1 million in 1985

and Tk 1,352.6 million in 1993. Bangladesh Bank, the country's central bank, also provided matching funds at 3 percent interest. The Grameen Bank received Tk 206.6 million from Bangladesh Bank in 1985, but the annual funds received decreased during 1986-88, only to increase to an average of Tk 183.4 million over 1989-91. In 1993-94, the Bank borrowed Tk 3,500 million at interest rates of between 5.5 and 6.5 percent from Bangladesh Bank.

In the early years, funds were borrowed from commercial banks in Bangladesh at the market interest rate; in 1985-88, the Grameen Bank borrowed over Tk 43 million from these banks. Given its access to grants and cheap funds from official sources both foreign and domestic, it did not have to use borrowed funds from the commercial banks again until 1992, when it borrowed Tk 3.1 million. Then, in 1994, the Bank borrowed Tk 3,250 million (or 46 percent of its resources) from the commercial banks.

By the mid-1980s, donor agencies from other countries, including Norway, the Netherlands, Sweden and the United States, also became important financiers of the Grameen Bank. In 1989, NORAD, the Norwegian agency, provided Tk 267.9 million, the Netherlands gave Tk 44.3 million and SIDA, the Swedish agency, provided Tk 238.8 million, along with the Ford Foundation which gave Tk 66.37 million annually. As of December 1993, foreign sources had contributed 58.1 percent of total Grameen Bank resources and Tk 2,886.3 million or 34.5 percent of total funds were provided in the form of grants (for revenue and on-lending). In 1994, foreign sources provided only 3.7 percent of the Bank's resources.

Such inexpensive funding has been a key instrument of the Grameen Bank's phenomenal expansion in terms of organization, coverage, and lending. The availability of such grants and concessionary funds enabled the Bank to expand its credit operations extensively as well as initiate institutional and infrastructure development. Before we discuss the growth of the Grameen Bank as an organization, a brief review of its organizational structure is required to understand how it has evolved.

Administrative structure and organizational growth

The Grameen Bank has four administrative tiers, each with a distinct set of functions: the head office, the zonal office, the area office and the branch. The zonal and area offices together are referred to as the regional offices.

The head office, located in Dhaka, is the central unit of the Grameen Bank. It is led by a managing director, assisted by a deputy managing director, a general manager, and over 400 other staff members. The field offices, consisting of branch, area, and zonal offices, are independent of the head office. An important feature of this management structure is the high level of autonomy granted to the field units. The zonal office is a mini-head office which makes all administrative decisions except major disciplinary actions against any staff. By contrast, the head office is more involved in providing training and raising loanable funds and grants from external sources.

The branch is the field-level office which has the most contact with members; as such, it is the most important unit in its operation. A typical branch supervises fifty to sixty centers, located in villages within walking distance of a branch, an area of no more than 30 square miles. The branch is considered the basic profit-making unit of Grameen Bank operations; an average branch has about ten employees, consisting of one branch manager, one senior assistant, seven bank employees and one peon-cum-guard. At the branch level, groups are formed and trained and proposals for loans made, although it does not have the authority to lend. Given the predominant role of branches in the operations and management structure of the Grameen Bank, they also have the highest proportion of employees.

About ten to fifteen branches are supervised by an area office typically staffed by six persons, including one area manager, one program officer, one senior assistant, one typist, one driver, and one peon-cum-guard. The area office approves loans based on the recommendation of the branch manager. Five to ten area offices form a zonal office staffed by about thirty-five employees. These offices are headed by a zonal manager who oversees two principal officers, fifteen senior officers, five officers, and twelve other employees.

Since its inception in 1983, the Grameen Bank has grown remarkably in terms of the expansion of its branches, centers, and membership. By 1994, 1,045 Grameen Bank branches served 34,913 villages, that is, more than half of all villages in Bangladesh (Table 3.2). The number of branches expanded by over 360 percent and the centers by 730 percent between 1985 and 1994. However, the annual growth rate in the number of branches has declined from 30.5 percent in 1986 to 2.5 percent in 1993 and 0.48 percent in 1994. Likewise, the centers' annual growth rate was 42.6 percent in 1986, 20.2 percent in 1992, 12.2 percent in 1993, and 3.9 percent in 1994. The expansion in the number of groups

had been stable, growing by 36.6 percent in 1986, 33.6 percent in 1992 and 30.7 percent in 1993, but declined to 10.7 percent in 1994.

Employee expansion

With the rapid expansion of its operations, the number of Grameen Bank employees increased from 2,777 to 10,531 during 1985-92, an increase of 293.7 percent (Table 3.3). The Bank employed its largest staff, 11,964, in 1990. This fell to 10,499 by December 1993, but increased to 10,861 in 1994.

In 1985, 8.3 percent of Bank employees were located at the head office, 12.4 percent at the regional offices and 79.3 percent at the branches. The number of employees increased at all three levels during 1985-90, but declined at the head office and branches in 1991. By 1994, there were 9,223 branch-level employees (84.9 percent of the total staff), 1,206 employees (11.1 percent) at the regional offices, and 435 employees (or 3.8 percent) at the head office.

The increase in the number of employees has been greatest at the branch level, suggesting that the Grameen Bank has a pyramidal structure. Overall, the number of employees per branch has remained relatively stable over the years: each branch had an average of ten employees in 1985, compared to 8.8 employees in 1994. However, the proportion of employees at the branch level has increased between 1985 and 1994 from 79 percent of total employees to almost 85 percent.

Membership growth and gender composition

Grameen Bank membership rose from 171,622 in 1985 to 1.8 million in 1993, and over 2.0 million in 1994 (Table 3.4). The average annual growth rate of membership during this period was about 28 percent. An important change introduced in 1992 was the increase in the number of groups in each center to eight. The average number of groups, members, and centers per branch increased monotonically between 1985-94. The branches have strengthened their position over time by mobilizing more members: the growth of members per branch was about 4.6 percent in 1986 as compared to 17.1 percent in 1992, 27.9 percent in 1993, and 10.5 percent in 1994 (Table 3.2). By 1993, branches averaged 1,745.1 members, more than double the 1985 figure; in 1994 the average rose to 1928.4 members.

Although Grameen Bank membership is offered to both men and women, membership and credit disbursement to women has increased at a much faster rate. Female membership grew from 65.5 percent of the total in 1985 to over 94 percent in 1994 (Table 3.4), and increased in absolute terms by 1,584.1 percent. By contrast, male membership increased by only 103.9 percent during the 1985-94 period. Between 1985 and 1991, however, the growth rates were lower: 777.9 percent for women and 35.1 for men. The jump in membership in 1992 (with annual membership increases of 35.3 percent for women and 12.6 percent for men) and 1993 (28 percent for women and 19.1 percent for men) resulted from policy changes, including a re-emphasis of general expansion. However, this slowed down in 1994.

The average number of female members per branch also increased more rapidly than that of male members. Between 1985-94 this figure grew by 264.2 percent for women and declined by 55.9 percent for men (although average male membership per branch increased by 18 percent in 1993). Overall, these growth rates reflect the Grameen Bank policy of favoring women.

Lending and portfolio mix

An overwhelming proportion of Grameen Bank members are also borrowers (Table 3.4). The percentage of all members who borrowed was consistently above 96 percent with exceptions in 1985 (88.9 percent), in 1993 (92.7 percent), and in 1994 (92.4 percent). Non-borrowing members may be those awaiting their first loan. The priority placed on the expansion of female groups is also evident in the profile of borrowers: the number of male borrowers has declined progressively from 34.9 percent in 1985 to 5.8 percent in 1994. Although the percentage of members who were borrowers was slightly higher for men than for women from 1985-92, this trend reversed in 1993 (90.8 percent for men and 92.9 percent for women), and in 1994 (90.1 percent for men and 92.6 percent for women). The number of women borrowing grew by 1,663.6 percent during 1985-94, whereas the number of men borrowing grew by only 104.9 percent.

This trend is also reflected by the classification of Grameen Bank borrowers by loan frequency (Table 3.5). In 1985, 46.4 percent of women and 24 percent of men were first-time borrowers as a percentage of total borrowers of the same gender. With the exception of 1993, the percentage of first-time female borrowers has been at least twice that of males. On the other hand, during 1991-93, the number of men who had borrowed from the Grameen Bank for at least the fifth time hovered around 50

percent while the figure for women fluctuated between 16 and 20 percent. These figures imply that the Bank has continued to lend to its "senior" members, especially men, even as it has expanded its lending operations.

The emphasis on women is also evident in the disbursement pattern of Grameen Bank loans (Tables 3.6 and 3.7). As of 1985, women had received a little more than half of the total cumulative loan disbursement of Tk 948.5 million. By 1992, women had been granted 79.8 percent of the total cumulative disbursement of Tk 18,722.9 million. Total Grameen Bank disbursement increased by Tk 17,774.4 million between 1985-1992, of which Tk 14,444.7 million (or 81.3 percent) was disbursed to women. By the end of 1993, out of the total cumulative disbursement of Tk 30,740.1 million, women claimed Tk 26,535.4 million (or 86.3 percent). In 1994, the total cumulative disbursement rose to Tk 44,639.7 million, of which women had received Tk 40,688.0 million (91.1 percent).

At present, the Grameen Bank provides six types of loans to its member-borrowers. The portfolio mix of 1992 included the general loan (81.6 percent), collective loan (0.2 percent), house-building loan (8.8 percent) and technology loan (9.4 percent). In January 1992, the Bank introduced short-term loans and family loans, which fall under the general loan category. As a result, general loans constituted a larger share (82 percent) of the 1992 portfolio than that of 1991 (71 percent). In 1993, general loans comprised 85.3 percent of total disbursement, while house-building loans constituted 13.4 percent, compared to 90.2 percent for general loans and 8.7 percent for house-building loans in 1994.

Of the total loan disbursement to women in 1992, general loans accounted for 90 percent, house building loans 9.6 percent and collective loans only 0.4 percent. In 1993, the percentage of general loans to women declined slightly to 86.7 percent, while that of housebuilding loans increased to 13.2 percent. By contrast, general loans accounted for only 37 percent, housebuilding loans 4.8 percent, collective loans 0.2 percent and technology loans 58 percent of total loans disbursed to men in 1992, reflecting a gender-biased portfolio diversification. However, in 1993, as total disbursement to men expanded by nearly 60 percent, the proportion of general loans grew to 65.5 percent, followed by 16.5 percent for house-building loans and 0.5 percent for collective loans. In 1994, house-building loans declined, both for women (by 18.8 percent) and for men (34 percent); technology loans also declined by 2.5 percent compared to 1993. Overall, annual disbursement increased by 22.6 percent in 1994, as general loans to men expanded by 81.3 percent and to women by 28.2 percent.

The annual growth rate of total loan disbursements over the 1986-92 period ranged from a low of 28.4 percent in 1990 to a high of 73.7 percent in 1987 (Table 3.6). The average annual growth rate in loan disbursement was about 41 percent during 1986-94. The Grameen Bank's renewed emphasis on expansion beginning in 1992 is reflected in the 71.6 percent growth in total disbursement; general loan disbursement that year increased by 97.4 percent for women and 98.3 percent for men. The following year, annual disbursement almost doubled, with disbursement to women rising by 117.8 percent. Overall, total (cumulative) disbursement expanded about 32-fold between 1986 and 1993. Such rapid expansion was fueled by the growth of average annual lending per branch from Tk 1.86 million in 1986 to Tk 11.96 million in 1993, and to Tk 14.59 million in 1994.

General loans are provided for a one-year term at an interest rate of 20 percent (16 percent until 1991). Borrowers need not provide collateral and can use the credit to invest in any activity that has been approved by group members. The consistently high recovery rates have been instrumental in the growth of the Bank's lending. General loans are the centerpiece of Grameen Bank operations and the backbone of its lending portfolio, although its overall share in the annual portfolio mix declined from 97.6 percent in 1986 to 71 percent in 1991 before increasing to 85.3 percent in 1993 and again to 90.2 percent in 1994. The relative share of general loans dropped much more for men than for women between 1986-93, as men have relied more on collective and technology loans. This may be due to women's preference for financing smaller-scale activities. The share of general loans advanced to women declined from 97.8 percent in 1986 to 86.7 percent in 1993 and to 84.5 percent in 1994. The share for male members declined more sharply from 97.1 percent to 37.3 percent in 1992, although it rose to 65.5 percent in 1993 (the share of technology loans declined that year) and to 80.7 percent in 1994.

Collective loans are given to centers that unanimously decide to participate in any joint venture. The loan approval and disbursement procedures are similar to those for general loans, but such ventures are undertaken by the group as a whole. Given the relatively poor repayment performance for this type of loan, the share of collective loans in total annual loan disbursement decreased from 1.36 percent in 1986 to 0.10 percent in 1993 and in 1994. The relative share of collective loans declined from 1.2 to only 0.12 percent for women and from 1.2 to 0.3 percent for men over the 1986-94 period.

The Grameen Bank introduced house-building loans in 1984 as part of its social development program without any prior donor commitment. These are longer-term loans that require weekly

repayments over ten years and are lent at a lower rate of 8 percent (5 percent until 1991). It was designed to help Grameen Bank members construct good-quality, low-cost housing. The requirement that the borrower hold title to the land has enabled the legal transfer of home-ownership to thousands of poor women. The share of housing loans in cumulative loan disbursement increased from 1.8 percent in 1986 to 10.8 percent in 1993, but declined slightly to 10.5 percent in 1994. The shares for women (men) increased from 1.1 (0.7) percent in 1986 to 11.3 (almost 8) percent in 1993; in 1994 the corresponding figures were 10.4 percent for housebuilding loans to women and 10.8 percent for men.

Technology loans have been recorded separately only since 1988, prior to which they were recorded as collective loans. They provide funding for larger projects and involve larger amounts of credit. The increasing trend toward technology loans is evident from the jump in the share of these loans in cumulative disbursement, from 0.8 percent in 1988 to 7.7 percent in 1991 and 8.0 percent in 1992. Although they decreased in importance in 1993 (comprising 4.0 percent of cumulative disbursement), this resulted from the creation of the Grameen Krishi (agricultural) Foundation, a Grameen Bank Trust, which picked up many of the technology projects funded by the Grameen Bank.[7] By 1994, technology loans accounted for 3.2 percent of total cumulative disbursement.

The annual disbursements of Grameen Bank general loans for eight different categories over the 1986-94 period are shown in Table 3.8. Livestock and fisheries has been one of the major sectors for which loans were disbursed; although annual disbursement increased from Tk 247.77 million in 1986 to Tk 3624.79 million in 1994, the proportion declined from 45.7 percent of the total in 1986 to 26.1 percent in 1994. This decline may have been due to the sudden increase in loans disbursed for agriculture and forestry following the relaxation of restrictions on lending for these activities in 1991, from 2.2 percent (or Tk 11.90 million) in 1986 and 4.1 percent (Tk 108.13 million) in 1991 to 26.7 percent (Tk 1387.96 million) in 1992 and 34.9 percent (Tk 4863.24 million) in 1994.

A similar trend can be seen for annual disbursements for processing and manufacturing, which declined from 25 percent in 1986 and 28.9 percent in 1991 to 18.8 percent in 1992 and 15.5 percent in

[7] The Grameen Krishi Foundation is an independent subsidiary of the Grameen Bank. It has its own management, headed by a managing director and governed by a board of directors. The purpose of this foundation is to promote agricultural productivity by introducing new farm management, improved technology, and new crops. The foundation supplies these inputs to the farmers on their pledge to share crops with the Grameen Krishi Foundation. In 1992 the foundation helped cultivate 50,000 acres of land in Bangladesh with new and high-yield varieties of crops.

1994, although the amount disbursed rose from Tk 135.47 million to Tk 2151.16 million. But the proportion of total disbursement for trading remained steady at 17.3 percent in 1986 and 16.8 percent in 1994, even as disbursement increased from Tk 93.54 million to Tk 2334.16 million over this period. Similarly, the absolute amount of loans for peddling and shopkeeping expanded, but the percentage of total loans remained nearly constant between 1986 and 1994, with only slight fluctuations.

Declines were recorded in the proportionate disbursements for collective enterprises and services over the same period. Lending for collective enterprises increased from Tk 7.49 million in 1986 to Tk 20.32 million in 1994, but the relative shares of such loans went down from 1.4 percent in 1986 to 0.1 percent in 1994. Annual disbursements for services increased tenfold, from Tk 14.25 million in 1986 to Tk 141.34 in 1994, but decreased from 2.6 percent of total lending in 1986 to 1.0 percent in 1994.

In 1992, the Grameen Bank expanded its operations to cover higher operational costs caused by a nationwide increase in bank staff salaries. The number of groups per center was increased from six to eight and the lending ceiling for general and collective loans was raised to Tk 10,000. In addition, the Bank introduced short-term seasonal loans, family enterprise loans, special loans, food storage loans, capital recovery loans (including goat loans) and destitute loans in areas where successive floods had destroyed the repayment capability of many borrowers. With some of these innovative general loans, such as seasonal and food storage loans, the Grameen Bank entered the agricultural sector. These loans have helped increase total disbursements from Tk 3,706.8 million in 1991 to Tk 15,251 million in 1994 (Table 3.6). The average loan outstanding per branch increased from Tk 1.1 million in 1986 to Tk 8.5 million in 1993 (an increase of 677.1 percent), and then to Tk 10.8 million in 1994 (Table 3.9). The annual average growth rate in loans outstanding was 43 percent during 1985-94.

Savings mobilization

The Grameen Bank mobilizes savings by requiring members to make deposits of different types. Its purpose in doing so is not to provide for on-lending per se, but to overcome market imperfections and promote the financial security of member-borrowers. These savings are alternative sources of credit for borrowers and help to gradually minimize the Bank's dependency on outside borrowing. They also contribute to the Bank's internal reserves for future loan operations.

All members are required to contribute one taka weekly to the group fund. These contributions are held as individual savings that are refundable when members drop out or retire. Individual members are also required to contribute 5 percent of the principal amount borrowed to the group fund, a payment which is commonly known as group tax one. Unlike their individual savings, group members cannot reclaim this group fund contribution, but they can borrow from this fund with the approval of fellow group members at an interest rate determined by the groups themselves. Common lending and collection procedures apply to these loans, including a 5 percent tax of the principal amount borrowed from the group fund. This is known as group tax two.

The emergency fund, children's welfare fund, and special savings are the other Grameen Bank savings schemes. The emergency fund offers protection against debt or liability when a member dies, or when theft, loss and damage to property (including livestock and crops) of member-borrowers occur. Required contributions were originally 25 percent of interest payments for each loan borrowed. However, in July 1991, this mandatory contribution was changed to Tk 5 per thousand taka for loan amounts over Tk 1,000. Members are required to contribute one taka each week to the children's welfare fund, which is not refundable. The children's welfare fund was designed to provide education for members' children in schools managed and run by Grameen Bank members, and to support children's involvement in small-scale income earning projects. By contrast, the special savings scheme is voluntary in nature and managed by the center. It is designed to fund joint activities undertaken by members.

The Grameen Bank also mobilizes deposits of different types (savings and current deposits) from group members and non-members. Like any commercial bank in Bangladesh, it offers both deposit and savings services, providing interest payments on savings. Its deposit mobilization is largely limited to that of its own members and staff and, given its primary goal of providing credit to its members, savings mobilization from non-members is not as comprehensive as in other commercial banks.

The Bank has recorded enormous growth in savings mobilization through mandatory and voluntary savings during 1985-94 from Tk 131.7 million in 1985 to Tk 12,231.8 million in 1994 with on average annual growth rate of 41 percent (Table 3.10). The total member savings mobilized was Tk 114.9 million in 1985 and Tk 3,478.8 million in 1992, an increase of 2,920 percent. By the end of 1993, total savings had increased by 80.1 percent to Tk 6,263.9 million, and then again by 43.2 percent to Tk 8,969.1 million in 1994. As a comparison, the total level of savings mobilized in 1984 by the Grameen

Bank was four times that of the combined savings recorded by five commercial banks. However, the prominence of members' savings in total savings and deposits declined from 87 percent in 1985 to 66 percent in 1992 (but rose to 71.8 percent in 1993 and 73.3 percent in 1994). This suggests the growing importance of the Grameen Bank's deposit service to its members, staff and non-members. If the amount of loans outstanding is an indicator of its lending capacity, it is significant that the savings and deposits mobilized in recent years is more than adequate to continue lending operations without any external funds. In fact, the Grameen Bank had attained equality of savings and outstanding loans by 1989, due in part to increases in members' savings and deposits. The per-member savings increased by more than 560 percent during 1985-94, from Tk 670 in 1985 to Tk 4,450 in 1994.

Women's savings amounted to 76 percent of the total savings mobilized in 1994 (Table 3.11). On average, however, male members contributed more than female members (Tables 3.10 and 3.11). In 1985, the per-member savings was Tk 970 for men and Tk 510 for women; by 1994 it had risen to Tk 24,550 for men and Tk 3,620 for women. Per-member savings is higher for men than women because per capita savings in group funds is higher for men, due to a higher loan disbursement (and outstanding) rate per male member. The average loan size in 1992 was Tk 5,000 for men and Tk 4,000 for women, even after excluding technology loans. This is consistent with the observation that men are more often repeat borrowers than women and that membership growth has been much lower (almost negligible) for men than for women.

Achievements of the social development program

In addition to its financial services, the Grameen Bank has devised and implemented diverse programs to promote social development. It encourages members to open nursery schools at its centers, distributes seeds and seedlings to promote gardening and planting, teaches members about the operation of the Grameen Bank, helps them improve health, nutrition and productivity, and encourages them to practice the "sixteen decisions" (Appendix A). Overall, the growth recorded for various aspects of this program reflects a remarkable achievement in social development, affecting the living and social conditions of its members and the environment (Tables 3.12 and 3.13).

By 1994, the Grameen Bank had helped its groups open 14,804 schools, an increase of 345.1 percent from the 3,326 in 1985. The total number of children enrolled in these schools grew from

71,467 in 1985 to 396,289 by 1994, an increase of 454.5 percent. Following the drive to implement its sixteen decisions, the number of marriages without dowries also increased from 2,738 in 1985 to 30,127 by 1994.

The sixteen decisions also encourage members to raise small families in healthy living conditions and improve their immediate environment. Members are encouraged to use hygienic or boiled drinking water, build better housing and toilet facilities, grow kitchen gardens and plant tree seedlings. Under this social development program, the Grameen Bank distributed 6,859,319 seeds and 2,923,705 seedlings in 1994, compared with 781,628 seeds and 373,190 seedlings in 1985.

In addition, the Bank organizes day or week-long workshops in order to train its members in bank operations, nutrition, livestock and poultry care, and other social aspects. In 1989 "family" and "exchange" workshops were first organized. These workshops are given to the center chiefs and group chairpersons, who then train their respective group members. The seven-day workshops include substantial discussions on the bank's philosophy, loan application procedures and the uses of loans, the problems of loan utilization and potential solutions, and new investment ideas, all of which are designed to increase the effectiveness of the Grameen Bank and hence its financial and institutional viability. The workshops also provide information on improving health, nutrition, sanitation, home gardening, poultry raising, and pre- and post-natal maternal health and childcare in an attempt to make members more productive, in accordance with the sixteen decisions. By contrast, the one-day workshops are primarily designed to share experiences in order to plan better strategies for Grameen Bank operations.

The family workshops, held for the relatives and guardians of Grameen Bank members, are designed to disseminate the Grameen Bank philosophy and its objectives to ensure the effective utilization of its loans and other services. Experience suggests that indifference or opposition from influential family members can cause suboptimal loan utilization. These family workshops are designed to defuse potential misunderstanding among family members and motivate them to cooperate with the Grameen Bank members. In addition, exchange visits for members of two branches are arranged to facilitate the flow of experiences and ideas regarding new opportunities for loan uses and benefits.

The total number of workshop participants has grown by 964 percent over 1985-94 (Table 3.13). Compared to 6,678 participants in 1985, the total number of participants in 1994 was 71,071, including 30,651 in family workshops, 26,280 in one-day workshops and 11,340 in seven-day workshops.

CHAPTER FOUR

Sustainability and subsidies

There are high administrative costs in forming groups and disbursing group-based credit and ancillary inputs. The Grameen Bank has been providing small loans to a large number of poor people, especially women, who require sustained access to formal credit for generating employment and income. Despite the fact that group pressure promotes proper loan use and high loan recovery, it is doubtful that the Grameen Bank could have generated sufficient revenue in the early years of its operation to support these costs. On the other hand, it is also unlikely that the rural poor are able to bear the full cost of Grameen Bank services.

As such, its operations depend to a large extent on the availability of outside funds. Both domestic and foreign sources have made resources available at concessionary rates that have been instrumental in the expansion of the Grameen Bank operations and institutional development. However, reliance on these funds raises serious questions about the Bank's sustainability: would it remain viable without these subsidized funds? What impact would a non-subsidized operation have on the poor? And if subsidies are, in fact, unavoidable for a credit program catering to the poor, how much subsidy is required for sustaining such a banking operation, for how long, and is it worth continuing?

There are two types of subsidy: financial and economic. If the Grameen Bank is not cost-effective, the program will require financial subsidies to continue operating. In addition, if the cost of funding for on-lending is cheaper than the opportunity cost of these funds, the program enjoys an economic subsidy.[8] The Grameen Bank receives both types of subsidy, and this is a source of concern for its long-run viability.

The Grameen Bank's financial and economic viability depends on the extent of the subsidies it requires. This can be measured using available cost and revenue information and market interest rates. The Grameen Bank's long-term sustainability also depends on whether it is institutionally sound and whether it can continue to provide benefits to its members. In other words, its sustainability depends both on the benefits that accrue to program participants and on how and at what cost it delivers inputs.

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[8] This type of subsidy may also be called social subsidy because the subsidized funds are given to the program to lend to the poor with the objective of reducing poverty.

Four interrelated concepts of sustainability are relevant to this evaluation: financial viability, economic viability, institutional viability, and borrower viability. This chapter explores these concepts and discusses how they can be measured and estimated. These procedures are then used in later chapters to examine the Grameen Bank's performance.

A concept of program sustainability

The term "program sustainability" means the ability of a program to continuously carry out activities and services in pursuit of its objectives or, in the Grameen Bank's case, the ability to continue operating as a development financial institution for the rural poor. Since the Grameen Bank uses loanable funds from various sources to finance productive activities, it can only sustain its operations if it remains financially sound. On the other hand, since it is an organization for the poor, it cannot sustain its operations unless the benefits received from program participation reduce poverty and are sustainable.

To ensure sustainability, the Grameen Bank enhances its institutional development, operates efficiently given its program design and institutional framework, and helps to generate sustainable benefits for the poor to meet the cost of program participation and reduce poverty. In short, the Grameen Bank actively promotes its own institutional, financial and economical viability as well as that of its clients.

The Grameen Bank is defined as *financially* viable if it can at least equalize the cost per taka lent with the price (that is, the interest rate) it charges its borrowers. It is defined as *economically* viable if it can meet the economic cost of funds (the opportunity cost) used for credit and other operations with the income it generates from lending. Finally, in order to be *institutionally* viable, it must have effective and well-institutionalized procedures for ensuring administration and management succession, so that it is not dependent on the leadership of a particular person. The management and its decision-making structure can be a measure of this. Moreover, because staff development and incentives contribute to productivity, the Grameen Bank should aim to optimally allocate resources to produce internal and cost efficiency.

However, institutional viability cannot be attained unless the benefits from the projects funded by the program meet the members' cost of borrowing. This is illustrated by the high collinearity between the viability of borrowers and the viability of the lender, which depend on the same environmental and

production risks. Whether the benefits from an activity will equal the cost of borrowing depends on the borrowers' entrepreneurial ability to select and manage the projects financed, given market and other constraints. The viability of the borrowers is therefore crucial to the Grameen Bank's overall viability. The success or failure of a program should also be judged by how far the program has gone to develop a viable organization for the poor and help borrowers sustain their gains.

The impact of subsidized funding on Grameen Bank activities highlights the interrelationships among financial, economic, institutional, and borrower viabilities. The Bank has access to subsidized funds for on-lending purposes and generally has not had to borrow at market interest rates. These funds substantially lower the cost of borrowing, which has positive implications for the Bank's financial, economic and institutional viability, as well as for the borrowers' economic and group viability. On the other hand, if the Grameen Bank were forced to borrow money from the market, its sustainability would depend on whether it could break even at those interest rates, whether borrowers could meet the higher cost of borrowing, and whether it could absorb these increased costs through cost efficiency and institutional development.

Although group-based organization and activities have helped reduce transaction and monitoring costs, these tasks necessarily incur high administrative costs. The Grameen Bank has relied heavily on subsidized funds to support its high-cost lending, but in order to be sustainable, it cannot rely on these funds indefinitely. It must begin to access resources from domestic or other market sources in order to sustain its operations as well as to minimize its administrative costs.

The predominant long-run issue is how to reduce the overhead lending cost deriving from the high costs of membership mobilization and training. There are several ways that the Grameen Bank may have attempted to reduce its overhead lending cost. For example, granting membership and credit to more women than men has reduced lending costs since, through their higher repayment rates, they have proven themselves better credit risks than men. This reduces the default cost of lending. Also, the cost of membership mobilization may be less for women because they are generally poorer and may have higher self-fulfilling expectations. They are thus more easily mobilized, requiring less group and social development training. However, women's credit demands may be different from men's because the opportunity costs of men and women differ, as, in turn, do the perceived rates of return. Women may

prefer small loans for self-employed activities given their restricted mobility and their lack of market information. Smaller loans, however, may generate higher transaction costs of lending.

The loan portfolio mix also affects the cost structure of the Grameen Bank. For example, technology loans, with varying rates of return, are typically large and given to large groups. As such, the cost per unit of disbursement may be lower than the cost for smaller loans made to individuals. Therefore, a higher proportion of technology loans in the Grameen Bank's portfolio may imply lower loan disbursement costs.

Similarly, staff training can help promote institutional development by motivating employees and developing their skills. The Grameen Bank, with help from donors, has invested substantially in training and development for staff as well as for members. The extent and structure of the training programs reflect a management-level commitment that may have a substantial effect on program sustainability.

Institutional development

To ensure its own financial and economic viability and that of its borrowers, the Grameen Bank must become a sustainable institution in terms of program organization and management structure. A sustainable Grameen Bank should influence its employees and borrowers to perform efficiently. Given a proper incentive structure, employees will naturally be motivated to improve the organization's delivery and recovery mechanisms. Understanding the Grameen Bank's institutional development requires examination of its management structure, incentives for its staff to improve productivity, the structure of the incentive system, and the employee turnover or dropout rate.

Program placement, as decided by the management, is an important aspect of institutional development. The Grameen Bank, like other financial intermediaries seeking to remain financially viable, must avoid, or at least consider, material (agroclimate and locational) risks in selecting program placement. It is much more difficult to create a viable system of financial intermediation in areas that are flood-prone, areas experiencing pronounced seasonality, and areas that are far from urban centers and lack the infrastructure to support transportation (Binswanger and Rosenzweig 1986). However, the Grameen Bank may need to offer its services in areas subject to material risk when that risk is a source of poverty. Therefore, by examining its program placement in light of invariant area and agroclimate

characteristics, we may infer whether it has responded to favorable agroclimate conditions in program placement.

Financial and economic viability

A direct way to evaluate financial viability is to quantify an institution's cost structure and examine whether the cost per unit of principal lent is equal to the rate of interest that borrowers are charged. This method is known as the financial criterion of efficiency.

A credit program, if it is to maintain its capital holdings, must generate sufficient revenue over a given period of time to meet its operating costs. The Grameen Bank receives revenue from borrowers' interest payments, and its costs arise from raising loanable funds, organizing and training borrower groups, administering loans, and covering bad debts. To meet the financial efficiency criterion the program should charge an interest rate that generates revenue equal to or exceeding the cost per unit of principal lent. This can be formally stated as

$$(4.1) \qquad r >= \frac{(i+\alpha+p)}{(1-p)}$$

where r is the interest rate charged per unit of principal, i is the cost of raising resources per unit of principal, α is the expected cost of administering and supervising a loan per unit of principal lent, and p is the expected financial loss per unit of principal, or the percentage of principal and interest payments due that is not recovered.[9] Both program- and branch-level information on operational costs, lending costs, and costs of funds can be used to calculate the Bank's financial efficiency according to equation

[9] The percentage of financial loss, p, appears both in the numerator and denominator, because the loss involves both the principal and the interest payment. This can be derived as follows. If X is the loan portfolio, then expected income is $(1+r)(1-p)X$ while cost is $(1+\alpha+i)X$. Now, a financial institution would ensure that income exceeds its cost of lending, or $(1+r)(1-p)X \geq (1+\alpha+i)X$. After rearranging we get $r \geq \frac{(i+\alpha+p)}{(1-p)}$.

4.1.[10] This will help determine whether the program requires financial subsidy given its cost of borrowing and, if so, how much.

The financial viability criterion does not, however, capture the possibility that the program may not satisfy the criterion during a single time period, but still may be financially viable over time. It also does not enable an estimation of the economic subsidy, or allow the identification of subsidy recipients. The combined successes (or failures) of individual branches determine whether the program is a success (or failure) in addition to its ability to carry the cost per unit of principal lent at the market interest rate. An analysis of the dynamics of sustainability requires examination of the branch-level performance of a program in terms of cost structures, loan recovery, and profits or losses. Both the loan recovery profiles and the percentage of the loan portfolio in arrears are used as proximate measures of a program's economic sustainability.

In order to examine how a program's cost components and innovative schemes influence its cost structures over time, the derivation of the cost functions must include all relevant (control and other) variables. Estimating a cost function at the branch level provides additional information: it may help identify whether the branch-level operation can break even over the long run and test whether the branches are profit-maximizing units. The cost function is not estimated for the program as whole. Rather, given that the Grameen Bank head office supports all the training costs of its members and staff, it is tested to see whether the branches minimize their cost of production, which justifies the estimation of a cost function at the branch level. Also, such branch-level analysis can highlight whether the Grameen Bank is economically viable.

Given its mandate to reach as many rural poor as possible within a designated area, a typical branch aims to expand credit disbursement by expanding membership, or by increasing the volume of lending per member. Also, since individual loan absorptive capacity may be influenced by entrepreneurial ability, the Grameen Bank can increase this capacity through training and other skill development inputs. Either way, expansion involves additional labor and capital costs. The objective

[10] The financial efficiency of the Grameen Bank may vary between its national-level and its branch-level operations, because of differences in cost structures. For example, the head office bears the training costs of staff and members, while the branches receive the benefits from such training. On the other hand, the borrowing cost of loanable funds also differs. The Grameen Bank treats its branches as purely profit-making units where the branches receive loanable funds at the market interest rate from the head office, although these funds may have been acquired by the Grameen Bank as subsidized funds or as grants.

of a profit-maximizing branch is thus assumed to be at least the minimization of the costs of attaining a targeted membership and credit disbursement. Moreover, unlike other development finance institutions, Grameen branches mobilize members' savings and thus may also seek to minimize the cost of attaining a targeted savings level. Mobilizing and training new members involves a large administrative cost, as do lending and savings.

There is an extensive literature on the estimation of cost functions to measure both the operational efficiency and economic viability of a financial program. For example, see Kalari and Zardkoohi (1987), Clark (1984), Benston and Smith (1976), and Srinivasan (1988). A cost function relates the cost of the program to the predetermined quantity of output, the exogenous prices of labor and capital, and a number of control variables that influence cost. The translog specification is a flexible form for estimating a cost function that does not have the restrictive properties of the widely-used Cobb-Douglas function. Moreover, it can help measure a branch's scale and scope economies as well as the effect of product mix on its cost. Economies of scale exist if the unit production costs decrease as output expands. Economies of scope exist if a credit program produces joint outputs, such as lending and savings mobilization, at a lower cost than producing only one output, such as lending. The conditional cost function (conditional on the level of outputs) takes the following form:

$$(4.2)\quad \ln TC_{jt} = a_0 + a_1 \ln S_{jt} + 1/2[a_2 \ln S^2_{jt}] + a_3 \ln W_{jt} + 1/2[a_4 \ln W^2_{jt}] +$$

$$a_5 \ln N_{jt} + 1/2[a_6 \ln N^2_{jt}] + 1/2[a_7 \ln S_{jt} \ln W_{jt}] +$$

$$1/2[a_8 \ln S_{jt} N_{jt}] + 1/2[a_9 \ln W_{jt} \ln N_{jt}] + IF_{jt} + d_j + e_{jt},$$

where TC_{jt} is the jth branch's program costs in period t; **S** is a vector of membership, lending, and savings; *N* is the fixed unit cost of lending (measured by the sum of rents paid and depreciation of equipment divided by the value of all loans); *W* is the price of labor (defined as the annual average salary plus benefits paid to program workers divided by the total number of workers); **IF** is a vector of control variables including infrastructure (such as roads, schools, commercial banks, and health facilities; and $\mathbf{d_j}$ is a vector of area-specific fixed endowments (such as flood potential and soil moisture availability and location).

Estimating equation 4.2 enables us to test whether a branch exhibits *economies of scale*. If economies of scale exist, a branch can expand its membership and increase lending and savings per member to reduce its overhead and attain its goal. An important objective of the study is to find out where existing branches are located along the cost function, and whether economies of scale exist and can be captured by intensifying their operations.

Equation 4.2 can also identify whether differences in product mix may influence program cost structures. Branches can be grouped by loan type (for example, technology loans) or by gender composition to examine whether intensifying group interactions with program staff, making smaller loans, and mobilizing individuals or groups perceived to involve less credit risk influence the economies of scale. These procedures may increase operating costs. It is thus instructive to analyze how different risk-reducing methods adopted by a program have shaped its cost structures over time and across regions. In particular, this analysis may help explain whether the Grameen Bank makes women its principal beneficiaries for reasons of economic efficiency (cost reduction) or equity.

Estimating the conditional cost function requires first estimating a program's output separately in order to use it as a predetermined variable in the cost equation. It is likely that both cost and output are jointly determined; that is, the cost function suffers from a simultaneity bias. The Hausman (1978) endogeneity test is used to test for the existence of simultaneity bias. However, this involves identifying instruments that influence only the output, not the cost, so a two-step procedure is adopted. First, we estimate membership, lending, and savings as a function of input prices, control variables, and some instruments. Then, using the level of output predicted from this first-stage regression, we estimate the cost as a function of predetermined output, input prices, and the control variables.[11]

The economic viability of a credit program may also be measured by estimating a set of reduced-form equations for loan recovery, membership, total lending, input uses, and other indicators of program performance. This helps identify the role of various factors, both program and area-level, in a program's performance over time. More formally,

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[11] Identifying appropriate instruments is difficult. We propose that the availability of credit from other formal sources, such as commercial and other banks, is one set of instruments that may help distinguish membership from the amount of disbursement. By contrast, rainfall and other variables may affect the short-run liquidity of borrowers and would thus only influence savings.

(4.3) $$\mathbf{PF}_{jt} = b_0 + b_1\mathbf{PR}_{jt} + b_2\mathbf{IF}_{jt} + b_3\mathbf{S}_{jt} + \mathbf{d}_j + e_{jt},$$

where **PF** is a vector of performance indicators; **PR** is a vector of input prices, including wages; **IF** is a vector of control variables; and **d** is defined as before.

Both the cost equation and the performance equation use branch-level panel data, and may consequently suffer from bias due to the unobserved heterogeneity of different branches. A fixed-effects technique will be used to control for the unobserved area-specific heterogeneity.[12]

Borrower viability

An alternative way to view the sustainability of a program is to estimate whether its borrowers have achieved higher income flows over time. This implies that the program's beneficiaries have increased their incomes so that they were able to repay their loans and possibly accumulate enough capital to no longer require assistance. It may also mean that the borrowers have switched to more remunerative sources of income as a result of program participation. Income and occupational mobility of borrowers are therefore important indicators of borrower viability. Also, by examining the profile of dropouts from a targeted credit program, factors influencing participants to leave the program can be identified. Panel data is required to examine the income and occupational mobility of participants, although this is costly to collect. It may be possible to collate dropout and/or income information from the program's records in order to analyze the program's sustainability.

Another way to examine the viability of borrowers is to measure how effectively capital is used at the household level. This is done by calculating the rates of return on their investments in order to indicate whether the cost per unit of principal lent is covered by those investments. Cross-sectional household survey data on the net income generated from credit-supported projects would be sufficient to estimate these rates of return across activities and across programs. The average borrower's net increase

[12] The problem of area-specific heterogeneity makes ordinary least squares (OLS) estimates inconsistent (for econometric issues, see Maddala 1987). The problem arises because branches may not be randomly distributed across space. The Grameen Bank may decide to open and operate its branches depending on unobserved (to econometricians) area characteristics. If these characteristics are time-invariant, specific to each branch location, and enter additively into the equation, then a fixed-effects estimation technique is appropriate.

in income can be compared in absolute terms to a quantitative measure of the expected gain from a targeted credit program. These estimates would provide a uniform assessment of credit use.

A final way to assess borrower viability is to examine the program's effect on rural wages. Grameen Bank operations may benefit rural wage workers if their induced benefits make a dent in rural poverty. Grameen Bank activities have a positive supply effect (because they withdraw labor from the market by enabling workers to employ themselves) and a positive demand effect (through an induced income effect) on rural wages. We would, therefore, expect an increase in rural wages following program placement in an area.

Economic viability of the Grameen Bank: subsidy dependence

The branch-level cost function estimates indicate whether Grameen Bank branches are economically viable. However, branch-level economic viability does not imply that the program as a whole is economically viable. Although there is no direct way of estimating total economic viability, it is possible to evaluate whether the Grameen Bank can operate without low-cost subsidized funds. The extent of economic subsidy in terms of the opportunity cost of the subsidized funds the Grameen Bank has received needs to be identified. This will help determine whether the Bank can withstand the withdrawal of economic subsidy and, if not, what needs to be done.

As defined earlier, the Bank's two sources of subsidy are the financial subsidy, given if the program cannot break even, and the economic subsidy, given if lending is supported by grants or funds obtained at interest rates lower than the market rate. According to Yaron (1992b), the economic subsidy is defined as that derived by the Grameen Bank from obtaining inexpensive funds and grants, due to the difference between the actual interest rate and the opportunity cost of these funds. Comparing the latter two will reveal the economic cost for maintaining operations.

The economic subsidy can be divided into the interest subsidy (or financial cost subsidy), equity subsidy, and income subsidy. The interest subsidy is defined as the difference between the market interest rate and concessionary interest rate times the amount of the subsidy. Mathematically, the interest subsidy is represented as:

(4.4) $$FCS=A(m-c)$$

where *FCS* is the financial cost subsidy, A is the total annual concessional borrowed funds (outstanding), m is the market interest rate and c is the concessional interest rate. For grants, $c=0$ and the financial cost subsidy is equal to Am.

The subsidy on the amount of equity held by Grameen Bank group members, the government, and commercial banks is given by:

(4.5) $$ES=Em$$

where *ES* is the equity subsidy and E is the amount of equity.

The income subsidy (K) is defined as the amount of grants received as reimbursement for some operating expenses. Because donor agencies reimburse the Grameen Bank for almost all training expenses, these expenses appear as revenue on the Bank's income and expenditure statement.

The economic subsidy is equal to:

(4.6) $$SS = FCS + ES + K$$

Net subsidy (*NS*) is the economic subsidy less profit (P) and is defined as:

(4.7) $$NS=A(m-c)+Em+K-P$$

Note that the net subsidy can be positive, negative or zero. If profit is greater than the economic subsidy, then the Grameen Bank receives no net subsidy, and the net economic cost for continuing operations is zero. By contrast, if the Grameen Bank needs financial subsidy (a negative profit), it increases its economic subsidy. In this case, the program requires not only subsidized funds but also financial subsidy for its survival. Calculation of the subsidy depends on how one defines the opportunity cost of the subsidized funds received by a development finance institution.

Yaron (1992) suggested the fixed-deposit interest rate as the reference rate for calculating the subsidy. Since equation (4.7) does not provide any information about how dependent a program is on subsidy for its sustainability, Yaron (1992) evaluated the subsidy dependence of a program against the interest earned on its loan portfolio, the major activity of a DFI:

(4.8)

$$SDI = \frac{NS}{LP * i}$$

where *SDI* is the subsidy dependence index (SDI), *NS* is the annual (net) subsidy received by the Grameen Bank, *LP* is the average annual outstanding loan portfolio, and *i* is the average weighted on-lending interest rate paid on that portfolio.

The above financial ratio helps measure the percentage increase in the average on-lending interest rate required to eliminate subsidy in a given year while keeping its return on equity equal to the approximate non-concessionary borrowing cost. A zero *SDI* implies that profit equals the social cost of operation, meaning the Grameen Bank has achieved full self-sustainability. By contrast, a positive SDI indicates that the economic cost exceeds the profit, in which case the on-lending interest rate must increase by the amount of SDI to eliminate the amount of net subsidy. For example, an SDI of 100 percent indicates a need to double the on-lending interest rate of the loan outstanding to eliminate subsidy.

The subsidy and subsidy dependence index (SDI) are sensitive to the accounting profit (*P*) used to calculate them on the basis of the annual report of a program. Profit (*P*) can be generated not only from on-lending, but also through investment in government securities and other financial instruments. Although SDI is evaluated in terms of lending only (to the poor), the SDI calculation does not require information on how profit is generated, or how the financial resources are allocated. This is justified to the extent that the donor funds are given only for on-lending to the poor.

However, as part of a prudent risk-reducing policy, a financial institution may diversify its financial resources in order to maximize expected return and profit. This needs to be taken into account while calculating the SDI. Otherwise, even if everything remains the same, a portfolio mix can yield a higher profit for a program that diversifies resources compared to a program that only lends, and consequently, SDI differs by program.

Assume that the Grameen Bank invests a part of its financial resources (F) into investment with an average return (m) so that its profit P is defined as:

(4.9) $$P=[\rho(i-c)+(1-\rho)(m-c)-\mu]F$$

where ρ = proportion of total resouces (A) that is lent out;

$(1-\rho)$ = proportion of resources that is invested; and

μ = operating cost of the program per unit of financial resource.

We define the subsidy dependence ratio (SDR) that evaluates the subsidy dependence of a program in terms of income earned against both lending and investment as:

(4.10) $$SDR=\frac{A(m-c)+Em+K-[\rho(i-c)+(1-\rho)(m-c)-\mu]F}{i\rho+m(1-\rho)]F}$$

If the Grameen Bank allocates its entire financial resources to on-lending such that F is equal to loan outstanding (LP) and $\rho=1$, we get:

(4.11) $$SDR=\frac{A(m-c)+Em+K-[(i-c)-\mu]LP}{i*LP}=\frac{A(m-c)+Em+K-P}{i*LP}=SDI$$

where $$P=[(i-c)-\mu]LP$$

Therefore, while the SDI evaluates subsidy dependence against interest income only, the SDR evaluates subsidy dependence in terms of income earned from both lending and investment. To the extent that a program always minimizes its income risk through portfolio diversification, the SDR appears more consistent than the SDI with such a practice, and consequently is subject to less variation over time and across programs.

Although the SDI takes care of portfolio diversification through profit, SDIs across financial institutions appear incomparable if they do not behave in the same manner in terms of financial resource allocation. That is, if one program has a lower SDI than another, it is not clear whether the lower SDI

is due to better program management and less reliance on subsidized resources or simply to portfolio diversification between lending and investment. The SDI is also not comparable for a program over time if its portfolio allocation varies by year and, hence, affects profit (*P*) and net subsidy (*NS*). For these reasons, we will present both the SDI and SDR measures for comparison.

CHAPTER FIVE

Institutional viability

The sustainability of the Grameen Bank depends to a large extent on its institutional development and viability. The leadership of Dr. Yunus has been instrumental in the Bank's growth. In addition, its decentralized management style, emphasizing monitoring, evaluation and adaptability in decisionmaking, has enabled its innovative processes to be replicated at all levels.

The role of its employees is as important as that of its members in influencing performance and sustainability. Combined with extensive field-level training for new recruits and older staff based on problem-solving skills, the Grameen Bank has created a cadre of dedicated professionals, who are motivated as much by a desire to help the rural poor as by personal financial incentives. Given this background of several organizational policies, the Grameen Bank has moved its operations into remote rural areas that conventional financial institutions have generally avoided.

Leadership, decentralization, monitoring and evaluation

The successful evolution of the Grameen Bank's innovative banking and operational systems was initially due to the ideas and organizational capabilities of Dr. Mohammad Yunus. In the last decade, it has also been due to the decentralization of its administration and increasing professionalization of its management. Under Dr. Yunus's leadership, the organizational and lending policies were designed to influence borrowers and its employees to perform quite differently from their counterparts in other banks and development financial institutions.

The rapid expansion of the Grameen Bank has centered on the institutionalization of its decentralized management system. Initially, the Bank was composed of a head office and branches. As the organization grew, decentralization became crucial for ensuring efficient decisionmaking at all operational levels. Zonal offices were created as the Bank expanded into other districts and the number of branches increased. Area offices were established when the number of branches increased to a point at which the zonal offices could no longer provide effective supervision. As the number of branches grew, new zones were created as well.

With the expansion of branches and creation of area and zonal offices, the leadership gradually delegated more decisionmaking authority to these intermediate administrative units, since the head office could no longer effectively handle the volume and the variety of issues involved. Unlike most hierarchical bureaucracies, the Grameen Bank evolved naturally into a decentralized organization as it grew. The managers at the field offices are expected to plan, organize and implement Grameen Bank services and activities at various levels with little supervision from the head office in Dhaka. The devolution of many decisionmaking roles to the regional and area offices and the flexibility in branch operations allow the head office to focus on broader issues of policy and development.

At the top, a board of directors is responsible for guiding the Grameen Bank. Representatives of shareholding members sit on this board. About two million borrowers have bought shares, valued at Tk 100 each, representing over 90 percent of the Grameen Bank's equity. The borrowers' representatives are chosen through an elective process at the centers. Presently, nine of the thirteen board members are shareholder representatives, all of them women. The Managing Director and chief executive of the Grameen Bank also sits on the board. He is assisted by various units organized to resolve general policy issues, make decisions, and act as liaison to the government and donor agencies.

Most of these central decisionmaking functions rely on field-level data which are collected, analyzed and disseminated by the monitoring and evaluation unit. Monitoring and evaluation are crucial to the Bank's operations and expansion, providing continuous feedback from different operational and financial reports. The head office monitors branches' loan disbursement, repayment, and savings and default records, as well as the flow of funds, from information reported by zonal offices and based on the daily statements prepared by branch managers. These reports make it possible to keep track of each branch's performance and compare it with the aggregate data prepared by the head office.

This comprehensive reporting forms the basis of the built-in learning process characterizing the decisionmaking and policies of the Grameen Bank. With the development of its computerized Management Information System (MIS), the monitoring and evaluation unit has enhanced its data accumulation, projection and dissemination capacities. This includes an "early warning system" that identifies problems in branch or area performance that can be addressed by the head office.

Management style: staff training, incentives, and performance

In addition to decentralized administration, professional management is an important component of institutional viability. The Bank's management style has evolved from its efforts to effectively provide a whole range of programs to the rural poor. The management structure has a built-in adaptability that has been refined through field-level experiences. A combination of learning, innovation and flexibility is the hallmark of this style, evident at all levels (see Fuglesang and Chandler, 1988 for details).

This management style is based on an innovative approach to training, featuring a structured learning process that is continually fine-tuned by trial and error. The Grameen Bank's extensive training and executive development efforts have prepared and motivated its managers to plan, organize and implement bank programs without extensive supervision from the head office. Induction training for new staff was given priority when the Bank expanded rapidly; however, in mid-1991 this was replaced by re-orientation training (known as firefighting training) based on problem-solving activities and intended to create a core of professionals.

The Grameen Bank recruits people either as bank employees or trainee branch managers. Their training is predominantly a hands-on process, the time being spent mostly in the rural branches where employees have direct contact with borrowers. In addition to mastering the various banking forms, trainees are required to familiarize themselves with local conditions and prepare detailed case studies of two borrowers. They are expected to act self-reliantly and flexibly within the general rules and regulations. The training process at all levels emphasizes empathy and cooperation with target groups. Week-long sessions are also organized at the training institute to facilitate the sharing of experiences.

Staff members are expected to have detailed knowledge of how the typical Grameen Bank branch operates and of the area to which they are assigned. Almost all managerial staff assigned to the head office and the regional offices have worked for long periods at the branch level. Such branch-level training and field experience are crucial inputs to effective policymaking and decisionmaking. The performances of the units under their management, and their own backgrounds, play an important role in determining the managers' salaries.

Each year, trainees include some of those recruited that year as well as some recruited the previous year (Table 5.1). As such, the number of trainees has fluctuated each year with a maximum of 2,727 male bank employee trainees in 1989 and 382 female trainees in 1990. Between 1986-91, the number of trainees increased by 215 percent for men and 61.6 percent for women. Out of 11,858 employees in training during 1986-91 period, 1,134 (10.6 percent) were women.

Similarly, only 11.4 percent (137) of the trainee officers were women during 1989-91 (the period for which disaggregate figures are available separately for male and female officers). The number of trainee officers, both male and female, was highest (576) in 1988. In 1990 it declined to 300 (of whom only 23 were women) but grew to 484 trainees, including 52 women, in 1991.

A significant proportion of these trainees dropped out before receiving their final posting at the end of their training periods. The dropout rate has been highest for female officers, averaging 57.6 percent between 1989-91, as opposed to 27.9 percent for male officers in the same period. For 1986-88 (where the figures are not disaggregated for male and female officers) the dropout rate was 38.6 percent. On the other hand, the dropout rate for female bank employees in 1986-91 was 32.9 percent, relatively close to the 30.5 percent dropout rate for males.

However, over time the dropout rate has declined for men but not for women employees. The dropout rate was 41 percent for males in 1986 compared with 23 percent in 1991. By contrast, the dropout rate for women was 11 percent in 1986 compared with 28 percent in 1991. The dropout rate for male officers was 29 percent compared with 60 percent for female officers in 1989, and 30 percent for men and 54 percent for women in 1991. Given the smaller number of women recruits, these high dropout figures suggest that the staff remains predominantly male in an organization serving mostly women.

The considerable importance the Grameen Bank attaches to training (both for staff and members) is evident in the share of training costs in total expenditure (Table 5.2). Training costs accounted for over 45 percent of total head office expenditures in 1989 and 1990, having grown from 7.4 percent in 1986. In terms of total Grameen Bank expenditure, training costs amounted to only 3.1 percent in 1986 but gradually rose to 21.3 percent in 1989, before declining to one-third of a percent in 1993.

Total expenditure on training (all of which is incurred by the head office) increased by 245.2 percent between 1986 and 1987, by 282.07 percent between 1987 and 1988 and by 70.5 percent the following year. The drop in staff recruitment and training in the 1990s is reflected by declining training expenditures. Between 1990-91, they decreased by 23.8 percent.

Managers' pay: determinants and returns to education and experience

The Grameen Bank's staff performance and employee turnover rate may be influenced by its pay and incentive structure, as well as the nature of the jobs. Employees are paid according to the regulations of the Bangladesh Bank. It has a very competitive pay structure comparable to those of other development finance institutions and commercial banks in the country. However, unlike employees of the latter two, Grameen Bank employees face the challenging task of mobilizing the rural poor and helping to make them creditworthy and productive. Moreover, to alleviate poverty, the majority of Grameen Bank staff must be located in remote rural areas where the amenities of modern life are seldom available.

Although employees may thus be influenced by factors other than by the pay structure and incentive scheme, they must be given proper incentives in order to be more productive. The staff salary structure is a strong indicator of this incentive scheme. Typically, most managers are university graduates with field-level experience who have been rewarded for better branch performance. Data on the salary and personal characteristics of 131 branch-level managers for 1991 provide the means to examine the incentive structure available to branch managers.[13]

Estimates of a Mincerian log-wage function show the rate of return on education compared with bank experience for these 131 branch managers (Table 5.3).[14] The managers, only 4 percent of whom are women, have an average of sixteen years of education and four years of experience with the Grameen

[13] Note that a junior or a senior officer could be a branch manager. Hence, without knowing their grade level, it may be difficult to compare their wages. In fact, without controlling for their grades, the regression results based on personal characteristics may bias the wage estimates of particular groups belonging to a particular grade. This is especially relevant for women managers who are mostly junior officers. However, we did not have data on the junior or senior rank of these branch managers; this information could have been used to control for the qualitative differences of these branch managers. Assuming this risk, we estimate a wage function to see whether wages are responsive to experience and education at the Grameen Bank.

[14] In the Mincerian approach, the log of salaries is regressed with education, age and years of experience to highlight the role of human capital in determining earnings (Mincer 1974).

Bank. Their average age is thirty. As the estimates suggest, education, experience and gender explain about 61 percent of the variation in salaries. The statistical significance of their experience and years of education underlines the importance of the educational level and Grameen Bank experience in managerial staff selection, performance and salaries.

Interestingly, age does not matter. Managers receive higher returns on experience in the Grameen Bank, which do not decline as they become more experienced. However, the returns on education (7 percent) are higher than the returns on experience (2 percent). Women managers have lower wages (about 4 percent) than their male counterparts. This does not necessarily imply that the Grameen Bank's salary structure is gender-biased, but it reveals qualitative differences between male and female managers (for example, female managers are mostly junior officers, while male managers are senior officers) that cause the salaries to vary by gender. It may be mentioned here that female managers earned lower pay and emoluments because many rose through the ranks, unlike most of their male counterparts who were directly recruited and had university degrees. Of the three categories of officers who work as branch managers (i.e., officer, senior officer, selection grade senior officer), most of the women branch managers belong to the first category.

What determines Grameen Bank program placement?

Grameen Bank branches currently operate in over half of all villages in Bangladesh. The decision to establish and operate a branch in any area should be based on concern for its survival and thus must consider the risks based on agroclimate and locational characteristics. As discussed in Chapter Four, it is more difficult to establish a viable financial system where the area is largely flood-prone, seasonality is more pronounced, and roads are poor (Binswanger and Rosenzweig 1986). However, to alleviate poverty, the Grameen Bank may be driven to open and operate branches in areas where agroclimate and locational conditions are unfavorable. To test this proposition, the Grameen Bank's response pattern to such conditions can be contrasted with those of commercial banks and development finance institutions as well as government infrastructural investment decisions.

Data on agroclimate and locational characteristics were collected for 225 randomly selected thanas that housed branches of the three credit programs under study (the Bangladesh Rural Advancement Committee, the Bangladesh Rural Development Board RD-12 and the Grameen Bank; see Appendix B).

About 49 percent of these thanas have Grameen Bank operations; only 3 percent have commercial bank branches (RCBKA). About 10 percent of the thanas also have a branch of the Krishi (Agricultural) Bank (RKBKA), a major development financial institution in Bangladesh. Only 4 percent of villages have either a commercial bank or a Krishi Bank branch. Regarding infrastructural investments by the Government, about 12 percent of the thanas have electricity (ELECDEN), 38 percent have primary schools (PRMDEN), 9 percent have secondary schools (SECDEN), and 11 percent have roads and highways (RDHDEN).

The location factor is measured as the distance of the thana from the district headquarters. This variable is intended to capture the transaction costs of program placement, assuming that the greater the distance, the higher the cost of program placement. The time-invariant agroclimatic conditions are measured by moisture availability and flooding potential. Moisture availability is defined as the moisture content of the soil (millimeters/meter) and is ranked on a scale of one to four. The lower the ranking, the better the moisture availability and the better the agroclimatic conditions. Better agroclimate conditions imply less risk for agricultural production and hence less risk for financial intermediation. Regarding flood susceptibility, each thana is ranked according to its altitude above sea level, with five categories of flood-prone areas. The higher its altitude, the lower its flood risk, and the lower the risk involved in both production and financial intermediation. These data were collected from the Water Resources Planning Organization (WARPO) of Bangladesh.

Estimates of various government and Grameen Bank program placements were made (Table 5.4). Agroclimate and locational factors explain about 7 percent of the variation in Grameen Bank placement and 23 percent of the variation in the Government's secondary school placement. The results clearly show that Grameen Bank branch placement does not respond to these agroclimate and locational factors, since no variable is statistically significant.

By contrast, both government and commercial banks respond positively to better agroclimate and locational conditions. For example, both commercial banks and the Krishi Bank locate their branches in thanas that are closer to district headquarters, thus reducing their transaction costs. On the other hand, the Grameen Bank's decision to open branches in a certain area is not conditioned by its proximity to administrative centers, for in order to serve the poor it may locate its branches in some areas that other banks would deem too risky.

The conclusion that the Grameen Bank does not respond to favorable permanent locational and agroclimate conditions is thus not inconsistent with the hypothesis that program placement is random. This finding has an important implication for the branch-level cost study. If the Grameen's program placement can be treated as random, the cross-sectional branch data may be adequate to measure the causal impact of program inputs on branch efficiency, provided that input allocation is not correlated with other regressors. However, we need to test whether time-varying regressors are correlated with the error terms that might include some unobserved time-invariant agroclimate factors. This test will determine if the fixed- or random-effects method is applicable to consistently estimate branch-level efficiency.

Another implication of this finding is that the Grameen Bank may be more concerned with the behavioral risk of lending due to adverse selection of borrowers than the material risk caused by agroclimate factors. Whether the profit-maximizing concern of a financial intermediary is consistent with this finding raises a question that needs to be tested by the Grameen Bank's objective function itself.

CHAPTER SIX

Financial and economic viability

The viability of the Grameen Bank depends on its revenue and cost structures and the extent of the subsidy provided by donor agencies and by local financial institutions, including the Bangladesh Bank. The concepts of financial and economic viability are used to examine the implications of subsidy and operating efficiency on viability. The Grameen Bank is financially viable if the financial subsidy is zero or negative. It is economically viable if the economic subsidy net of profit is zero or negative. The bank may be financially viable but not economically viable if profits do not match the economic subsidy.

Financial viability of the Grameen Bank at the aggregate level does not necessarily imply that branches are financially viable, because of the differences in their cost and revenue structures. Subsidized funds are received at the head office, and then supplied to the branches at an interest rate of 8 to 10 percent. In addition, the head office, not the branches, invests in different portfolios and bears the training, research and development, and monitoring and evaluating expenses. As a result, the issue of financial viability needs to be explained separately at the aggregate and branch levels.

Analysis of program-level viability

In this section, program-level viability is evaluated using three parameters: profitability, subsidy dependence, and employee and capital productivities. Profitability reflects the amount of financial subsidy needed, while subsidy dependence indicates the program's degree of dependence on both economic and financial subsidy. Employee productivity and capital productivity are crude proxies for the operational efficiency of the Grameen Bank.

Loan recovery enhances profitability by turning over loanable funds and minimizing default, thus improving the viability of the Grameen Bank. Cost minimization, in addition to other parameters, depends on the composition and structure of funds. Given the availability of funds from outside sources, the Bank has not had to rely on credit from commercial banks provided at the market interest rate (although it has occasionally borrowed from such banks). This is reflected in the data on its cost, revenue, asset holdings, and financial structures for 1986-1993. Indicators of efficiency in its delivery of services are developed and analyzed from these data. An evaluation of the cost structure and the

operational performance also requires the analysis of both capital and employee efficiency: the financial margin (defined as interest income as a percentage of assets) gives an overall measure of the cost of funds and revenue in relation to total assets.

Loan recovery profile

The loan recovery performance of the Grameen Bank, in both the short and long term, is an important supply-side issue. It is essential for determining the extent of subsidy that may be required to keep the program operational. However, in many developing countries, including Bangladesh, the loan recovery rates of commercial banks and other development finance institutions are quite low, ranging from 25 to 50 percent. These low rates are said to result from the common view among borrowers that credit from formal (that is, government) sources does not have to be repaid, the high collinearity between loan repayment and production risks (so that crop failure, for example, has an economy-wide impact on loan recovery), and the inability to enforce loan contracts. The Grameen Bank's attainment of a high recovery rate (about 98 percent) has questioned the validity of these claims and challenged commercial banks and other development finance institutions to improve their own recovery rates.

The Grameen Bank estimates its loan recovery rate (*LRR*) based on the percentage of overdue (*OD*) payments in loan outstanding (*LO*) based on the following criterion:

$$(6.1) \qquad LRR = [1 - OD2/LO] \times 100$$

where *OD*2 represents payments overdue beyond two years. This formula is used to estimate the loan recovery rate for one-year loans but not for longer-term loans.

The recovery rate reported by the Grameen Bank is likely to be overstated because it does not distinguish between all loans outstanding and the proportion that is actually due for recovery. The conventional calculation defines the recovery rate as the amount of loans recovered as a percentage of the amount of loans due for recovery. However, as Meyer (1986) argues, the conventional method is faulty because it does not take into account the possibility that default borrowers may repay loans after the due date. As a result, the probability of default is likely to be understated.

A loan recovery profile, suggested by Meyer, plots the relationship between time and the percentage repaid of the loans that were made at a given time. The purpose of this method is to clarify loan recovery trends and to illustrate how the recovery rates may have changed with disbursement. The Meyer method requires data on the recovery behavior of individual borrowers or new loans over time. When borrower-level data are not available, the method can be applied if data on overdue loans are available at the program level. In addition, the recovery rate can be estimated using cross-sectional branch-level data on overdue loans and disbursement.

The Grameen Bank categorizes overdue loans by those overdue for fifty-three to seventy-seven weeks, for seventy-eight to 103 weeks, and for more than 103 weeks. These records are kept only for general and collective loans, not for house-building and technology loans. Thus, the recovery rate using the Meyer method is calculated for general and collective loans.

In the case of general loans, a borrower may fail to repay the weekly installments but may be able to repay the entire amount within the allotted year. The Grameen Bank classifies these borrowers as struggling borrowers, and classifies overdue borrowers by twenty-five and thirty-eight week overdue periods (Table 6.1). During the worst year, 1991, only 3.1 percent of women and about 24 percent of men did not regularly make loan repayments. By 1992, these percentages had fallen to 2.1 percent for women and 12 percent for men.

Using these figures and alternative methods, the Grameen Bank's recovery rates were estimated (Table 6.2).[15] Irrespective of the method used, the loan recovery rate for general and collective loans has been consistently above 90 percent. Furthermore, there is only a marginal difference between the recovery rates estimated under alternative methods. This may be because very few loans were overdue beyond 103 weeks. However, the estimated recovery rate shows a declining trend. For example, the recovery rate (calculated according to the Meyer method) for general and collective loans was 93 percent in 1991 compared with 96.3 percent in 1987. This trend was due to the decrease in the recovery rate of collective loans, especially from men.

[15] Loans due for recovery are approximated given the data on the amounts of loans recovered plus overdue loans beyond 52 weeks. Data for general loans recovered and overdue by gender were only available for 1990 and 1991, while the data for collective loans were available for the period of 1986-91.

For both general and collective loans, the recovery rate is lower for men than for women. The differences in recovery rates are more pronounced for collective loans, the average recovery rate over 1986-92 being 77.3 percent for men compared to 96.4 percent for women. The results clearly disprove the belief that women are higher credit risks than men. They also reveal that women are more disciplined than men, at least in regard to repayment, when both undertake collective investment projects.

Assets and financial structure

The Grameen Bank's balance sheet reveals the expansion of its assets, its capital adequacy, and the role of its internal resources (such as member savings, deposits, and reserves) in financing assets (Table 6.3). Its asset holdings have increased about thirteen times from Tk 902.7 million to Tk 12,276.6 million during 1986-93 at an average annual growth rate of about 40 percent. In 1994, the provisional estimate of assets was Tk 16,144.8 million. Earning assets (loans, deposit investment and treasury bills) have consistently comprised around 84 percent of total assets, although the share of each type of earning asset has changed. For example, deposit investment fell from 48 percent of total assets in 1986 to 14.2 percent in 1993, and 9.4 percent in 1994. Loans and advances, on the other hand, increased from about 37 percent of total assets in 1986 to 71.4 percent in 1993, but declined to 68.5 percent in 1994. Fixed assets, although increasing absolutely between 1986-94, remained between 3 and 7 percent of total assets.

Capital, a major indicator of financial strength, is the sum of paid-up capital (equity), reserves and grants. The volume of capital has grown by about seventy times from Tk 43.7 million in 1986 to Tk 3,027.7 million in 1993 and to Tk 3,587.9 million in 1994. Asset holdings have grown at a similar pace. The share of capital in total assets was estimated to be 24.5 percent in 1993 and 22.2 percent in 1994, compared with 4.8 percent in 1986. The larger amount of capital increases the Grameen Bank's capacity to absorb any losses and to operate with more stability. However, this capital increase was due largely to an increase in grants. The amount of grants received by the Grameen Bank has increased at an average annual rate of 25 percent over 1990-94 compared with 5 percent during 1986-89.

Internal resources are still inadequate for financing Grameen Bank lending. Savings and deposits constituted only about 19 percent of total assets in 1993 and 20 percent in 1994. The ratio of loans and advances to savings and deposits increased from 0.8 in 1986 to 3.7 in 1993 and to 3.4 in 1994. The Grameen Bank financed its lending increases by borrowing and accepting grants, which together averaged

73 percent of its financial liabilities over 1986-91. However, the relative shares of grants and borrowed funds in the Grameen Bank financial structure have changed substantially since 1986. The share of borrowing declined from 79 percent in 1986 to 27 percent in 1992 and then rose to 44.6 percent in 1993, because of increased borrowing from the Bangladesh Bank, and rose further to 50.9 percent in 1994. The share of grants has increased from about 1 percent to an average of 21 percent over 1988-94 because of the increased inflow since 1988. Between 1985-88, on-lending was largely financed by long-term credit from IFAD, NORAD, and SIDA, while from 1989-91 it was supported by grants and revolving funds.

Borrowing and grants have remained at around 70 percent of the Grameen Bank's total finances during 1987-94. The Bank receives two types of grants from the international agencies: income grants for reimbursement of some operating expenses such as training, monitoring and research, and on-lending grants, also used for institutional development. Between 1987-93, the average annual income grants increased more than twenty-five times from Tk 3 million to Tk 86.9 million, but decreased to Tk 76.3 million in 1994 (Table 6.4). The amount of grants for on-lending has increased more than ten times between 1989-94. In addition, the bank's total equity (paid-up capital) has increased from an annual average of Tk 38.8 million in 1987 to Tk 216.5 million in 1994. The group members' share of total equity increased from 55 percent in 1987 to about 85 percent in 1991.

Revenue and cost structure

The Grameen Bank is a financial intermediary and must be concerned with its profitability, which is influenced by the revenues generated and expenditures incurred. The aggregate-level cost and revenue structures indicate its degree of financial profit or loss. These structures are commonly known as the income statement (Table 6.4).

Both revenue and costs increased by nearly twenty times over 1986-94. At the aggregate level, it incurred losses only in 1991 and otherwise recorded profits. The sources of revenue are interest income from loan disbursement and deposits with other banks, income from investments, and revenue grants for training, research and monitoring. The Grameen Bank's costs are salaries, training expenses, interest expenses on deposits and mobilized savings, and the interest paid on borrowing.

Interest, the major source of revenue, is earned from lending, fixed deposits and investment in treasury bills. The share of interest income in total income is generally more than 90 percent. In 1994, it was estimated at 94.8 percent. Most of this income derived from lending, which comprised 81.6 percent of interest income in 1994, up from about 49 percent in 1986. Both an increase in lending and an increase in the interest rate contributed to this substantial growth. As pointed out in the previous section, the amount of loans outstanding increased from 37 percent of total asset in 1986 to about 70 percent in 1994. Furthermore, in 1991, the interest rate on housing loans increased from 5 to 8 percent and the rate on short-term loans (general and collective) increased from 16 to 20 percent.

Non-interest income (grants and other sources) fell from 21 percent in 1989 to 7.5 percent in 1993 as a result of a reduction in grants. In 1994, non-interest income declined to 5.2 percent of the Grameen Bank's income.

The income from deposit interest is very low; it remained less than 1 percent of total income during 1986-93 and was only 0.22 percent in 1994. The Grameen Bank has added treasury bills and short-terms fixed deposits to its portfolio. This investment has generated a large share of income over 1986-94. For example, investment income accounted for 50 percent of the Grameen Bank's revenue in 1986. However, lending has displaced such fixed-type investment in the Bank's portfolio. Thus, over time, the income from lending has increased while the income from investment has declined. In 1993 and 1994, investment income accounted for about 13 percent of the Grameen Bank's total income.

Interest expenses on deposits and borrowing as a percentage of total expenditures are low relative to other expenditures (Table 6.4). The share of interest expenses in total expenditures was about 35 percent in 1986 and decreased to 29.4 percent by 1993 as a result of a decline in borrowed funds. But in 1994, interest expenses rose to 39.7 percent of total expenditures following increased borrowing. Although the Grameen Bank is largely financed by grants, it has also borrowed from international agencies at concessionary rates. The share of grants in total donor funds monotonically increased during 1987-93, but declined drastically in 1994. They accounted for about 58 percent of all donor funds received in 1993 compared with almost 91 percent in 1988 and only 3.7 percent in 1994 (Table 3.1).

On the other hand, the percentage of funds borrowed from foreign sources has declined from 87 percent in 1988 to 43 percent in 1993. This is also reflected in the decrease in interest payments on

borrowing. In 1986, interest accounted for 26 percent of total costs, and by 1993 it had declined to about 18 percent, but it increased to 26.2 percent in 1994. An inverse relationship is observed between interest costs on deposits and interest costs on borrowing. Interest costs on deposits increased from 8 percent of total expenditures in 1986 to 11.5 percent in 1993 and 13.5 percent in 1994, whereas interest costs on borrowing averaged 15.1 percent during the 1986-93 period, but rose to 26.2 in 1994.

Salary and training expenses are the Grameen Bank's dominant non-interest expenditures, comprising 67.6 percent of such expenditures in 1993 and 52.6 percent in 1994. In 1986, salaries alone accounted for 48 percent of total expenses. This figure rose to 51 percent in 1987 before falling to around 40 percent, where it remained for the rest of the decade. Salary expenses again rose to 50 percent in 1991, a result of the 1991 salary increase. This did not change until 1993, when the share of salary expenses fell to 44.1 percent due to employee attrition, and declined further to 29.4 percent in 1994.

Donors, sharing the Grameen Bank's belief in the importance of training, have continuously increased their funds for this purpose, especially since 1988. Training expenses increased nearly 39 times during 1986-90, from Tk 2.8 million to Tk 79.4 million. However, they fell to Tk 46.2 million in 1994, after a gradual decline over 1991-94. Training costs accounted for only 3 percent of total expenditure in 1986, grew to 21.3 percent in 1989 and 19.7 percent in 1990, but sharply declined to 5.8 percent in 1992 and 2.3 percent in 1994.

Financial margin, interest rate policy, and program profitability

The profitability of the Grameen Bank has always been of critical importance to policymakers. Although it may be difficult for the Bank to earn any profit given the high costs of group formation and training, it needs to do so in order to become sustainable. If the Grameen Bank is to become profitable, it must cover all costs as a percentage of assets within its financial margin. This margin declined from 8.3 to 6.9 percent during 1987-89 and increased from 6.6 to 8.8 percent during 1990-93 (Table 6.5), the result of an increase in grants and in the lending interest rate (in 1991). The interest rate on general, collective and technology loans was increased from 16 to 20 percent and on housing loans from 5 to 8 percent.[16]

[16] The effective interest rate at the borrower level may be different. Since weekly payments for principal are made over fifty weeks and the interest payment is collected as the last two installments, the Grameen Bank calculates the effective rate of 20 percent's nominal interest as 10-12 percent. Hossain (1988) estimated an effective interest rate of 33 percent, but he did not

On the other hand, the head office disburses funds to the branches at a rate of 12 percent for the general and other income-generating loans, 5 percent for technology loans, and 4 percent for housing loans. The financial margin averaged 7.7 percent between 1986-94. When revenue grants are included, the average financial margin was 9.1 percent.

The Grameen Bank has recorded profits each year during 1986-91 and an increasing rate of return on equity. The rate of return on assets was, however, very low, ranging from 0.04 to 0.25 percent. The aggregate net profit during 1983-93 was Tk 29.7 million, implying an equal net increase of assets. The bank incurred losses only in 1992 because of the salary increase in 1991. The effect of the salary increase was to reduce the financial margin despite the gain in interest revenue attributed to the higher lending rate. A recent estimate of 1994 profits was reported to be Tk 21.74 million. The improved financial performances of 1993 and 1994 came about through increases in the lending interest rates and in loan disbursement, as shown in Table 3.6.

However, the Grameen Bank's profit estimates are influenced by whether or not grants received for research and development training, and monitoring and evaluation, are included as revenue. When profits are calculated assuming that the Bank has met these expenses, it is revealed to have been incurring losses since 1987 (column 3 in Table 6.6). The losses range from Tk 2.6 million in 1987 to Tk 77.4 million in 1993. Alternatively, if operating profit is calculated with neither these expenses nor grants, the Grameen Bank's operating profits or losses are less negative compared to the revised profits. Since expenditures on training, research and development, and monitoring and evaluation are incurred by the head office, which also receives grants, these figures suggest that the Grameen Bank can earn profits if these development activities are financed by outside funds.

As argued above, if training expenses were covered by loan revenue, then the bank incurred financial losses during 1987-94. Given the present levels of disbursement and loans outstanding, the Grameen Bank can operate without a financial subsidy by increasing its interest rate. This increment should be such that the Grameen Bank can meet all expenses using revenues generated from lending. Its calculation requires information on operational costs, lending costs, and funding costs. The major source

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adjust the rate for the benefits members derive from group funds, emergency funds, and children's education funds. Since data on the benefits members receive were not available, the effective rate could not be precisely computed.

of expenditure per taka loaned is the operating cost of which the salary cost is the largest component, followed by the default cost (Table 6.7).

The financial efficiency criterion suggests that in 1993 the Grameen Bank should have charged an annual interest rate of 14.9 percent to meet its cost of principal lent. Over 1987-91, the break-even interest rate has increased from 17.5 percent to 22.8 percent and has been consistently higher than the average on-lending interest rate. This shows that financial subsidy (in the form of grants) was necessary for the Grameen Bank to operate during 1987-91. However, the break-even rate decreased to 16.5 in 1992, where it nearly equaled the average on-lending rate. Moreover, because of higher loan disbursement that year, the average cost (excluding the default cost) for lending fell by six percentage points. In 1993, the break-even rate was 14.85 percent compared to an average on-lending rate of 15.96 percent.

Subsidy dependence

In addition to financial subsidy, the Grameen Bank also benefits from economic subsidy. It receives economic subsidy in the form of borrowing and grants from international agencies, borrowing from the Bangladesh Bank, and total equity (Table 6.8).

The Grameen Bank is affected by exchange rate fluctuations only to the extent that they generate cheaper funds. It receives the borrowed amount in local currency through the government and repays the taka amount received to the government. During 1985-88, the gains from foreign exchange rate fluctuations were 45.7 percent of the approved dollar budget and 13 percent during 1989-93. Although there were gains from foreign exchange rate fluctuations, the effective funds were generated according to the amount of grants budgeted in dollars. The loan burden for the Grameen Bank increased because of the impact of foreign exchange fluctuations on loans from international agencies. However, the gains from foreign exchange fluctuations during 1989-91 were estimated to be 8.4 percent of the total grants. The opportunity cost of such gains could not also be estimated annually; however, the estimated opportunity cost is accounted for in the subsidy estimates.

The Grameen Bank's interest rate structure for borrowing and lending has changed over 1985-91. The interest rate paid on loans from international agencies was 3 percent in 1985 and remained at 2

percent during 1986-93. Loans from the Bangladesh Bank, taken prior to 1993, had an interest rate fixed at 3 percent; these were given for the housing loan program. Since 1993, the Grameen Bank has borrowed from the central bank at the latter's rate, which averaged 6 percent. The cost of mobilizing savings and the returns on lending are higher for the Grameen Bank than for the traditional commercial and development banks. The Grameen's lending rate has been 20 percent since 1991. By contrast, commercial banks reduced their lending rate from 16 to 14.5 percent in 1991. The Grameen Bank offers 8.5 percent interest on savings and deposits mobilized from the group members, while the commercial rate fell to 7.5 percent (from 8.5 percent) in 1991.

The subsidy per unit of resources borrowed is the difference between the concessionary price and the effective market price. The effective market price is the nominal interest rate plus three percentage points, added to account for transaction costs. The funds received from international agencies and the Bangladesh Bank are the annual average of their beginning and closing balances. The income subsidy is the amount received as reimbursement for some operating expenses, such as training expenses. The total amount of subsidy including income grants has increased (monotonically) more than sevenfold during 1987-93, from Tk 108.68 million to Tk 780.58 million. But in 1994 the total subsidy declined by over 50 percent to Tk 370.39 (Table 6.9).

The interest subsidy, composed of subsidies from loans and grants, is the dominant component of the total subsidy. The share of the interest subsidy increased over 1989-93 from 75.8 to 87.9 percent, but declined to 73.6 percent in 1994. This resulted from increases in foreign grants for on-lending. By contrast, the income subsidy from grants for monitoring, training and research expenses has increased by 29 times during 1987-94 from Tk 3 million to Tk 86.9 million. The contribution of equity to total subsidy is only about 3 percent in 1994.

Using these subsidy estimates, two indicators of subsidy dependence were calculated. The first was based on the level of financial resources used in both investment and lending (SDR) and the second was based on the financial resources used only for lending (SDI). The SDI is always larger than the SDR. The SDI estimates suggest that there has been a continual decline in the Grameen Bank's subsidy dependence between 1987-94 with the exception of an increase between 1989-90. In 1991 the SDI was 143 percent, a drop of 34 percentage points from the 1990 level of 177 percent. This decline in the SDI occurred because of the 1991 increase in the lending rate. There were further declines in the SDI in

1992, 1993 and 1994 (to 22 percent) as a result of an increase in general lending and larger profits. Still, subsidy dependence could not be eliminated altogether, although it has been drastically reduced over time.

The subsidy dependence ratio (SDR) also declined during 1989-94, as it fell from 119 percent in 1989 to 19 percent in 1994. This suggests that, given the present level of utilization of financial resources, the Grameen Bank can eliminate all forms of subsidy if it increases the rate of return on all types of investment and lending by 19.7 percent (Table 6.10). But if it is assumed that the subsidy is to be eliminated only through increasing the lending interest rate, then the SDI implies that this can be done by raising the lending interest rate by about 22 percent. The Grameen Bank needs to increase its average lending rate from its present level of 16.51 percent to about 19.71 percent, based on the SDR estimates for 1994, to remove all subsidy dependence. Based on the SDI estimates, the Grameen Bank must raise its lending rate to 20.23 percent (Table 6.10).

Alternatively, the Grameen Bank could reduce its subsidy dependence by increasing its disbursement per branch, if it is operating with significant economies of scale. It has increased its lending by 70 percent between 1991-92 without increasing its default cost. The average growth of loans outstanding during 1986-94 was 41 percent. At this growth rate, with total subsidy of Tk 370.4 million, our projections show that the Grameen Bank could eliminate its subsidy dependence by the year 1998, provided that the additional lending comes from market sources at market interest rates. But the Grameen Bank would incur more proportionate increases in borrowing costs if it financed these additional loans from market sources rather than donor sources to avoid further increases in economic subsidy. Therefore, in the short run, the bank would gain more if it expanded only its lending rather than both lending and membership.[17] However, the Bank may also consider gradually reducing its overhead cost to accommodate more members and more lending per member. The pertinent questions are whether there exist demand constraints on lending, given local production conditions, and whether there are economies of scale in the expansion of branch-level operations.

[17] If both lending and membership are allowed to increase, our projection is that the Grameen Bank could eliminate subsidy dependence by the year 2000.

Employee and capital productivity criterion

The previous discussions highlighted the Grameen Bank's improved performance during 1986-93 in terms of profitability and subsidy dependency. This does not imply, however, that the bank is cost efficient. The time series data on cost structure is inadequate for measuring efficiency at the program level. Consequently, efficiency is analyzed in terms of employee and capital productivity criteria.

The productivity of capital and employees can be measured in terms of Grameen Bank membership, borrowers, loan disbursement, loan outstanding, and savings and deposit mobilization. The average membership per employee has increased from about 78 in 1985 to 185 in 1994, while membership per thousand taka (capital) during 1986-94 has declined from two to about one member (Table 6.11). A similar pattern also holds for the number of borrowers. Lending per employee has increased nearly ten times in this period from Tk 425.6 thousand to Tk 4,110.1 thousand. By contrast, lending per taka (capital) has increased by 73 percent, from Tk 11 in 1986 to Tk 19 in 1994. The same pattern of high labor productivity and low capital productivity gains is also evident for loans outstanding and savings and deposits mobilized during 1986-92. Because of the differences in labor and capital productivity trends, these figures do not suggest whether the Grameen Bank is cost efficient. More rigorous testing for this result will be undertaken later in the chapter.

Analysis of branch-level viability

Out of 915 Grameen Bank branches (in 1991), a sample of 136 were surveyed for an examination of profitability, recovery, costs, and financial viability (see Appendix B). Data were collected from the branches by administering a questionnaire that requested such information for 1985-91 (or from the year of its establishment). Eliminating some data due to error left 118 branches to analyze. Of these, only twenty-four were making profits.[18] On average, a branch takes five years to make profits (Table 6.12). Profit-making branches are operating in areas that have more annual rainfall, less variance in monthly rainfall, and fewer commercial banks per square kilometer. Although both profit-making and money-losing branches have a similar number of staff, the profit-making branches have more assets, loan disbursements, members, and savings mobilized. Only 31 percent of profit-making branches have

[18] The number of profit-making branches has increased recently. According to a Grameen Bank report, 54 percent of its branches made profits in 1993.

exclusively women members, compared with 56 percent of branches incurring losses. Twenty-two percent of the branches earning profits disburse technology loans, whereas only 4 percent of the branches that are losing do so. However, loan recovery is lower and member dropout rates are higher for profit-making branches. This result suggests that the more money a branch lends out or the more members a branch mobilizes, the more likely it is to encounter adverse selection of borrowers or activities.

Using this branch-level panel data, we estimated a reduced-form profit equation using the fixed-effects method to identify the factors determining a branch's profitability. Since the head office determines both the on-lending and borrowing rates for the branches, a branch's financial margin, and thus profitability, is largely determined by the head office. Nevertheless, the profitability of a branch also depends on factors such as infrastructure, observed branch-specific characteristics (such as whether a branch's membership is women-only), unobserved branch-specific characteristics (such as unobservable area characteristics), branch managers' ability, and observed program-level inputs such as training provided by the head office. The fixed-effects technique cancels out the role of unobserved time-invariant branch specific characteristics.[19]

The results confirm that relatively new branches lose money (Table 6.13), but as they age they begin to earn profits. The nonlinear (convex) relationship between a branch's profit and age is shown by the age and age squared terms. The investment in staff and borrower training has a significant return in terms of raising branch-level profits. A ten percent increase in training cost increases branch-level profit by some twelve percent. Branches that have only women borrowers incur losses more readily compared with branches that have both men and women borrowers. Branches that make technology loans are also more likely to earn profits. Since technology loans are relatively larger, this finding suggests that larger amounts of loans help reduce costs. Road density also contributes to profit growth. The higher the road density, the higher the market demand for goods being produced by Grameen Bank-financed projects, and thus the higher the branch's profits. Better road conditions may also mean lower transaction costs of lending. By contrast, Grameen branches incur losses in areas with more commercial or Krishi banks, suggesting that the Grameen's branch-level profitability is limited in areas where

[19] Even if we find, as in Chapter Five, that program placement in a particular thana is random, the Grameen's selection of branch location within a thana (there may be more than one branch in a thana) may not be random for various reasons. This is why we need to control for the unobserved branch-specific characteristics in the estimation. If such unobserved inputs enter into the equation in additive form, a fixed-effects technique can circumvent this type of heterogeneity.

commercial banks' lending is higher. This does not mean that a commercial bank loan is a substitute for a Grameen Bank loan, but that commercial bank (or Krishi bank) activities are substitutes for Grameen Bank-financed activities (Appendix Table 2). The model has a good fit overall, explaining 77 percent of the variation in branch-level profitability.

Are Grameen Bank branches cost-effective?

The branch-level cost data are used to calculate the financial subsidy required for branches to break even. The branch-level break-even interest rate (unlike the program-level) hovered around 13 percent between 1986-90 (Table 6.14). The average lending rate based on the portfolio mix of selected branches was higher than the average break-even interest rate during this period. Thus, these branches were making profit. However, the staff salary increase in 1991 caused the break-even rate to increase to 21 percent, and branches recorded losses. The increase in the average lending rate, from 12.7 to 15.1 percent, was not enough to cover the increased costs. In addition, the branch-level default cost was high in 1991 because of the low loan recovery rate (about 94 percent). This also contributed to the large increase in the break-even interest rate.[20] With the exception of 1991, the findings indicate that the Grameen Bank is financially viable. However, the branches at their current level of operation cannot make sufficient profits to cover the program-level costs, (for example, training costs) implying that, although the Grameen Bank is cost-effective in lending to the poor, it is not cost-effective overall because the program incurs institutional development costs that are not borne by the branches.

The cost efficiency criterion is based on average cost figures and thus does not display the dynamics of the economic viability of a program. To analyze the dynamics of sustainability, we estimate the branch-level cost curve and calculate the marginal cost of lending to see if the bank's branches are operating at the optimal level. Using the cost estimates, we also examine whether economies of scale exist in the operation of different types of branches.

[20] This may not be the case in 1992 when the branches on average increased lending by almost 70 percent over the preceding year. This might have helped many branches, on average, to break even in 1992.

A translog cost function is estimated using membership, loan disbursement, and savings mobilized as joint outputs.[21] The three outputs may be jointly produced and correlated with the errors that affect the cost that the branch incurs in producing them. Therefore, the estimates may be subject to a simultaneous equation bias. The Hausman endogeneity test suggests that the value of chi-square or F-statistics is not sufficiently high to accept the assumption of endogeneity.[22]

The non-linearity of the cost function with respect to the age of a branch is confirmed by the cost estimates. That is, the older a branch, the more likely it is to have reduced costs. Training also reduces costs because of possible productivity gains among staff and members. The model explains 94 percent of the variation in branch-level costs.

Based on these estimates, we calculate the marginal cost of membership, loan disbursement, and savings mobilized. Only the marginal cost of membership and disbursement are significantly different from zero.[23] The marginal cost of mobilizing an additional member is Tk 138, while the marginal cost of lending an additional, say, Tk 4,000 is only Tk 64. Thus, if a branch mobilizes an additional member and gives him/her a loan of Tk 4,000, it incurs an additional cost of Tk 202. If the loan is given for one year at an average interest rate of 15.1 percent, the bank's additional interest income is Tk 604. Clearly the branches are not operating at the optimal level where the marginal cost is equated with the marginal revenue (in this case, the average lending rate).

Consequently, economies of scale exist in Grameen Bank operations. The economy of scale for an average branch is 0.582, which is significantly different from one. We have also calculated the economies of scale for the branches that have only women members and for those offering technology loans. Branches disbursing technology loans are operating at a more optimal level than branches with

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[21] A test is carried out to see whether the fixed-effects or random-effects model is appropriate. The chi-square value of 213.6 with 26 degrees of freedom suggests that the fixed-effects model is more appropriate.

[22] The F-value of the joint significance test of predicted membership, predicted loans disbursed, and predicted savings mobilized is 5.14. This value is not sufficiently high to accept the endogeneity assumption. Moreover, none of the instruments used to identify the loan disbursement equation from the membership or savings equation has any significant impact. The instrument used to identify the disbursement equation from membership equation is the density of commercial and Krishi banks. By contrast, rainfall and the dispersion of rainfall from its annual mean are used to identify the savings mobilization equation.

[23] Note that the marginal cost of savings mobilization is zero, perhaps because savings is an integral part of membership mobilization and lending.

only women members (Table 6.15). The findings suggest that all branches would benefit from program expansion, although the branches with only women members would gain more than the branches making technology loans.

The findings of the analyses, both at the program- and branch-levels, suggest that the Grameen Bank has performed well over the past eight years and was able to reduce its economic dependency over 1989-93. However, interest rates need to be increased to enable the Bank to operate at the break-even point. Also, as the results of the branch-level cost function estimates suggest, the Grameen Bank can become more efficient by expanding its scale of operations. Since the computed marginal cost of mobilizing a member and lending is substantially lower than the additional revenue that this joint output generates, the Bank has a large margin for expanding lending or membership, or both. The declining reliance on financial and economic subsidy is promising for the Grameen Bank's viability.

CHAPTER SEVEN

Borrowers' viability

The sustainability of a credit program ultimately depends on the viability of its borrowers. This can be judged in terms of their economic and social welfare, their loan repayment performance and whether or not they drop out of the program.

The Grameen Bank aims to reduce the poverty of its members and their communities. If the benefits it generates are perceived to be sustainable, dropout and default rates should be lower. Over time, if members' savings have grown significantly and if their net worth has increased, the benefits from Grameen Bank may be deemed sustainable.

The dropout rate, as a measure of borrower viability, indicates whether members have benefitted from program participation. The perceived costs and benefits of program participation, which are based on individual, branch and area characteristics, may influence dropout rates and loan repayment behavior. Members' default patterns and repayment behavior also influence group viability. The influence of the Grameen Bank's activities can be measured by their impact on rural wages, an indicator of the level of development. Borrower viability can also be examined by comparing savings (benefits) and subsidies (costs) over time.

Group viability: dropout behavior of Grameen members

The viability of a group ensures an individual's continued access to the bank's resources and, therefore, improves the viability of the borrowers. Group viability is also important for the viability of the Grameen Bank as a whole. Members must be trained, and it is cheaper to do so in groups. Still, group-based training is a high-cost activity. As demonstrated in Chapter Six, membership mobilization is the largest component of the Grameen Bank's expenditures, while lending costs are comparatively low. As such, if groups are not sustainable, the Grameen Bank may exhibit a high overhead cost for lending.

Group viability depends on the willingness of its members to adhere to the rules and regulations of the Grameen Bank. This, in turn, depends on the benefits and costs of group participation. These benefits include gaining access to credit at formal-sector lending rates, access to training and

organizational inputs that promote both trade-specific and managerial skills, and access to social intermediation inputs that encourage social and financial discipline.

Members face a variety of costs, including the opportunity cost of participating in group activities. Although Grameen Bank members are landless, they may have alternative wage-earning opportunities (especially the men). For women, opportunity costs may entail substantial production foregone in household (non-market) activities. The decision to participate implies that the benefits of doing so outweigh the costs. Some group members may derive "psychic" benefits and costs from participation. For example, rural women who have very limited on-hand knowledge about the outside world may gather information to improve market and non-market production. Participation may also engender a sense of accomplishment and solidarity among the poor. However, it may also create problems if family members or village elites react negatively to their activities, especially to women working outside their homes. Although the Grameen Bank attempts to alleviate some of these costs through "family" workshops, they may still outweigh the psychic and material benefits and thus undermine borrowers' and groups' viability.

Some members may also drop out after "graduating" (in that they no longer need the Grameen Bank's services). This usually only occurs after several years of membership. Using household data, it is possible to identify cases of graduation, if there are any at all. However, the dropout rate is seen more as an indicator of the failure of member-borrowers who could not sustain profitable economic activities through borrowing or who could not maintain membership for other reasons.

The annual dropout rate of Grameen Bank members fluctuated from about 3.45 percent in 1986 to 2.24 percent in 1993 and to 4.62 percent in 1994 (Table 7.1). The dropout rate for women also changed from 4.18 percent in 1986 to about 2.3 percent in 1993 and 4.5 percent in 1994. By contrast, the dropout rate for men was 3.83 percent in 1986, compared with 1.37 percent in 1993 and 6.39 percent in 1994. The dropout rate grew an average of 14 percent annually over this period, with women averaging 17 percent and men averaging 13 percent.[24]

The factors determining the costs and benefits of an individual's participation in Grameen Bank activities influence the dropout rate. For example, rural electrification and road length may determine

[24] This is estimated by a regression of the log of members' dropout rates against time. The coefficient of time measures the growth rate.

whether alternative income-earning opportunities exist, and thus whether members drop out. On the other hand, infrastructural investments may improve opportunities to utilize credit, so these variables can reduce the dropout rate. However, if the benefits from participation are great enough, members may graduate. The Grameen's management characteristics may also influence the dropout rate. Since the marginal cost of membership is high, a higher dropout rate implies higher operating costs, which management could attempt to reduce. Effective financial incentives and staff training may thus reduce the dropout rate.

The age of the branch is an important factor determining whether members drop out (Table 7.2). Newer branches have higher dropout rates. In addition, a 10 percent increase in managers' salaries, independent of age, education and experience, reduces the dropout rate by 2 percent. Similarly, improved educational infrastructure reduces the dropout rate. Rural electrification, on the other hand, accelerates the dropout rate. This suggests that a more developed local economy holds more opportunities for alternative employment, leading members to leave the Grameen Bank more rapidly. Commercial bank density increases the dropout rate among Grameen Bank members who have borrowed for more than three years. However, it is not clear whether this implies graduation from the program or whether their credit needs are better met by commercial banks or other lenders. Household-level data is required to test this proposition.

Determinants of loan repayment behavior

Group viability also depends on whether or not members regularly repay their loans. Since each member's regular loan repayment determines the future availability of loans for other members, borrowers' loan repayment records are another indicator of borrowers' and, hence, groups' viability. The Grameen Bank defines "irregular borrowers" as those who do not make regular weekly payments and "struggling borrowers" as those who cannot make payments for reasons beyond their control. A "defaulter" is one who cannot repay loans within the specified time. Analyzing these types of borrowers and the factors influencing their behavior can shed light on the viability of borrowers.

The proportion of irregular borrowers increased from 2.3 percent in 1985 to 4.8 percent in 1991, before falling to 2.5 percent in 1993 and rising again to 4.1 percent in 1994 (Table 7.3). The proportion of struggling borrowers also doubled, from 0.8 percent in 1985 to 1.7 percent in 1991. This proportion

declined to 1.1 percent in 1993, but rose to 1.6 percent in 1994. The percentage of borrowers who are either irregular or struggling is in fact very small, underscoring the viability of the Grameen Bank.

Men and women exhibit different loan repayment behaviors. Men, on average, are more likely to be irregular and struggling borrowers than women. In 1994, 3.7 percent of women were irregular and 1.4 percent were struggling borrowers while 9.7 percent of men were irregular and 3.7 percent were struggling borrowers. This finding suggests that women's groups are more viable than men's groups.

Similarly, gender differences are also apparent among defaulters (Table 7.4). The percentage of 25-week defaulters declined from 2 percent in 1985 to 1 percent in 1991. Between 1985-89, there were no 38-week defaulters. Two percent of borrowers defaulted in 1990-91 and less than 1 percent in 1992-94. Only 1 percent of women were 25-week defaulters compared with 3 percent of men in 1991. In 1994, these had declined to 0.7 percent for women and 1.4 percent for men. Less than one percent of women and 1.8 percent of men were 38-week defaulters in 1994. The percentages of defaulters in both categories have fallen in recent years.

No Grameen Bank borrowers were defaulters between 1985-86 (Table 7.5), and only 1 percent of borrowers were defaulters during 1987-89. This figure rose to 3 percent by 1992, but fell back to 1 percent in 1993 and declined further in 1994. Irrespective of the way loan defaulters are defined, the data reveal that, although men on average default more than women, the overall proportion of borrowers who default is very small. This clearly indicates the long-run viability of the groups and borrowers.

Although the loan default rate is low, the question persists as to whether default is random and influenced by erratic behavior or whether it is systematically influenced by area characteristics that determine local production conditions and hence, branch-level efficiency. The fixed-effect estimates of overdue loans show that loan default is not entirely due to borrowers' erratic behavior; it is partially determined by factors influencing branch-level efficiency or local production conditions. These factors jointly explain 54 percent of the variation in default behavior of those 52-77 weeks overdue, 41 percent for those 78-102 weeks overdue, and 42 percent for those more than 103 weeks overdue (Table 7.6).

The longer a branch operates in an area, the higher the loan default rate.[25] By contrast, several variables are positively correlated with a low default rate, including the benefits received by branch managers, staff and member training, rural electrification, road length, educational infrastructure, and commercial bank density. Commercial banks may improve the overall liquidity situation and income-earning opportunities.

Impact of the Grameen Bank on rural wages

The benefits from participating in Grameen Bank activities must reduce dropout rates and improve members' loan repayment. Such benefits are in the form of income, employment, health and nutrition, and education. Identification of these benefits at the borrower level is beyond the scope of this paper. However, a village-level analysis is carried out to examine the viability of borrowers' benefits and whether these benefits can improve the local economy.

The method used to identify the impact of Grameen Bank activities on the local economy is the village-level wage impact analysis. Given that rural wages are an indicator of rural poverty, we can identify whether the Bank alleviates poverty by looking at its effect on village-level wages. As mentioned earlier, it encourages and enables the poor to employ themselves and to develop their own enterprises. The immediate effect of enabling self-employment is to reduce the labor supply and consequently raise the wage rate, given the local demand for labor. Wages remain at this higher level if the program induces a large demand for food and other local produce. This, in turn, may spur an additional increase in labor demand, further raising the wage rate. Therefore, if the borrowers' benefits from participation in the Grameen Bank are sustainable, we would expect an increase in wages following its placement in an area. Furthermore, the longer the program functions, the more pronounced the wage effect.

A sample of 87 villages was randomly drawn from 29 thanas in Bangladesh for a household survey to document the impact of the Grameen Bank and two other programs (the Bangladesh Rural Advancement Committee and the Bangladesh Rural Development Board's RD-12 Project) at the household level. This was complemented by a village survey that collected wage rate data for men, women and

[25] This may reflect the fact that the longer a branch has been operating, the more likely it is to lend to bad borrowers or projects. It is not clear, however, whether it also implies a higher default rate among senior borrowers. For this, household-level data analysis is required.

children (under 15). These data made it possible to quantify the village-level wage impact of Grameen Bank placement. Among the 87 villages, 28 (32 percent) had housed a Grameen Bank program for at least three years before the survey period (1991-92). The Bangladesh Rural Advancement Committee had been operating in 28 percent of the villages, while the BRDB had been operating in 29 percent. About 11 percent had no program at all. The wages in villages with and without a Grameen Bank program are compared after controlling for differences in village characteristics (Table 7.7).[26]

The village-level wage is the mean wage of all labor types - formal, informal, and agricultural (broken down into men, women and children). The village wage is influenced by Grameen Bank placement, village production relations and infrastructure, and the existence of other development programs.

About 28 percent of villages had a paved (pucca) road and about 51 percent were electrified. Only 10 percent of the villages had a commercial or other bank branch. The average distance of the village from the thana headquarters was 8.5 km. About 54 percent of the villages had, during 1991-92, additional development programs other than the three under study.

Two sets of regressions were estimated for each labor category. The first was the simple ordinary least squares method, while the second was the OLS with corrected standard errors.

The findings suggest that the Grameen Bank has a significant positive effect on the wages of men and children, implying that the Bank is making a viable contribution to economic development.[27] The results seem to be robust, given that the Grameen Bank placed its program in villages where 65 percent of households were eligible (owning less than half of an acre of land) compared with 52 percent of the households in non-program villages. The mean men's wage in Grameen Bank villages (Tk 29.8 per day) was also higher than in the villages without a Grameen Bank program (Tk 24.2), implying that the Grameen Bank's services increased the wage rate by about 4 percent. These results clearly indicate that

[26] The ideal way to document the impact of Grameen Bank placement on village wages is to compare the wages before and after the program interventions. Unfortunately, we do not have the data needed to use this method.

[27] This finding sharply contrasts with the observation made by Osmani (1989) that the Grameen Bank may not contribute to the growth of an agricultural-based economy because of its support to landless workers who try to make a living from the rural non-farm sector which can only exist with the support of agricultural growth. Thus, this observation does not consider the possibility that both forward and backward linkages might exist that can benefit the local economy.

the Grameen Bank alleviates poverty on a sustainable basis and makes a net contribution to local economic growth.

Subsidy and savings per member

The economic subsidy that donors or the government provide to the Grameen Bank is intended to help support its poverty alleviation efforts. A complete subsidy dependence analysis (begun in Chapter Six) must examine who ultimately receives the subsidy, what it is used for, and what impact it has on the recipients.[28]

Given the Grameen Bank's cost structure and level of institutional development, it must rely on grants or concessionary funds to continue its program for the poor. The Bank received only about 4 percent subsidy on each taka outstanding lent to the poor in 1994 (Table 7.8). The per taka loan subsidy was about 23 percent in 1987, gradually decreasing to 12 percent in 1993, and declining further to 4 percent in 1994.

The ultimate beneficiaries of this subsidy are the rural poor.[29] Given its total membership, each member received support equal to a subsidy of Tk 183.80 in 1994 compared with Tk 321 in 1987 and Tk 462 in 1991 (Table 7.8). Of course, Grameen Bank members do not receive this subsidy as a direct transfer, but in the form of training and organizational help. Unlike a cash transfer program which increases transitory income, credit programs improve the long-term productivity, income and savings of the poor. Program participants' asset accumulation over time is a direct measure of these long-run effects. However, such an analysis is beyond the scope of this chapter.

The growth of members' savings can be treated as an indirect measure of program sustainability. In 1987, the per capita member savings mobilized by Grameen Bank was Tk 648, twice the size of the

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[28] This implies that the benefits of this program in terms of its impact on poverty alleviation, employment, health, nutrition, and education need to be documented. However, since it is beyond the scope of this report to comprehensively cover the benefits side, which would require household-level data analysis, this report estimates some of the Grameen Bank's contributions to borrowers' well-being. For household and intrahousehold impacts of the Grameen Bank, see Khandker and Chowdhury, 1995; Khandker and Latif, 1994; Chowdhury and Khandker, 1994; Pitt and Khandker, 1994; Rahman and Khandker, 1994.

[29] Ninety-eight percent of the Grameen's subsidy is actually economic subsidy in the form of concessionary funds or grants. Only 2 percent is financial subsidy due to its losses.

subsidy each program participant received that year. By 1994, the per capita member savings had almost doubled to Tk 1,292.87, over seven times larger than the subsidy received by members that year. Since the borrowers' dropout rate is low and their loan repayment rate is high, the benefits generated by the Grameen Bank must be sustainable enough to maintain their enrollment and generate savings. If the subsidy to the Grameen Bank is treated as a net transfer to the poor, a net transfer of Tk 100, for example, might have increased (private) net worth by Tk 357 in 1993 and by Tk 703 in 1994.[30]

[30] We assume that members' savings are part of their net worth. Net worth does not include the social benefits that this program might generate by improving health, nutrition, and education.

CHAPTER EIGHT

Conclusions and policy implications

The Grameen Bank is a unique financial institution in Bangladesh that has succeeded in providing credit, without collateral, to over 2 million poor people, with very low default rates. It is, however, more than a bank, since its objectives include alleviating the poverty of the rural poor through financial and social intermediation. Another important aspect of the Grameen Bank is its outreach to women, who constitute about 94 percent of its membership.

The major achievements of the Grameen Bank

The Grameen Bank has directly attacked poverty in Bangladesh by providing credit and organizational help to the poorest people at reasonable terms. The dropout rate is low (about 5 percent), while the loan repayment rate has been consistently high (above 90 percent) indicating that the program's benefits are enough to make participation worthwhile. This is evident in that Grameen Bank borrowers have accumulated enough savings to finance almost 80 percent of its loans outstanding in 1994.

From its inception as an experimental project in 1976, the Grameen Bank has been led by Dr. Yunus, whose dynamic leadership has positively influenced its performance and expansion. However, since it began operating as a bank in 1983, its growth as a well-structured and decentralized organization has been instrumental in its phenomenal expansion and replication. Unlike other development financial institutions and even government infrastructural investments, the expansion and location of Grameen Bank branches does not depend on favorable agroclimate and area factors considered important for financial institutions' viability. Its placement of branches in remote areas of Bangladesh has had a significantly positive impact on rural wages overall. The Grameen Bank has thus proven that financial intermediation can alleviate poverty.

Given its operational cost and sources of funding, the Grameen Bank is financially viable. The major costs of the program are membership and training; as such, administrative costs (salary and training) account for more than 31 percent of total expenditures in 1994, having declined from 48 percent in 1993 and 62 percent in 1989. Since it takes an average of 5 years for a branch to turn a profit, concessionary funds and grants have been instrumental to the Grameen Bank's successful expansion; it

now employs more than 10,800 workers at 1,045 branches, serving more than 2 million members. Although its financial subsidy is low, its economic subsidy remains substantial. Estimates show that the Grameen Bank has been enjoying a subsidy (both economic and financial) at an average rate of 17 percent of the loans outstanding. The recent figures indicate a decline in the subsidy from 21 percent in 1991 to 4 percent in 1994.

Since significant economies of scale exist in its branch-level operations, the Grameen Bank could eliminate its subsidy dependence by expanding both membership and lending. Given the demand and supply constraints, it is possible to expand either horizontally or vertically, although vertical expansion (that is, expansion of each existing branch) would yield higher returns in the short run. In fact, the 1993-94 data suggest that the Grameen Bank has already expanded by increasing branch lending, which has led to large increases in profit with very low loan default costs. We project that the Bank can eliminate its subsidy dependence by the year 1998 by expanding loans outstanding by 41 percent per year, with complete reliance on market resources for financing the additional loans. Increasingly, the Grameen Bank is behaving like a commercial bank, relying more on market resources through cost efficiency. Note that in 1994, administrative cost explained only 31 percent of its total cost, a figure similar to those of commercial banks. We argue, therefore, that it is possible to develop profitable and sustainable financial intermediation that works exclusively for the poor.

To attain the seemingly conflicting objectives of poverty alleviation and sustainable financial intermediation, a financial intermediary needs to be innovative in program design and responsive to borrowers' needs. The Grameen Bank targets some of the poorest members of the population, those owning less than half of an acre of land. However, land-based targeting may not be an effective mechanism because landholding and asset information can be concealed by wealthier persons. To avoid this, the Bank has utilized group-based lending, where borrowers implicitly agree to monitor each other. Since the opportunity cost of program participation can be high, although it varies from person to person, participation is highly self-selective. Grameen Bank programs are thus self-targeting and effectively reach the poor. Unlike targeted non-credit programs, the Grameen Bank's credit program helps the rural poor to utilize their productive means and generate income on a sustainable basis. Its emphasis on savings mobilization forces the poor to accumulate savings and increase private net worth.

The Grameen Bank also practices social intermediation by providing social and human development inputs to improve members' social and individual accountability. Such intermediation improves human capital and enables individuals to make better use of their resources. It also improves productivity and hence augments income. As a result, loan utilization and repayment performance improve, in turn enhancing the viability of the Grameen Bank itself. If we consider the Grameen Bank's subsidy to be a net transfer to the poor, a transfer of Tk 1 generates Tk 7 in savings, given 1994 figures.

Since the membership cost is the largest component of total costs, the Grameen Bank cannot support a high dropout rate, and it has made supply- and demand-side innovations to reduce it. By placing an upper limit on lending, it excludes those individuals who enjoy a lower cost of credit than that offered by Grameen Bank. Moreover, self-selection, group monitoring, and liability reduce the dropout rate and the associated membership cost.

The Grameen Bank's long-run strategy should be to discourage dropping out by ensuring that the benefits accruing to borrowers outweigh the costs of program participation. Thus, it should both reduce the cost of program participation and credit while improving its borrowers' productivity and income.

The Grameen Bank's potential

The Grameen Bank needs to expand its activities (both membership and lending) over time in order to be more cost-effective, especially when it will have to depend more on the market than on help from donors and the government to finance its lending. The returns on activities financed by the Grameen Bank are likely to decrease, given demand constraints, as more and more people join the program and undertake similar productive activities. As such, including more growth-oriented activities in its loan portfolio and achieving cost efficiency will be of major concern.

The results of this study suggest that the Grameen Bank could make more profits if it disbursed more money for technology loans rather than general and collective loans. Similarly, branches that have both men and women borrowers make more profit than branches that have only women borrowers. Since the average principal for a technology loan is relatively larger than that for a general loan, and since on average men borrow more money than women, increasing the loan amount per borrower is one possible way of attaining both cost efficiency and profitability.

The ability to increase the loan per borrower depends on whether borrowers can absorb more credit. This, in turn, depends on borrowers' entrepreneurial ability, the market opportunities that they face and whether the Grameen Bank is able to meet the increased demand for its services. The Grameen Bank must determine the optimal branch size in terms of staff and the volume of lending and membership. It is currently offering its services to about half the villages in Bangladesh. Given that about 60 percent of rural households are eligible to join the Grameen Bank, its current membership (about 25 percent of the eligible population) is suboptimal. Whether this low participation rate reflects constraints on the supply or demand side is unclear.

Given its branches' staffing patterns (each branch has, on average, 10.4 employees) and the size of its centers, the Grameen Bank may have supply constraints. In order to attain production efficiency as well as cost efficiency, the Grameen Bank should increase the staff strength of each branch as well as the size of centers. It could increase the group size from five to eight or ten. In areas where branches have been operating for more than five years, the longer a branch is present in an area, the more the target population is exposed to the Grameen Bank's philosophy and banking process, and the greater will be its impact. In this case, larger groups will not jeopardize the virtues of group-based lending.

The Grameen Bank might also consider increasing the landholding requirement from less than half of an acre to one acre. Not every landless person can be a successful entrepreneur, and because of the risk involved in borrowing, many would-be-borrowers may shy away from joining the Grameen Bank. Increasing the target base will enable more people to join the program and, in the process, reduce its overhead cost.

Individual-based lending for target groups may be a viable option for the Grameen Bank over the long run because this may reduce its overhead costs of membership mobilization. Theoretically, individual-liability loans could be provided to longtime Grameen Bank members with excellent repayment records. These loans could be repaid on a monthly or weekly basis and may reduce the borrowers' transaction costs and the administrative costs of lending. However, given the current rural power structure in Bangladesh and the low levels of education and social accountability, individual-based lending may not be feasible for most of the rural poor.

The Grameen Bank may also adhere to group-based lending for purposes of social intermediation. The Bank may find it cheaper to provide social development inputs to groups rather than to individuals. As long as social intermediation and services are critical inputs, group-based lending may remain the only option.

The Grameen Bank's vulnerability

The Grameen Bank's management structure has evolved to the point where its founder, Dr. Yunus, has a minimal role in its daily management. Dr. Yunus has become increasingly involved with the overall policy direction of the bank as well as its possible replication outside Bangladesh. The Grameen Bank is run by a cadre of middle-level managers who are seasoned professionals, have field experience, and are dedicated to its cause. Nevertheless, the absence of its founder puts the Grameen Bank's sustainability in question.

The Bank's vulnerability also stems from two other sources: the government and cost management. A 1983 ordinance allowed for minimum intervention from the government. Again in 1990, the Parliament decided that the government would not increase its share in the Grameen Bank. Since an increasing number of bank members were allowed to purchase shares, representation in the Grameen Bank's capital and on its board of directors now comes more from its members than from the government. Unless the government takes over the Grameen Bank, it is unlikely to be a major source of vulnerability.

This is not necessarily the case for the Grameen Bank's cost management. If it is not cost-effective at the market rate of interest for loanable funds, it may have difficulty continuing operations without subsidized funds. Furthermore, the Grameen Bank's long-term prospects would be weakened if it had to rely on funds from international sources, which are decreasing aid as a result of changing global conditions. Over time, its ability to cope with reduced funds depends on whether the program achieves cost effectiveness on a sustainable basis. Recent data indicates that the Bank has increasingly reduced its reliance on subsidized funds by drawing more resources from the market and is also managing to increase its profit level through internal cost efficiency.

The Grameen Bank's long-run cost effectiveness also depends on borrowers' viability. The Bank may have a market niche because its borrowers are dependent on the program, but over the long run this relationship could render the Grameen Bank vulnerable. Unless borrowers' graduation from low-level incomes to higher levels (if not from the program entirely) is encouraged or achieved, many members will become permanently dependent on Grameen Bank credit and services to survive. This would have a negative effect on poverty alleviation and economic development. A strategy of expansion and portfolio diversification at the branch level to promote economic growth is the key to the continued success of the Grameen Bank.

The Bank's long-run success also depends on the entrepreneurial development of its borrowers. However, as stated before, not every borrower can become a successful entrepreneur. Although the Grameen Bank primarily responds to the needs of the poor, it may accelerate their credit demand by product and technology promotion.

The growth of the economy shapes the nature and extent of borrowers' credit demand. The program mainly supports rural non-farm and agriculture-based enterprises, and the country's demand for the products and services of these enterprises is largely determined by agricultural growth. Although Bangladesh has become self-sufficient in foodgrains, it needs to diversify its agricultural production and consolidate its growth in foodgrain production to maintain higher agriculture growth. The Grameen Bank may aid this process through portfolio diversification as well as by raising the income of the poor. The 1993 data show that the Grameen Bank is increasingly supporting agriculture and related activities by making seasonal and food storage loans.

However, relying primarily on the credit demand of poorly-educated entrepreneurs may prove too costly for the Grameen Bank. As the economy grows, commercial banks and other development financial institutions could finance projects that produce similar non-farm goods on a larger and more profitable scale. The low-cost production of large-scale enterprises may drive down the profit margins of small-scale projects financed by the Grameen Bank, eventually forcing them out of this sector. Also, evidence suggests that its branches earn less profit in areas where the density of commercial and Krishi banks is higher. Therefore, Grameen Bank borrowers need to be efficient and capable of diversifying into new enterprises as the economy expands. The Bank can help promote borrowers' entrepreneurial

development through skill training and technology and market promotion. It can also help promote the marketing of their products by exploring and tapping potential local and export markets.

Grameen Bank replication

The issue of whether the Grameen Bank program is replicable depends on the extent to which its program design is replicable and on the role of Dr. Yunus in its development. If it has been successful mainly because of Dr. Yunus, or if its design is unique and context-specific, it may not be replicable. Yet similar group-based lending programs have already been developed in a number of countries (Appendix C). In order to address the question of replication, it is important to analyze the development and sustainability of these programs. The Project Ikhtiar in Malaysia is a successful replication. This program has been developed with support of the Malaysian government and its record of loan recovery has been as high as that of the Grameen Bank. As many as 168 programs have been implemented recently in 44 countries and it is, therefore, premature to evaluate their performance.

An important question is whether group-based lending is replicable. This requirement may be relaxed in an environment where social intermediation is not a necessary component of successful financial intermediation. This implies that the target group is educated and socially and individually accountable and that community organizations already facilitate contract enforcement. The Badan Kredit Kecamatan (BKK) in Indonesia is an example of a successful program based on individual lending (Gonzalez-Vega and Chavez 1993).

In an environment where social intermediation is not required for lending to the poor, group lending is still more effective if imperfect information and imperfect enforcement make credit transactions risky. Group-based lending is also desirable for the poor where the persistence of poverty is rooted in sociopolitical inequities. In such societies, individual-based lending can "perpetuate and reinforce the existing socioeconomic inequities and access to scarce financial resources" (Yaron 1992).

Effective replication depends on a combination of these factors, which establish a framework for the program design, given certain basic requirements for efficient operation and long-term success. An important precondition is intensive training and incentives for a well-motivated staff that is willing to try

innovative methods in response to borrower demand. In turn, this requires an organizational structure that allows for administrative flexibility and decentralized decisionmaking.

However, the most crucial component of successful replication is the availability of funds for on-lending. The availability of funds, whether subsidized or borrowed at market rates, and member savings will determine the costs of lending and program profitability. The program has to ensure that, given its various expenditure requirements, it can break even at the earliest stage of its operation.

The key factors that must be identified before the program can be replicated are: (1) why such a banking system is needed; (2) what the credit needs of the poor are and what should determine their participation; (3) whether social mechanisms serve as a vehicle for credit delivery to the target group; (4) whether people are socially and individually accountable; (5) whether group- or individual-based lending is feasible and cost-effective; (6) whether the cost of administration can be recovered through the interest rate charged; and (7) whether the poor can bear the full cost of financial and social (if necessary) intermediation. Once replicated, the program's success depends almost entirely on the creativity and commitment of the leadership and its ability to carve out market niches (Von Pischke 1992).

The replication of a Grameen Bank-type operation by commercial banks may minimize the social costs of banking for the poor. Commercial banks' basic incentive is profit maximization rather than social development. They aim to promote growth and financial development through larger loans and other financial instruments, which are tied to tangible collateral. Since the poor do not have collateral, a separate lending window which does not involve material collateral may be a possible alternative for commercial banks. The supply of such banking facilities will affect the relative shares of credit instruments in their loan portfolio.

The resulting effect on the commercial banks' overall profitability has yet to be tested. The cost and feasibility of modifications to the organization of these banks and the restructuring of employee training incentives and practices must also be considered. Whether commercial banks would allow such structural changes is an open question. However, with the support of International Fund For Agricultural Development (IFAD), several nationalized commercial banks are experimenting in selected areas in Bangladesh. These experiments should be examined and compared with the Grameen Bank.

Table 3.1
External funds available from different sources, 1985-94
(million taka)

Year	Bangladesh Bank	IFAD	Norway (NORAD)	Netherlands	Sweden (SIDA)	Ford Foundation	Commercial banks	Grants[a]	Total	Foreign funds as a share of total (%)
1985	206.60	180.10	0.00	0.00	0.00	3.96	43.30	-	-	-
1986	80.80	587.60	0.00	44.30	0.00	3.96	0.10	5.92	886.98	90.88
1987	19.00	556.30	123.40	44.30	156.20	18.08	-	7.33	905.61	97.90
1988	14.80	747.20	187.90	44.30	220.70	18.08	-	180.54	1,413.52	98.95
1989	193.80	957.10	267.90	44.30	238.90	18.08	-	377.22	2,097.30	90.76
1990	183.40	1,085.70	267.90	44.30	238.90	66.37	-	967.12	2,853.69	93.57
1991	173.00	1,085.70	267.90	44.30	238.90	66.37	-	1,351.46	3,227.63	94.64
1992	-	1,257.70	267.90	44.30	238.90	66.37	3.10	2,445.86	4,324.13	99.93
1993	3,500.00	1,352.60	267.90	44.30	238.85	66.37	-	2,886.27	8,356.29	58.12
1994	3,500.00	-	-	-	-	-	3250.00	261.49	7011.49	3.73

Note: [a]Grants include revenue grants and grants for on-lending.

Source: Grameen Bank.

Table 3.2
Expansion of Grameen Bank: branches, centers and groups, 1985-94

Year	Total number of branches	Number of villages covered	Number of centers			Number of groups			Average members per branch		
			Women	Men	Total	Women	Men	Total	Women	Men	Total
1985	226	3,666	4,956	2,254	7,210	22,473	11,852	34,325	497.18	262.21	759.39
1986	295 (30.53)	5,170 (41.02)	7,916 (59.73)	2,363 (4.84)	10,279 (42.57)	34,778 (54.75)	12,092 (2.02)	46,870 (36.55)	589.44 (18.56)	204.94 (-21.84)	794.38 (4.61)
1987	396 (34.24)	7,502 (45.11)	11,848 (49.67)	2,542 (7.58)	14,390 (39.99)	55,121 (58.49)	12,712 (5.13)	67,833 (44.73)	695.96 (18.07)	160.49 (-21.69)	856.45 (7.81)
1988	501 (26.52)	10,552 (41.66)	16,917 (42.78)	2,746 (8.03)	19,663 (36.64)	83,194 (50.93)	13,881 (9.20)	97,075 (43.11)	840.25 (20.73)	138.52 (-13.69)	978.77 (14.28)
1989	641 (27.94)	15,073 (42.84)	24,016 (41.96)	2,960 (7.79)	26,976 (37.19)	117,762 (41.55)	14,694 (5.86)	132,456 (36.45)	918.57 (9.32)	114.60 (-17.27)	1,033.17 (5.56)
1990	781 (21.84)	19,536 (29.61)	31,050 (29.29)	3,156 (6.62)	34,206 (26.80)	158,323 (34.44)	15,588 (6.08)	173,911 (31.30)	1,013.58 (9.37)	99.78 (-12.93)	1,113.36 (7.76)
1991	915 (17.16)	25,248 (29.24)	39,451 (27.06)	3,300 (4.56)	42,751 (24.98)	197,275 (24.60)	16,011 (2.71)	213,286 (22.64)	1,078.00 (6.36)	87.49 (-12.32)	1,165.49 (4.68)
1992	1,015 (10.93)	30,619 (21.27)	47,854 (21.30)	3,513 (6.06)	51,367 (20.15)	266,857 (35.27)	18,022 (12.56)	284,879 (33.57)	1,277.40 (18.50)	87.45 (-0.05)	1,364.85 (17.11)
1993	1,040 (2.46)	33,667 (9.95)	53,879 (12.59)	3,770 (7.32)	57,649 (12.23)	350,032 (31.17)	22,266 (23.55)	372,298 (30.69)	1,641.88 (28.53)	103.23 (18.04)	1,745.11 (27.86)
1994	1,045 (0.48)	34,913 (3.70)	56,055 (4.04)	3,866 (2.55)	59,921 (3.94)	387,824 (10.80)	24,321 (9.23)	412,145 (10.70)	1,810.80 (10.29)	115.64 (12.02)	1,928.35 (10.50)

Note: Figures in parentheses are percentage growth rates for the respective figures over the preceding year.

Source: Grameen Bank.

Table 3.3
Grameen Bank employees 1985-94

Year	Total employees[a]	Head office employees		Regional office employees		Branch employees	
		Number	Share of total (%)	Number	Share of total (%)	Number	Share of total (%)
1985	2777	231	8.32	345	12.42	2201	79.26
1986	3515 (26.58)	298 (29)	8.48	401 (16.23)	11.41	2816 (27.94)	80.11
1987	4412 (23.52)	362 (21.48)	8.20	443 (10.47)	10.04	3607 (28.09)	81.75
1988	6893 (56.23)	506 (39.78)	7.34	561 (26.64)	8.14	5826 (61.52)	84.52
1989	8449 (22.57)	544 (7.51)	6.44	842 (50.09)	9.97	7063 (21.23)	83.59
1990	11964 (41.60)	584 (7.35)	4.88	914 (8.55)	7.64	10466 (28.18)	87.48
1991	10904 (-8.85)	429 (-26.54)	3.93	1241 (35.78)	11.38	9234 (-11.77)	83.69
1992	10531 (-3.42)	423 (-1.40)	4.02	1177 (-5.16)	11.18	8931 (-3.28)	84.81
1993	10499 (-0.30)	409 (-3.31)	3.90	1221 (3.74)	11.63	8867 (-0.07)	84.46
1994	10,861 (3.45)	435 (6.42)	3.98	1206 (-1.23)	11.10	9223 (4.01)	84.92

Notes: Figures in parentheses represent annual growth in percentages.
[a]Does not include employees of special projects.

Source: Grameen Bank.

Table 3.4
Growth in membership and borrowers, 1985-94

Year	Members			Number of borrowers			Distribution of borrowers (%)		Number of borrowers as percentage of members		
	Women	Men	Total	Women	Men	Total	Women	Men	Women	Men	Total
1985	112,362 (-)	59,260 (-)	171,622 (-)	99,332 (-)	53,131 (-)	152,463 (-)	65.15	34.85	88.40	89.66	88.84
1986	173,885 (54.75)	60,458 (2.02)	234,343 (36.55)	155,142 (69.46)	54,325 (13.46)	209,467 (49.95)	73.63	26.37	96.81	99.71	97.55
1987	275,600 (58.50)	63,556 (5.12)	339,156 (44.73)	265,415 (57.67)	63,142 (4.75)	328,557 (43.72)	80.78	19.22	96.30	99.35	96.87
1988	420,865 (52.74)	69,398 (9.19)	490,363 (44.58)	403,625 (52.07)	68,805 (8.97)	272,430 (43.79)	85.44	14.56	95.88	99.15	96.34
1989	588,802 (39.87)	73,461 (5.85)	662,263 (35.06)	575,117 (42.29)	73,150 (6.31)	648,467 (37.22)	88.72	11.28	97.68	99.58	97.89
1990	791,606 (34.44)	77,932 (6.09)	869,538 (31.30)	775,547 (34.85)	77,075 (5.37)	852,522 (31.52)	90.96	9.04	97.97	98.90	98.05
1991	986,373 (24.60)	80,053 (2.72)	1,066,426 (22.64)	962,148 (24.06)	79,482 (3.12)	1,041,630 (22.17)	92.37	7.63	97.54	99.29	97.67
1992	1,334,285 (35.27)	90,111 (12.56)	1,424,395 (33.57)	1,296,558 (34.76)	88,766 (11.68)	1,385,324 (32.10)	93.59	6.41	97.17	98.51	97.26
1993	1,707,555 (27.98)	107,361 (19.14)	1,814,916 (27.42)	1,585,483 (24.60)	97,431 (9.76)	1,682,914 (21.48)	94.21	5.79	92.85	90.75	92.73
1994	1,892,287 (10.82)	120,843 (12.56)	2,015,130 (11.03)	1,751,775 (10.49)	108,899 (11.76)	1,860,674 (10.56)	94.15	5.85	92.57	90.12	92.43

Note: Figures in parentheses are growth rates for the respective figures over the preceding year.

Source: Grameen Bank.

Table 3.5
Classification of borrowers by frequency of loan and gender, 1985-93
(percentage of total number of borrowers of same gender)

Year	1st Time		2nd Time		3rd Time		4th Time		5th Time		6th Time + more	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
1985	46.45	23.98	35.00	36.63	12.34	22.80	3.75	9.64	2.06	5.52	0.38	1.44
1986	41.12	12.26	29.72	25.11	19.31	31.70	6.73	18.60	2.06	7.54	1.06	4.79
1987	40.98	12.32	25.71	15.78	18.22	24.41	10.16	25.25	3.33	12.35	1.59	9.89
1988	38.76	14.71	25.78	14.81	16.16	17.00	10.74	20.47	5.79	18.13	2.78	14.81
1989	35.85	12.07	26.24	14.39	16.66	14.27	9.98	15.02	6.32	16.93	4.95	27.32
1990	30.44	11.20	26.75	13.40	18.28	14.17	11.35	13.89	6.32	13.37	6.85	33.96
1991	25.97	9.66	24.36	12.06	19.83	14.11	13.01	13.36	7.28	12.51	8.54	38.30
1992	30.66	13.82	21.13	10.87	17.86	13.31	13.14	12.82	7.83	11.29	9.37	37.88
1993	27.51	19.56	25.33	13.82	18.43	12.89	14.45	12.95	9.61	11.64	12.60	40.93

Source: Grameen Bank.

Table 3.6
Annual disbursement of loans by type and gender, 1985-94
(million taka)

Year	Total	General		Collective		Housebuilding		Subtotal		Technology loans	Disbursement per branch
		Women	Men	Women	Men	Women	Men	Women	Men		
1985	-	-	-	-	-	-	-	-	-	-	-
1986	547.5	387.5	146.8	4.6	2.9	4.3	1.4	396.4	151.1	0.0	1.86
1987	950.8 (73.66)	634.3 (63.69)	160.7 (9.47)	10.1 (119.57)	4.9 (68.97)	108.4 (2,420.93)	32.4 (2,214.29)	752.8 (89.91	198.0 (31.04)	0.0	2.40 (29.03)
1988	1,483.9 (56.07)	1,070.4 (68.75)	193.7 (20.54)	12.2 (20.79)	4.1 (-16.33)	140.4 (29.52)	29.9 (-7.72)	1,223.0 (66.87)	227.7 (15.00)	33.2	2.96 (23.33)
1989	2,068.0 (39.36)	1,551.1 (44.91)	203.5 (5.06)	10.0 (-18.03)	3.7 (-9.76)	207.8 (48.01)	28.5 (-4.68)	1,768.9 (45.86)	235.7 (3.51)	63.4 (90.96)	3.23 (9.12)
1990	2,656.1 (28.44)	2,039.9 (31.51)	205.4 (0.93)	14.1 (41.00)	3.5 (-5.41)	207.4 (-0.19)	17.2 (-39.65)	2,261.4 (32.62)	226.1 (-4.07)	168.6 (165.93)	3.40 (5.26)
1991	3,706.8 (39.56)	2,433.0 (19.27)	194.6 (-5.26)	8.8 (-37.59)	2.7 (-22.86)	274.5 (32.35	27.5 (59.88)	2,716.3 (43.29)	224.8 (-0.58)	765.5 (354.15)	4.05 (19.12)
1992	6,361.1 (71.61)	4,802.9 (97.41)	385.8 (98.25)	12.8 (45.45)	2.4 (-11.11)	510.0 (85.79)	49.2 (78.91)	5,325.7 (96.06)	436.7 (94.26)	598.0 (-21.90)	6.27 (54.81)
1993	12,443.0 (95.61)	10,055.8 (109.37)	553.3 (43.42)	8.7 (-32.03)	4.2 (75.0)	1534.0 (200.78)	139.0 (182.52)	11,598.5 (117.78)	696.5 (59.49)	148.0 (-75.25)	11.96 (90.75)
1994	15,251.0 (22.57)	12,888.9 (28.17)	1,003.2 (81.31)	16.8 (93.10)	3.5 (-0.17)	1,246.9 (-18.72)	91.7 (-34.03)	14,152.6 (22.02)	1,098.4 (57.70)	144.3 (-2.50)	14.59 (22.02)

Note: Figures in parentheses represent annual growth rates in percentage.

Source: Grameen Bank.

Table 3.7
Cumulative disbursement of loans by type and gender, 1985-94
(million taka)

Year	Total	General		Collective		Housebuilding		Subtotal		Technology loans
		Women	Men	Women	Men	Women	Men	Women	Men	
1985	948.5	462.2	415.11	19.5	30.9	10.7	10.1	492.4	456.1	0.0
1986	1,496.0	849.7	561.9	24.1	33.8	15.0	11.5	888.8	607.2	0.0
1987	2,446.8	1,484.0	722.6	34.2	38.7	123.4	43.9	1,641.6	805.2	0.9
1988	3,930.7	2,554.4	916.3	46.4	42.8	263.8	73.8	2,864.6	1,032.9	33.2
1989	5,998.7	4,105.5	1,119.8	56.4	46.5	471.6	102.3	4,633.5	1,268.6	96.6
1990	8,654.8	6,145.4	1,325.2	70.5	50.5	679.0	119.5	6,894.9	1,494.7	265.2
1991	12,361.6	8,578.4	1,519.8	79.3	52.7	953.5	147.0	9,611.2	1,719.5	1,030.9
1992	18,722.9	13,381.3	1,905.6	92.1	55.1	1,463.7	196.2	14,937.1	2,156.9	1,628.9
1993	30,740.1	23,437.1	2,458.9	100.8	59.2	2,997.5	335.2	26,535.4	2,853.3	1,351.4
1994	44,639.7	36,326.0	3,462.1	117.6	62.7	4,244.4	426.9	40,688.0	3,951.7	1,495.7

Source: Grameen Bank.

Table 3.8
Annual general loan disbursement by type of activity, 1986-94

Year	Processing and manufacturing	Agriculture and forestry	Livestock and fisheries	Services	Trading	Peddling	Shopkeeping	Collective enterprises	Total
1986	135.47 (25.0)	11.90 (2.2)	247.77 (45.7)	14.25 (2.6)	93.54 (17.3)	6.99 (1.3)	24.32 (4.5)	7.49 (1.4)	541.73 (100)
1987	204.35 (25.2)	26.05 (3.2)	376.55 (46.5)	18.74 (2.3)	126.00 (15.6)	9.06 (1.1)	34.29 (4.2)	14.99 (1.9)	810.03 (100)
1988	326.30 (25.5)	62.40 (4.9)	581.46 (45.4)	21.95 (1.7)	201.69 (15.8)	13.25 (1.0)	57.01 (4.4)	16.40 (1.3)	1280.46 (100)
1989	509.16 (28.8)	72.23 (4.1)	747.09 (42.2)	31.51 (1.8)	300.92 (17.0)	17.47 (1.0)	76.22 (4.3)	13.68 (0.8)	1768.28 (100)
1990	685.93 (30.3)	98.47 (4.4)	959.97 (42.4)	40.23 (1.8)	352.63 (15.6)	17.36 (0.8)	90.64 (4.0)	17.23 (0.7)	2262.47 (100)
1991	764.17 (28.9)	108.13 (4.1)	1156.01 (43.8)	40.06 (1.5)	427.77 (16.2)	23.04 (0.9)	108.65 (4.1)	11.78 (0.5)	2639.62 (100)
1992	976.80 (18.8)	1387.96 (26.7)	1656.46 (31.8)	57.45 (1.1)	787.97 (15.1)	54.64 (1.1)	267.17 (5.1)	15.24 (0.3)	5203.72 (100)
1993	1483.70 (14.0)	3782.04 (35.6)	3000.00 (28.2)	85.95 (0.8)	1685.08 (15.9)	114.96 (1.1)	457.45 (4.3)	12.84 (0.1)	10622.05 (100)
1994	2151.16 (15.5)	4863.24 (34.9)	3624.79 (26.1)	141.34 (1.0)	2334.16 (16.8)	181.92 (1.3)	595.41 (4.3)	20.32 (0.1)	13912.36 (100)

Note: Figures in parentheses denote percentage of total annual disbursement.

Source: Grameen Bank, Annual Reports.

Table 3.9
Loans outstanding by type and gender, 1985-94
(million taka)

Year	Total[a]	General			Collective			Housebuilding			Subtotal		Technology loans	Share of total (%)	Average per branch
		Women	Men	Share of total (%)	Women	Men	Share of total (%)	Women	Men	Share of total (%)	Women	Men			
1985	244.2	130.8	85.4	88.53	3.4	5.7	3.74	9.7	9.2	7.76	143.9	100.3-	-	-	1.08
1986	322.7 (32.1)	206.5 (57.9)	88.3 (4.5)	91.35 (3.4)	2.8 (-17.6)	3.6 (-36.8)	1.98 (-46.8)	12.2 (25.8)	9.3 (1.1)	6.66 (-13.9)	221.5 (53.9)	101.2 (0.9)	-	-	1.09 (0.93)
1987	611.7 (89.6)	346.9 (68.0)	101.1 (14.5)	73.24 (-19.8)	5.4 (92.9)	4.1 (13.9)	1.55 (-21.7)	115.3 (845.1)	38.9 (318.3)	25.21 (278.4)	467.6 (111.1)	144.1 (42.4)	-	-	1.54 (41.28)
1988	1,030.3 (68.4)	590.2 (70.1)	123.2 (21.9)	69.24 (-5.46)	6.5 (20.4)	3.7 (-9.8)	0.99 (-36.1)	227.7 (97.5)	60.6 (55.8)	27.98 (11.0)	824.4 (76.3)	215.9 (49.4)	28.4	2.76	2.06 (33.77)
1989	1,518.9 (46.0)	853.6 (44.6)	133.0 (8.0)	64.95 (-5.3)	6.2 (-4.6)	3.9 (5.4)	0.66 (-32.3)	380.0 (66.9)	78.3 (29.2)	30.17 (8.9)	1,239.8 (50.4)	279.1 (29.3)	63.9 (125.0)	4.21 (54.2)	2.37 (15.05)
1990	1,987.9 (30.9)	1,122.5 (31.5)	137.1 (3.1)	63.36 (-2.5)	8.0 (29.0)	3.0 (-23.1)	0.55 (-16.8)	498.0 (31.1)	81.6 (4.2)	29.16 (-3.4)	1,628.5 (31.4)	359.4 (28.8)	137.7 (115.5)	6.93 (64.7)	2.55 (7.59)
1991	2,640.5 (32.8)	1,434.5 (27.8)	141.6 (3.3)	59.69 (-5.8)	5.7 (28.8)	3.2 (6.7)	0.34 (-39.1)	669.6 (34.5)	95.1 (16.5)	28.96 (-0.7)	2,109.8 (29.6)	530.7 (47.7)	290.8 (111.2)	11.01 (59.0)	2.89 (13.33)
1992	4,417.7 (67.3)	2,891.6 (101.6)	266.7 (88.4)	71.49 (19.8)	7.8 (36.8)	2.6 (-18.8)	0.24 (-29.4)	1,026.8 (53.3)	126.9 (33.4)	26.12 (-9.8)	3,926.2 (86.1)	491.5 (-7.4)	95.3 (-67.2)	2.16 (-80.4)	4.35 (50.52)
1993	8,735.9	5,776.8 (99.78)	379.1 (42.14)	69.8 (-2.24)	7.4 (-5.13)	3.9 (50.00)	0.13 (-45.83)	2,325.1 (126.44)	243.6 (91.96)	29.17 (11.68)	8,109.3 (106.54)	626.6 (27.49)	71.5 (-24.97)	0.81 (-62.50)	8.47 (94.71)
1994	11,226.3 (28.51)	7,419.6 (28.44)	462.8 (22.08)	70.21 (0.46)	8.1 (9.46)	2.9 (-25.64)	0.10 (-23.08)	3,046.2 (31.01)	286.7 (17.69)	29.69 (1.78)	10,473.9 (29.16)	752.4 (20.08)	82.4 (15.24)	0.73 (-9.88)	10.82 (27.75)

Note: Figures in parentheses are percentage growth rates for the respective figures over the preceding year.
[a]This total is the sum of general, collective and housebuilding loans.

Source: Grameen Bank.

Table 3.10
Savings and deposits, 1983-94
(million taka)

Year	Savings and deposits	Total member savings	Members savings as percentage of total savings	Deposits	Deposit as percentage of total savings	Total outstanding	Saving outstanding (%)	Savings deposit and outstanding (%)	Per member savings (thousand taka)		
									Women	Men	Total
1985	131.7	114.9	87.2	16.8	12.8	244.2	47.1	53.9	0.51	0.97	0.67
1986	246.1 (86.86)	188.7 (64.23)	76.7	57.4 (241.67)	23.3	322.7	60.5	78.1	0.62 (21.57)	1.33 (37.11)	0.81 (20.89)
1987	554.8 (125.44)	408.2 (116.32)	73.6	146.6 (155.40)	26.4	611.7	66.7	90.7	0.97 (56.45)	1.80 (35.34)	1.20 (48.15)
1988	963.7 (73.70)	672.1 (64.65)	69.7	291.6 (98.91)	30.3	1,030.3	64.6	92.6	1.07 (10.31)	3.19 (77.22)	1.37 (14.17)
1989	1,585.2 (64.49)	1,068.9 (59.04)	67.4	516.3 (77.06)	32.6	1,518.9	70.4	104.4	1.24 (15.89)	4.63 (45.14)	1.61 (17.52)
1990	2,490.4 (57.10)	1,687.1 (57.84)	67.7	803.3 (55.59)	32.3	1,987.9	84.9	125.3	1.42 (14.52)	7.21 (55.72)	1.94 (20.50)
1991	3,559.8 (42.94)	2,375.8 (40.82)	66.7	1,184.0 (47.39)	33.3	2,640.5	45.6	134.8	1.65 (33.10)	9.41 (30.51)	2.23 (14.95)
1992	5,260.8 (47.78)	3,478.8 (46.43)	66.1	1,782.0 (50.51)	33.9	4,417.7	78.8	119.1	1.80 (9.09)	11.94 (26.89)	2.44 (9.42)
1993	8,728.4 (65.91)	6,263.85 (80.06)	71.76	2,464.55 (38.36)	28.24	8,807.2 (99.36)	71.82	99.11	2.59 (43.89)	24.55 (105.61)	3.89 (59.43)
1994	12,231.84 (40.14)	8,969.14 (43.19)	73.33	3,262.7 (32.39)	26.67	11,308.7 (28.40)	79.31	108.16	3.62 (39.77)	17.48 (-28.80)	4.45 (14.40)

Note: Figures in parentheses are percentage growth rates for the respective figures over the preceding year.

Source: Grameen Bank.

Table 3.11
Grameen Bank members' savings by type and gender, 1985-94
(million taka)

Year	Group fund savings			Emergency fund savings			Other savings			Total savings		
	Women	Men	Subtotal	Women	Men	Subtotal	Women	Men	Subtotal	Women	Men	Total
1985	37.2	34.2	71.4	5.2	7.5	12.7	15.0	15.8	30.8	57.4	57.5	114.9
1986	67.8 (82.26)	46.7 (36.55)	114.5 (60.36)	11.0 (111.54)	11.3 (50.67)	22.3 (75.59)	29.7 (98.0)	22.2 (40.51)	51.9 (68.51)	108.5 (89.02)	80.2 (39.48)	188.7 (64.23)
1987	123.6 (82.30)	62.7 (34.26)	186.3 (62.71)	19.6 (78.18)	15.1 (33.63)	34.7 (55.61)	123.9 (317.17)	36.3 (185.14)	187.2 (260.69)	267.1 (146.18)	114.1 (42.27)	408.2 (116.32)
1988	215.6 (74.43)	81.8 (30.46)	297.4 (59.64)	34.8 (77.55)	19.6 (29.80)	54.5 (56.77)	200.5 (61.82)	119.8 (89.26)	320.3 (71.10)	450.9 (68.81)	221.2 (93.86)	672.1 (64.65)
1989	349.2 (61.97)	101.8 (24.45)	451.0 (51.65)	59.4 (70.69)	24.6 (25.51)	84.0 (54.41)	320.4 (59.80)	213.5 (78.21)	533.9 (66.69)	729.0 (61.68)	339.9 (53.66)	1,068.9 (59.04)
1990	526.7 (50.83)	122.9 (20.73)	649.6 (44.04)	98.1 (65.15)	30.7 (24.80)	128.8 (53.33)	500.7 (56.27)	408.0 (91.10)	908.7 (70.20)	1,125.5 (54.39)	561.6 (65.22)	1,687.1 (57.84)
1991	746.8 (41.79)	145.1 (18.06)	891.9 (37.30)	145.4 (48.22)	36.7 (19.54)	182.1 (41.38)	730.4 (45.88)	571.4 (40.05)	1301.8 (43.26)	1,622.6 (44.17)	753.2 (34.12)	2,375.8 (40.82)
1992	1,130.6 (51.39)	177.2 (22.12)	1,307.8 (46.63)	151.6 (4.26)	38.5 (4.90)	190.1 (4.39)	1,121.1 (53.49)	859.8 (50.47)	1,980.9 (52.17)	2,403.5 (42.79)	1,075.5 (42.79)	3,478.8 (46.43)
1993	1,886.5 (66.86)	230.9 (30.30)	2,117.4 (61.91)	172.6 (13.85)	44.31 (15.06)	216.9 (14.10)	2,575.6 (129.74)	1,354.0 (57.48)	3,929.6 (98.37)	4,634.7 (92.83)	1,629.2 (51.48)	6,263.9 (80.06)
1994	2,850.6 (51.11)	296.8 (28.54)	3,147.4 (48.64)	177.4 (2.78)	45.2 (2.03)	222.6 (2.63)	3,828.9 (48.66)	1,770.3 (30.75)	5,599.1 (42.49)	6,856.9 (47.95)	2,112.3 (29.65)	8,969.2 (43.19)

Note: Figures in parentheses are percentage growth rates for the respective figures over the preceding year.

Source: Grameen Bank.

Table 3.12
Trends in achievement of social development, 1985-94

Year	Number of schools run by groups			Number of students			Marriage without dowry			Number of seeds distributed			Number of seedlings distributed		
	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total
1985	2,223	1,103	3,326	39,098	32,369	71,467	1,807	931	2,738	459,170	322,458	781,628	205,033	168,157	373,190
1986	3,034 (36.48)	834 (-24.39)	3,868 (16.30)	56,133 (43.57)	32,949 (1.79)	89,082 (24.65)	3,288 (81.96)	1,175 (26.21)	4,463 (63.00)	656,098 (42.89)	376,881 (16.88)	1,032,979 (32.16)	309,952 (51.17)	198,157 (17.84)	508,109 (36.15)
1987	4,595 (51.45)	752 (-9.83)	5,347 (38.24)	96,737 (72.34)	42,852 (30.06)	139,589 (56.70)	4,300 (30.78)	1,327 (12.94)	5,627 (26.08)	912,920 (39.14)	408,813 (8.47)	1,321,733 (27.95)	429,020 (38.41)	230,634 (16.39)	659,654 (29.83)
1988	4,912 (6.90)	456 (-39.36)	5,368 (0.39)	105,998 (9.57)	39,901 (-6.89)	145,899 (4.52)	5,520 (28.37)	1,490 (12.28)	7,010 (24.58)	1,338,347 (46.60)	459,171 (12.32)	1,797,518 (35.10)	636,171 (48.28)	265,837 (15.26)	902,008 (36.74)
1989	7,663 (56.01)	507 (15.38)	8,170 (52.20)	159,968 (50.92)	53,875 (35.02)	213,843 (46.57)	7,319 (32.59)	1,732 (16.24)	9,051 (29.12)	1,885,714 (40.90)	510,092 (11.09)	2,395,806 (33.28)	727,509 (14.36)	269,042 (1.21)	996,551 (10.48)
1990	10,636 (38.80)	585 (15.38)	11,221 (37.34)	236,946 (48.12)	78,862 (46.38)	315,808 (47.68)	10,267 (40.28)	1,907 (10.10)	12,174 (34.50)	2,534,001 (34.38)	544,540 (6.75)	3,078,541 (28.50)	929,913 (27.82)	267,008 (-0.76)	1,196,921 (20.11)
1991	12,685 (19.26)	637 (8.89)	13,322 (18.72)	286,693 (20.10)	101,747 (29.02)	388,440 (22.10)	11,743 (14.38)	1,987 (4.20)	13,730 (12.78)	3,193,885 (26.04)	576,517 (5.87)	3,770,402 (22.47)	1,168,545 (25.66)	276,734 (3.64)	1,445,279 (20.75)
1992	14,894 (17.41)	675 (5.97)	15,569 (16.87)	319,817 (11.55)	117,246 (15.23)	437,063 (12.52)	14,099 (20.06)	2,144 (7.90)	16,243 (18.30)	4,196,928 (31.41)	630,601 (9.38)	4,827,529 (28.04)	1,603,631 (37.23)	299,463 (8.21)	1,903,094 (31.68)
1993	13,616 (-8.58)	487 (-27.85)	14,103 (-9.42)	273,683 (-14.43)	105,646 (-9.89)	379,329 (-13.21)	26,125 (85.30)	2,071 (-3.40)	28,196 (73.59)	5,395,308 (28.55)	698,682 (10.80)	6,093,990 (26.23)	2,204,915 (37.50)	350,425 (17.02)	2,555,340 (34.27)
1994	14,413 (5.85)	391 (-0.20)	14,804 (4.97)	284,675 (4.02)	111,614 (5.65)	396,289 (4.47)	27,798 (6.40)	2,329 (12.46)	30,127 (6.85)	6,134,539 (13.70)	724,780 (3.74)	6,859,319 (12.56)	2,561,515 (16.17)	362,190 (3.36)	2,923,705 (14.42)

Note: Figures in parentheses are percentage growth rates for the respective figures over the preceding year.

Source: Grameen Bank.

Table 3.13
Number of workshop participants by workshop type, 1985-94

Year	7-Day	1-Day	Family	Exchange	Total
1985	5,115			1,563	6,678
1986	6,790	2,600		1,820	11,210
1987	7,875	4,240		1,496	13,611
1988	10,500	9,299		1,838	21,637
1989	14,490	11,960	8,600	2,134	37,184
1990	10,605	6,200	7,760	2,354	26,919
1991	13,335	8,480	14,000	2,354	38,169
1992	15,400	14,920	17,360	2,750	50,430
1993	13,650	48,752	21,320	1,716	85,438
1994	11,340	26,280	30,651		71,071[a]

Note: [a]Total participants for 1994 include 2,520 participants in 5-day workshops and 280 participants in 3-day workshops.

Source: Grameen Bank.

Table 5.1
Grameen Bank officers and workers: training, appointments, and dropouts

Year	Trained			Appointed			Dropout			Dropout (%)		
	Women	Men	All	Women	Men	All	Women	Men	All	Women	Men	All
Bank workers												
1986	146 (14.1)	889 (85.9)	1035	130 (19.9)	523 (80.1)	653	16 (4.2)	366 (95.8)	382	10.9	41.2	36.9
1987	72 (7.3)	912 (92.7)	984	46 (8.6)	488 (91.4)	534	26 (5.8)	424 (94.2)	450	36.1	46.5	45.7
1988	26 (1.6)	1587 (98.4)	1613	14 (1.3)	1084 (98.7)	1098	12 (2.3)	503 (97.7)	515	46.2	31.7	31.9
1989	272 (9.1)	2727 (90.9)	2999	164 (8.0)	1879 (92.0)	2043	108 (11.3)	848 (88.7)	956	39.7	31.1	31.9
1990	382 (17.5)	1807 (82.5)	2189	235 (15.0)	1329 (85.0)	1564	147 (23.5)	478 (76.5)	625	38.5	26.5	28.6
1991	236 (7.8)	2802 (92.2)	3038	171 (7.4)	2149 (92.6)	2320	65 (9.1)	653 (90.9)	718	27.5	23.3	23.6
Officers												
1986	-	-	370	-	-	201	-	-	169	-	-	45.7
1987	-	-	471	-	-	307	-	-	164	-	-	34.8
1988	-	-	576	-	-	362	-	-	214	-	-	37.2
1989	62 (11.1)	498 (88.9)	560	25 (6.6)	353 (93.4)	378	37 (20.3)	145 (79.7)	182	59.7	29.1	32.5
1990	23 (7.7)	277 (92.3)	300	9 (4.1)	213 (95.9)	222	14 (17.9)	64 (82.1)	78	60.9	23.1	26.0
1991	52 (10.7)	432 (89.3)	484	24 (7.3)	304 (92.7)	328	28 (17.9)	128 (82.1)	156	53.8	29.6	32.2

Note: Figures in parentheses are percentages.

Source: Grameen Bank branch survey data, 1986-91.

Table 5.2
Grameen Bank training expenditure and total expenditure, 1985-93
(thousand taka)

Year	Training as a proportion of head office level expenditure			Training as a proportion of national expenditure		
	Head office training cost	Head office total expenditure	Training expenditure (%)	Training cost	Total expenditure	Training expenditure (%)
1985	0.00	0.00		0.00	0.00	
1986	2,814.40	38,117.20	7.38	2,814.40	89,884.84	3.13
1987	9,715.60	47,626.10	20.40	9,715.60	128,282.43	7.57
1988	37,120.00	92,698.00	40.04	37,120.00	198,442.48	18.71
1989	63,282.40	138,770.20	45.60	63,282.40	296,783.62	21.32
1990	79,361.10	176,153.09	45.05	79,361.10	403,683.91	19.66
1991	60,449.60	191,106.30	31.63	60,449.60	540,068.63	11.19
1992	43,086.38	295,013.34	14.60	43,086.38	998,748.88	4.31
1993	53,890.11	750,617.00	7.18	5,890.11	1,810,000.00	0.33

Source: Grameen Bank Annual Report, 1985-94.

Table 5.3
Determinants of managers' pay structure

Explanatory variable	Coefficients (t-statistic)	Mean (standard deviation)
Education	.07 (9.04)	15.58 (1.18)
Age	.05 (1.07)	30.05 (2.09)
Age squared	-0.00 (-1.18)	907.15 (134.25)
Experience	.02 (2.41)	4.22 (2.46)
Experience squared	-0.00 (-0.80)	-
Gender of manager (1=male, 2=female)	.04 (1.78)	0.96 (0.19)
Intercept	6.13 (8.98)	-
Adjusted R^2	0.61-	
F-statistics (6, 124)	34.59-	
Number of observations	131	

Source: Grameen Bank Branch Survey, 1991.

Table 5.4
Impact of agroclimate endowments and location on program placement

Variables	GRAMEEN	ELECDEN	PRYDEN	SECDEN	RDHDEN	RCOMKRA	RCBKA	RKBKA	MEAN
Distance to old district headquarter	.00053 (0.722)	-.00071 (-2.394)	-.00066 (-2.367)	-.00039 (-5.129)	-.00010 (-0.619)	-.00020 (-3.632)	-.00018 (-3.532)	-.00001 (-1.634)	60.87 (41.88)
Flood-prone Area 1	-.02183 (0.143)	.07489 (1.226)	.17317 (3.002)	.01358 (0.864)	-.02313 (-0.688)	.00352 (0.311)	.00095 (0.089)	.00257 (1.145)	.491 (.278)
Flood-prone Area 2	-.03326 (-0.117)	.27113 (2.453)	.27017 (2.589)	.02780 (0.978)	.02109 (0.347)	.00978 (0.477)	.00332 (0.173)	.00646 (1.591)	.161 (.137)
Flood-prone Area 3	.15309 (0.533)	-.20782 (-1.885)	.09787 (0.940)	-.04898 (-1.726)	-.01739 (-0.287)	-.00422 (-0.206)	.00259 (0.135)	-.00681 (-1.681)	.093 (.149)
Flood-prone Area 4	-.14113 (-0.209)	.31115 (1.169)	-.14619 (-0.581)	-.03494 (-0.510)	-.13595 (-0.928)	.02097 (0.672)	.00443 (0.096)	.01654 (1.689)	.012 (.052)
Moisture content type 0	-1.83351 (-0.218)	.03934 (0.075)	.41421 (0.838)	.07188 (0.533)	.45846 (1.592)	-.06940 (-0.714)	-.08649 (-0.950)	.01709 (0.888)	.008 (.036)
Moisture content type 1	.43010 (0.365)	-.02555 (-0.059)	.14345 (0.349)	.02515 (0.225)	.33721 (1.408)	-.00534 (-0.066)	-.01841 (-0.243)	.01307 (0.817)	.139 (.186)
Moisture content type 2	-.24036 (-0.207)	.02763 (0.065)	.16290 (0.404)	.02854 (0.260)	.35659 (1.518)	-.01985 (-0.250)	-.03088 (-0.416)	.01102 (0.702)	.430 (.205)
Moisture content type 3	.27828 (0.238)	-.03750 (-0.086)	.00928 (0.023)	.00848 (0.076)	.31293 (1.310)	-.02188 (-0.272)	-.03190 (-0.422)	.01001 (0.627)	.416 (.258)
Constant	.37980 (0.328)	.10347 (0.242)	.18666 (0.462)	.08791 (0.798)	-.20477 (-0.869)	.06795 (0.855)	.07 (0.940)	-.00204 (-0.130)	
Mean	.485 (.501)	.118 (.159)	.379 (.156)	.090 (.045)	.112 (.085)	.040 (.029)	.030 (.027)	.010 (.006)	
R^2	0.0706	0.1047	0.1730	0.2438	0.0475	0.0924	0.0851	0.0778	
Adjusted R^2	0.0389	0.0587	0.1305	0.2049	-0.0015	0.0457	0.0380	0.0303	
Number of observations	274	185	185	185	185	185	185	185	

Note: Figures in parentheses are t-statistics, except for "Mean" column, where they are standard deviations.

Table 6.1
Classification of borrowers as percentage of total borrowers by gender, 1985-92

Year	Struggling		Twenty-five weeks		Thirty-eight weeks	
	Male	Female	Male	Female	Male	Female
1985	4.28	0.50	1.36	1.28	3.61	0.00
1986	7.52	0.64	3.02	0.66	2.67	0.00
1987	9.30	0.60	3.28	3.33	5.88	0.00
1988	10.00	0.61	3.46	1.76	5.99	0.00
1989	12.44	0.99	4.25	1.50	4.56	0.00
1990	11.96	1.08	4.29	1.18	3.68	1.51
1991	15.33	1.33	5.61	1.23	3.07	1.56
1992	5.47	1.27	4.83	0.33	1.64	0.51

Source: Grameen Bank.

Table 6.2
Trends in recovery rates by loan type and gender, 1986-94
(in percentages)

Year	General loans				Collective loans			General and collective loans
	Loan recovery profile approach[a]			Grameen Bank approach	Loan recovery profile approach[a]			
	Male	Female	Total		Male	Female	Total	
1986	-	-	-	-	79.37	92.86	85.71	-
1987	-	-	97.51	98.2	78.57	96.15	88.81	96.3
1988	-	-	97.82	98.5	78.95	97.37	91.23	96.9
1989	-	-	98.01	98.8	75.00	96.26	89.68	96.9
1990	90.02	98.07	97.18	98.8	79.59	97.64	92.61	95.4
1991	85.51	96.48	95.48	97.8	72.50	98.21	91.45	93.0
1992	88.85	96.99	96.35	98.2	81.11	97.27	93.20	96.3
1993	n.a.	n.a.	n.a.	99.0	n.a.	n.a.	n.a.	n.a.
1994	n.a.	n.a.	n.a.	99.4	n.a.	n.a.	n.a.	n.a.

Note: [a]Estimated using the data in the GB Annual Reports.

Source: Grameen Bank.

Table 6.3
Balance sheet of the Grameen Bank, 1986-94
(year ending on December 31)
(million Taka)

	1986	1987	1988	1989	1990[a]	1991[a]	1992	1993[a]	1994[a]
ASSETS:	902.73	1279.28	1911.33	2910.61	3963.53	4841.30	6883.72	12276.58	16144.84
Loans and Advances	330.97 (36.67)	633.57 (49.53)	1094.90 (57.28)	1593.23 (54.74)	2117.37 (53.42)	2551.17 (52.70)	4423.94 (64.27)	8763.57 (71.38)	11053.67 (68.47)
Treasury Bills	-	-	-	-	15.00 (0.38)	3.00 (0.06)	-	-	1680.00 (10.41)
Deposit Investment	435.50 (48.24)	408.25 (31.91)	399.25 (20.89)	641.97 (22.06)	1062.72 (26.81)	1447.74 (29.90)	1301.23 (18.90)	1744.82 (14.12)	1521.86 (9.43)
TOTAL EARNING ASSETS:	766.47 (84.91)	1041.82 (81.44)	1494.15 (78.17)	2235.2 (76.69)	3195.09 (80.61)	4001.91 (82.66)	5725.17 (83.17)	10508.39 (85.60)	14255.53 (88.30)
Cash	0.01 (0.00)	0.25 (0.02)	0.33 (0.02)	0.50 (0.02)	0.03 (0.00)	0.10 (0.00)	0.03 (0.00)	0.06 (0.00)	0.10 (0.00)
Fixed Assets	32.07 (3.55)	66.26 (5.18)	115.32 (6.03)	161.75 (5.56)	264.25 (6.67)	344.02 (7.11)	421.07 (6.12)	497.06 (4.02)	550.98 (3.41)
Other Assets	104.18 (11.54)	170.95 (13.36)	301.53 (15.78)	513.16 (17.63)	504.16 (12.72)	495.27 (10.23)	737.45 (10.71)	1271.07 (1035)	1338.23 (8.29)
TOTAL NON-EARNING ASSETS:	136.26 (15.09)	237.46 (18.56)	417.18 (21.83)	675.41 (23.21)	768.44 (19.39)	839.39 (12.19)	1158.55 (16.83)	1768.19 (14.40)	1889.31 (11.70)
CAPITAL AND LIABILITIES:	902.73	1279.28	1911.33	2910.61	3963.53	4841.30	6883.72	12276.58	16144.84
Capital	43.71 (4.84)	49.11 (3.84)	207.33 (10.85)	385.41 (13.24)	972.16 (24.53)	1401.13 (28.82)	2555.11 (37.12)	3027.65 (24.66)	3587.87 (22.22)
Paid-up Capital	35.47 (3.93)	42.10 (3.29)	56.92 (2.98)	71.99 (2.47)	72.02 (1.82)	114.36 (2.35)	149.45 (2.18)	150.00 (1.22)	216.52 (1.34)

Table 6.3 (continued)
Balance sheet of the Grameen Bank, 1986-94
(year ending on December 31)

	1986	1987	1988	1989	1990[a]	1991[a]	1992	1993[a]	1994[a]
Reserve	2.30 (0.25)	2.70 (0.21)	3.70 (0.19)	5.80 (0.20)	8.70 (0.22)	8.70 (0.18)	22.17 (0.32)	49.87 (0.41)	63.65 (0.39)
Revolving Funds and Grants	5.92 (0.66)	4.31 (0.34)	146.71 (7.68)	307.62 (10.57)	891.44 (22.49)	1278.07 (26.30)	2383.49 (34.63)	2827.78 (22.88)	3307.70 (20.49)
Liabilities	859.02 (95.16)	1230.17 (96.16)	1704.00 (89.15)	2525.20 (86.76)	2991.37 (75.47)	3440.17 (70.78)	4328.61 (62.88)	9248.93 (75.34)	12556.97 (77.78)
Deposits	5.81 (0.64)	30.47 (2.38)	27.03 (1.41)	52.02 (1.79)	64.49 (1.63)	95.84 (1.97)	134.87 (1.96)	404.19 (3.27)	422.65 (2.62)
Member Savings	116.86 (12.95)	190.07 (14.86)	293.21 (15.34)	444.78 (15.28)	642.51 (16.21)	834.96 (17.18)	1198.88 (17.42)	1954.55 (15.92)	2807.75 (17.39)
Borrowings	716.85 (79.41)	954.63 (74.63)	1232.89 (64.50)	1720.01 (59.09)	1886.52 (47.60)	1876.10 (38.60)	1878.23 (27.29)	5469.97 (44.26)	8215.70 (50.89)
Others[b]	19.50 (2.16)	55.00 (4.30)	150.87 (7.89)	308.39 (10.60)	397.85 (10.04)	633.27 (13.08)	1116.63 (16.22)	1420.22 (11.57)	1110.87 (6.88)

Notes: Figures in parentheses are percentages of total assets or liabilities.
[a]Revised balance sheet was provided by Grameen Bank on April 20, 1995 and July 9, 1995.
[b]Others include grants, training reserve and revolving fund, loss reserve fund, SIDE reserve fund, social advancement fund, etc.

Source: Grameen Bank Annual Reports, 1986-94.

Table 6.4
Income and expenditure statement, 1986-94
(million taka)

	1986	1987	1988	1989	1990[a]	1991[a]	1992	1993	1994
INCOME[b]	90.24	128.72	199.61	299.04	413.91	551.98	772.39	1325.23	2018.58
Interest Income									
Loan	43.91 (48.7)	65.07 (50.6)	112.69 (56.5)	161.98 (54.2)	220.83 (53.4)	336.89 (60.9)	522.14 (67.6)	1055.57 (79.65)	1646.35 (81.56)
Deposit	0.47 (0.5)	0.50 (0.4)	0..77 (0.4)	1.10 (0.4)	1.60 (0.4)	1.63 (0.3)	2.01 (0.26)	3.70 (0.28)	4.36 (0.22)
Investment	45.21 (50.1)	59.69 (46.4)	51.61 (25.9)	73.96 (24.7)	112.92 (27.3)	133.58 (24.3)	176.41 (22.84)	165.63 (12.50)	262.15 (12.99)
Total	89.59 (99.28)	125.26 (97.31)	165.07 (82.70)	237.04 (79.27)	335.35 (81.0)	471.1 (85.5)	700.56 (90.70)	1224.90 (92.43)	1912.86 (94.76)
Noninterest income									
Grants		3.02 (2.35)	33.83 (16.95)	59.60 (19.93)	75.68 (18.30)	73.39 (13.30)	62.37 (8.07)	86.92 (6.56)	76.34 (3.78)
Others	0.65 (0.72)	0.44 (0.34)	0.70 (0.35)	2.40 (0.80)	2.87 (0.70)	7.49 (1.40)	9.46 (1.22)	13.41 (1.01)	29.38 (1.46)
Total	0.65 (0.72)	3.46 (2.69)	34.53 (17.30)	62.0 (20.73)	78.55 (19.00)	80.88 (14.70)	71.83 (9.30)	100.33 (7.57)	105.72 (5.24)
EXPENDITURES:[c]	89.88	128.28	198.44	296.78	403.68	540.07	778.05	1315.67	1996.84
Interest Expenses	31.02 (34.51)	34.72 (27.07)	48.59 (24.49)	71.51 (24.10)	102.57 (25.41)	119.1 (22.05)	190.92 (24.54)	387.34 (29.44)	791.94 (39.66)
Deposit	7.47 (8.31)	12.54 (10.01)	20.86 (10.51)	32.78 (11.05)	54.57 (12.32)	68.76 (12.73)	101.89 (13.10)	151.85 (11.54)	269.41 (13.49)
Borrowing	23.55 (26.20)	22.18 (17.29)	27.73 (13.97)	38.73 (13.05)	48.00 (11.89)	50.34 (9.32)	89.03 (11.44)	235.49 (17.90)	522.53 (26.17)

Table 6.4 (continued)
Cost and revenue structures, 1986-94
(million taka)

	1986	1987	1988	1989	1990[a]	1991[a]	1992	1993	1994
Noninterest expenses	58.86 (65.49)	93.56 (72.93)	149.85 (75.51)	225.27 (75.90)	301.11 (74.59)	420.97 (77.95)	587.13 (75.46)	928.33 (70.56)	1204.90 (60.34)
Salary	43.42 (48.31)	65.37 (50.96)	81.08 (40.86)	121.17 (40.83)	170.84 (42.32)	268.62 (49.73)	389.19 (50.02)	579.79 (44.06)	587.72 (29.43)
Training	2.81 (3.13)	9.72 (7.57)	37.12 (18.71)	63.28 (21.32)	79.36 (19.66)	60.45 (11.19)	44.58 (5.73)	47.86 (3.64)	46.21 (2.31)
Others	12.63 (14.05)	18.47 (14.40)	31.65 (15.95)	40.02 (13.75)	50.91 (12.61)	91.90 (17.02)	153.36 (19.91)	300.93 (22.87)	570.97 (28.59)
Evaluation									
Net Interest Income	58.57	90.54	116.48	165.53	225.65	331.77	509.64	837.56	1120.91
Less Non-interest Expenses	58.86	93.56	149.85	225.27	301.11	420.97	587.13	928.33	1204.90
Surplus or Deficit	-0.29	-2.92	-33.37	59.74	-75.46	-89.20	-77.49	-90.77	-83.98
Plus Non-interest income	0.65	3.46	34.53	62.0	78.55	80.88	71.83	100.33	105.72
Net Profit	0.36	0.44	117	2.26	10.22	11.92	-5.66	9.56	21.74
Previous year income	-	-	-	-	-	7.13	20.23	19.43	
Profit and loss appropriation: reserves						-1.18	14.57	28.99	21.74

Notes: [a]Revised by Grameen Bank, March 1994, April 1995 and July 1995.
[b]Figures in parentheses represent percentages of total income.
[c]Figures in parentheses represent percentages of total expenditures.

Source: Grameen Bank Annual Reports, 1986-94.

Table 6.5
Financial margin of the Grameen Bank, 1987-94

Year	Interest revenue	Interest expenses	Financial margin[a]		Salary	Training	Other costs[b]	Total costs
			Excluding revenue grants	Including revenue grants				
1987	11.48	3.18	8.30	8.58	5.99	0.89	1.69	8.57
1988	10.35	3.05	7.30	9.42	5.08	2.33	1.98	9.39
1989	9.83	2.97	6.86	9.33	5.03	2.62	1.65	9.30
1990	9.76	2.98	6.57	8.77	4.97	2.31	1.48	8.76
1991	10.70	2.71	7.53	9.20	6.10	1.37	2.09	9.56
1992	11.95	3.26	8.69	9.75	6.64	0.76	2.62	10.02
1993	12.79	4.04	8.75	9.48	6.05	0.50	3.14	9.69
1994	13.46	5.57	7.89	8.43	4.14	0.33	4.02	8.48

Note: [a]Financial margin is defined as (interest revenue+ grants - interest expenses)/average assets.
[b]Other costs were defined as non-interest expenses less salary and training.

Source: Grameen Bank Annual Reports, 1986-93, and data provided April 1995 and July 1995.

Table 6.6
Trends in profits of the Grameen Bank, 1986-94
(million taka)

Year	Profit			Growth rate of reported profits	Reported profit as percentage of		
	Reported profit	Revised[a] estimates	Operating[b] profit		Total income	Assets	Equity
1986	0.36	0.36	3.17	-	0.40	0.04	1.01
1987	0.44	-2.56	7.16	22.22	0.34	0.03	0.77
1988	1.17	-32.66	4.46	165.91	0.59	0.06	2.76
1989	2.26	-57.34	5.94	93.46	0.76	0.08	3.13
1990	10.22	-65.46	13.9	352.21	2.47	0.26	14.19
1991	11.92	-61.47	-17.59	16.63	2.16	0.25	10.42
1992	-5.66	-68.03	-23.45	-141.44	-0.73	-0.08	-3.79
1993	9.56	-77.36	-29.50	269.38	0.72	0.08	6.37
1994	21.74	-54.60	-15.11	127.41	1.08	0.13	10.04

Notes: [a]Revised profit estimate was based on revenue not including revenue grants.
[b]Operating profits were estimated as the difference between total revenue (excluding revenue grants) and total expenditures (excluding training expenses financed by revenue grants).

Source: Grameen Bank Annual Reports, 1986-93; data provided April 1995 and July 1995.

Table 6.7
Cost structure per taka loan disbursement and break-even interest rate, 1986-94

Cost structure per taka loan disbursement	1986	1987	1988	1989	1990	1991	1992	1993	1994
Total expenses per annual disbursement	0.162	0.132	0.135	0.140	0.148	0.142	0.122	0.106	-
Deposit Cost	0.014	0.013	0.014	0.016	0.019	0.019	0.016	0.012	0.018
Borrowing Cost	0.043	0.023	0.019	0.019	0.018	0.014	0.014	0.019	0.033
Operating Cost	0.105	0.096	0.102	0.105	0.111	0.109	0.092	0.075	0.069
Salary Cost	0.079	0.069	0.056	0.059	0.064	0.072	0.061	0.047	0.041
Default Cost	n.a.	0.037	0.031	0.031	0.046	0.070	0.037	0.037	-
Breakeven rate of interest	n.a.	17.54	17.03	17.64	20.34	22.79	16.5	14.85	-
Average on-lending interest	n.a.	14.00	13.20	12.90	12.90	16.50	16.74	15.96	16.51

Note: Operating cost includes salary, training and other costs.

Source: Grameen Bank Annual Reports, 1986-93, and data provided April 1995.

Table 6.8
Data for subsidy estimates, 1987-94
(million taka)

Sources	1987	1988	1989	1990	1991	1992	1993	1994
Average borrowings								
Foreign	765.63	1056.74	1396.79	1638.79	1703.1	1790.67	1922.54	1967.84
Central bank	49.91	16.89	104.31	188.63	178.21	86.50	1750.00	3250.00
Average grants for lending	5.12	9.49	227.16	693.42	1363.75	2366.11	2572.82	2958.53
Income grants	3.02	33.83	59.6	75.68	73.39	62.37	75.17	86.92
Average equity	38.79	49.51	64.46	72.00	93.19	131.91	149.73	183.26
Reported profit	0.44	1.17	2.26	3.1	-8.31	-5.65	8.94	97.66
Average loan outstanding	482.37	864.24	1344.06	1855.30	2334.27	3529.1	6561.18	9969.40
Interest on loan	65.07	112.69	161.98	213.70	315.66	522.14	1055.57	1646.35
Thirty-six months term deposit interest rate	14.25	14.25	14.25	14.00	13.75	13.00	13.00	6.00
Average on-lending interest rate	13.49	13.04	12.05	11.52	13.52	14.80	16.09	16.51

Source: Grameen Bank Annual Reports, 1986-93, and data provided April 1995.

Table 6.9
Estimates of subsidy for the Grameen Bank, 1987-94
(million taka)

	1987	1988	1989	1990	1991	1992	1993	1994
Interest subsidy:								
Foreign loans	93.79	129.45	171.05	196.65	200.12	196.97	211.48	78.71
Central bank loans	5.61	1.90	11.73	20.75	19.16	8.65	140.00	16.25
Foreign grants	0.73	1.35	32.37	97.08	187.52	307.60	334.47	177.51
Total interest subsidy	100.13	132.70	215.15	314.48	406.80	513.22	685.95	272.47
Equity subsidy	5.53	7.06	9.19	10.08	12.81	17.15	19.46	11.00
Income subsidy	3.02	33.83	59.60	75.68	73.39	62.37	75.17	86.92
TOTAL SUBSIDY	108.68	173.59	283.94	400.24	493.00	592.74	780.58	370.39
Subsidy dependence index (SDI)	1.66	1.53	1.74	1.77	1.43	1.15	0.73	0.22
Subsidy dependence ratio (SDR)	0.86	1.04	1.19	1.16	1.02	0.85	0.63	0.19

Note: Estimates are based on July 92 - June 93 data and provisional estimates for 1994.

Source: Grameen Bank Annual Reports, 1986-93, and data provided April 1995.

Table 6.10
Increase in interest rate and loan outstanding required to eliminate subsidy dependency, 1987-94

Year	Average on-lending interest rate	Required average lending interest rate according to	
		SDR	SDI
1987	13.49	27.09	35.88
1988	13.04	26.60	33.00
1989	12.05	26.39	33.02
1990	11.52	24.88	31.91
1991	13.52	27.31	32.85
1992	14.80	27.38	32.26
1993	16.09	26.22	27.85
1994	16.51	19.71	20.23

Source: Grameen Bank Annual Reports, 1986-93, and data provided April 1995.

Table 6.11
Trends in average capital and employee production of service, 1986-94

Year	Number of members per		Number of borrowers per		Cumulative disbursement		Cumulative outstanding per		Deposit and savings mobilized per	
	Capital (thousand taka)	Employee	Capital (thousand taka)	Employee	per capital (taka)	Thousand per employee	per capital (taka)	Thousand per employee	Capital (thousand taka)	Thousand per employee
1985	n.a.	77.97	n.a.	69.27	n.a.	341.56	n.a.	8 7.94	n.a.	n.a.
1986	1.72	83.22 (6.73)	1.54	81.18 (17.20)	10.98	425.60 (24.60)	2.37	91.81 (4.40)	1.81	70.01
1987	1.43 (-16.86)	94.03 (12.99)	1.39 (-9.74)	91.09 (12.20)	10.32 (-6.01)	554.58 (30.36)	2.69 (13.50)	138.64 (51.01)	2.34 (29.28)	125.75 (79.61)
1988	1.18 (-17.48)	84.17 (10.49)	1.14 (-17.99)	81.09 (-10.98)	9.46 (-8.33)	570.25 (2.83)	2.48 (-7.80)	149.47 (7.81)	2.32 (-0.85)	139.81 (11.18)
1989	0.98 (-16.95)	93.77 (11.40)	0.96 (-15.79)	91.78 (13.19)	8.88 (-6.13)	709.99 (24.51)	2.25 (-9.27)	179.77 (20.27)	2.35 (1.29)	187.62 (34.20)
1990	1.13 (15.31)	83.03 (-11.39)	1.11 (15.63)	81.47 (-11.24)	11.25 (26.69)	723.40 (1.89)	2.58 (14.66)	166.16 (-7.57)	3.24 (37.87)	208.16 (10.95)
1991	1.27 (12.39)	115.49 (39.01)	1.24 (11.71)	112.80 (33.47)	14.72 (30.84)	1133.68 (56.72)	3.14 (21.71)	242.16 (45.74)	4.24 (30.86)	326.47 (56.84)
1992	1.03 (-18.90)	159.49 (38.10)	1.00 (-19.35)	155.11 (37.51)	13.54 (-8.02)	1777.88 (56.82)	3.19 (1.59)	419.49 (73.23)	3.80 (-10.38)	499.55 (53.02)
1993	0.94 (-8.74)	172.87 (13.38)	0.88 (-12.0)	160.29 (3.34)	16.05 (18.54)	2927.91 (64.69)	4.60 (44.20)	832.07 (98.35)	4.56 (20.00)	831.36 (66.42)
1994	0.86 (-8.51)	185.54 (7.33)	0.79 (-10.23)	171.32 (6.88)	19.00 (18.38)	4110.09 (40.38)	4.78 (3.91)	1033.63 (24.22)	5.21 (14.25)	1126.22 (35.47)

Note: Figures in parentheses are growth rate from preceding year.

Source: Grameen Bank.

Table 6.12
Major characteristics of branches by profit and loss

Variable	Profit		Loss	
	Observations	Mean	Observations	Mean
Age of the branch	49	5.510 (1.459)	308	3.795 (1.724)
Average rainfall over the year	49	204.137 (75.823)	308	217.424 (84.193)
Dispersion from monthly rainfall mean	49	184.273 (124.464)	308	164.234 (140.610)
Villages electrified per sq km	49	.080 (.134)	308	.171 (.238)
Primary schools per sq km	49	.390 (.169)	308	.385 (.142)
Secondary schools per sq km	49	.114 (.048)	308	.093 (.048)
Road length per sq km	49	.125 (.087)	308	.125 (.083)
Commercial and Krishi bank per sq km	49	.028 (.021)	308	.038 (.032)
Average training cost per branch (thousand taka)	49	82.893 (17.907)	308	76.974 (26.285)
Manager's monthly pay (taka)	49	3117.119 (206.946)	308	3099.664 (212.023)
Total cost (thousand taka)	49	565.571 (228.254)	308	349.601 (142.389)
Savings mobilized (thousand taka)	49	1707.545 (936.459)	308	649.835 (705.234)
Total membership	49	1503.204 (240.286)	308	1065.604 (355.095)
Total disbursement (thousand taka)	49	6569.949 (5365.829)	308	2790.783 (1685.269)
Total asset (thousand taka)	49	6756.422 (2898.809)	308	2756.332 (1642.432)
Wage rate (taka per day)	49	18.916 (6.748)	308	17.067 (8.315)
Unit cost of fixed assets	49	.003 (.005)	308	.005 (.006)

Table 6.12 (continued)
Major characteristics of branches by profit and loss

Variable	Profit		Loss	
	Observations	Mean	Observations	Mean
Number of staff	49	9.510 (1.416)	308	8.432 (2.572)
Proportion of branches with only women	49	.306 (.466)	308	.555 (.498)
Proportion of branches with technology loan	49	.224 (.422)	308	.036 (.186)
Proportion of general and collective loans 52-77 weeks overdue	49	.029 (.080)	308	.009 (.037)
Proportion of general and collective loans 78-103 weeks overdue	49	.025 (.116)	308	.005 (.025)
Proportion of general and collective loans 104 + weeks overdue	49	.018 (.104)	308	.007 (.056)
Percent of member drop-out	49	.118 (.083)	308	.079 (.078)
Profit (thousand taka)	49	103.180 (116.037)	308	-115.840 (46.710)
Number of branches	24		94	

Source: Grameen Bank.

Table 6.13
Determinants of branch-level profitability
(fixed-effects estimates)

Explanatory variable	Coefficient
Age	-19.49 (-1.63)
Age squared	1.44 (1.20)
Predicted log of manager's pay	-94.22 (-1.48)
Average training cost at the national level	1.15 (6.65)
Women-only branches	-31.27 (-1.86)
Branches with technology loan	88.81 (4.22)
Electrification per sq. km.	-131.21 (-1.41)
Road-length per sq. km.	558.57 (2.57)
Secondary schools per sq. km.	418.47 (0.32)
Primary schools per sq. km.	893.36 (1.56)
Dispersion from mean rainfall	.05 (0.48)
Average yearly rainfall	.15 (1.09)
Commercial and Krishi banks per sq. km.	-1481.65 (-1.99)
Constant	-453.67 (-0.65)
F-statistics	5.78
R^2	0.77
Number of observations	357

Note: t-statistics are in parentheses.

Table 6.14
Branch cost structure per taka loan disbursement and break-even interest rate, 1986-91

Cost structure per taka loan disbursement	1986	1987	1988	1989	1990	1991
Total expenses per annual disbursement	0.135	0.141	0.116	0.120	0.138	0.194
Deposit cost	0.014	0.014	0.011	0.015	0.014	0.018
Borrowing cost	0.038	0.041	0.034	0.037	0.036	0.047
Operating cost	0.079	0.075	0.062	0.058	0.051	0.071
Salary cost	0.055	0.056	0.046	0.042	0.036	0.050
Default cost	0.004	0.011	0.009	0.010	0.037	0.058
Break-even rate of interest	13.55	14.25	11.71	12.12	14.34	20.59
Average on-lending interest	13.01	14.51	12.29	12.42	12.66	15.06

Note: Operating cost includes salary and other costs.

Source: Grameen Bank Brancy Survey, 1991.

Table 6.15
Estimates of translog cost function

Variables	Coefficients	Mean (Standard Deviation
Log disbursements	-0.166 (-0.294)	7.86 (0.72)
Log savings	-0.475 (-0.930)	6.21 (1.01)
Log membership	.243 (0.197)	6.96 (0.39)
Log fixed cost	-0.073 (-0.217)	-5.66 (0.8)
Log wage	.374 (0.723)	2.75 (0.46)
Log disbursement squared	.160 (3.104)	
Log savings squared	-0.036 (-0.892)	
Log membership squared	-0.069 (-0.277)	
Log fixed cost squared	.023 (0.896)	
Log wage squared	-0.090 (-1.657)	
Log savings timeslog disbursement	-0.024 (-0.548)	
Log disbursement times log fixed cost	.069 (2.286)	
Log disbursement times log wage	-0.018 (-0.282)	
Log savings times log fized cost	-0.012 (-0.679)	
Log savinags times log wage	.022 (0.542)	
Log wage times log fixed cost	.033 (1.035)	
Log membership times log saving	.114 (1.211)	
Log membership times log disbursement	-0.051 (-0.469)	

Table 6.15 (continued)
Estimates of Translog Cost Function

Variables		Coefficients	Mean (Standard Deviation
Log membership times log fixed cost		-0.043 (-0.639)	
Log membership times log wage		.035 (0.325)	
Age		.338 (7.722)	4.03 (1.79)
Age squared		-0.020 (-5.413)	
Predicted log of manager's pay		-0.136 (-1.082)	8.04 (0.08)
Average training cost		-0.002 (-5.315)	77.79 (25.36)
Branches with only female members		-0.036 (-1.054)	0.51 (0.50)
Branches with technology loan		.062 (1.400)	0.06 (0.24)
Constant		4.960 (1.455)	
R^2		0.965	
F-statistics		41.20	
Chi^2 (26 degrees of freedom)		213.62	
Number of observations		357	
Marginal cost of:	membership	0.138 (5.515)	
	disbursement	0.016 (4.221)	
	savings	0.015 (1.108)	
Economies of scale for all branches		0.582 (8.475)	
Economies of scale for women-only branches		0.550 (8.565)	
Economies of scale for technology loan branches		0.714 (7.720)	

Note: t-statistics are in parentheses.

Table 7.1
Membership and dropouts, 1986-94

Year	Total			Women			Men		
	Members	Dropouts	%[a]	Members	Dropouts	%[a]	Members	Dropouts	%[a]
1986	234,343	8,077	3.45	137,885	5,764	4.18	60,458	2,313	3.83
1987	339,156	13,100	3.86	275,600	10,500	3.81	63,556	2,600	4.09
1988	490,363	18,006	3.67	420,965	16,010	3.80	69,398	1,996	2.88
1989	662,263	22,004	3.32	588,802	20,334	3.45	73,461	1,670	2.27
1990	869,538	37,948	4.36	791,606	35,810	4.52	77,932	2,138	2.74
1991	1,066,426	52,277	4.90	986,373	49,614	5.03	80,053	2,663	3.33
1992	1,424,395	61,163	4.29	1,334,285	59,020	4.42	90,111	2,143	2.38
1993	1,814,916	40,744	2.24	1,707,555	39,268	2.30	107,361	1,476	1.37
1994	2,013,130	92,942	4.62	1,892,287	85,220	4.50	120,843	7,722	6.39

Note: [a]The percentage was calculated as Annual Dropouts/Members.

Source: Grameen Bank.

Table 7.2
Determinants of dropout rate
(fixed-effects estimates)

Variables	Member dropout	First year dropout	Second year dropout	Third year dropout	Fourth year dropout
Age	.047 (5.377)	.001 (0.369)	.006 (1.839)	.009 (2.118)	.006 (1.100)
Age squared	-0.002 (-1.880)	-0.000 (-0.780)	-0.001 (-1.890)	-0.001 (-2.205)	.000 (0.582)
Log of predicted manager's pay	-0.183 (-3.941)	.007 (0.486)	-0.040 (-2.126)	-0.003 (-0.117)	-0.066 (-2.354)
Average training cost	-0.000 (-1.213)	.000 (0.744)	.000 (0.301)	.000 (0.217)	-0.000 (-0.053)
Women-only branches	.011 (0.880)	.003 (0.727)	.015 (2.941)	-0.008 (-1.484)	-0.011 (-1.458)
Branches with technology loans	.017 (1.127)	-0.002 (-0.509)	.006 (1.021)	.008 (1.124)	.007 (0.810)
Electrification per km^2	.239 (3.527)	.015 (0.721)	.016 (0.578)	-0.002 (-0.056)	.001 (0.032)
Road-length per km^2	.042 (0.264)	.021 (0.426)	-0.017 (-0.262)	.035 (0.478)	.018 (0.192)
Secondary schools per km^2	-1.641 (-1.714)	-0.072 (-0.246)	-0.243 (-0.632)	-0.516 (-1.157)	-0.610 (-1.059)
Primary schools per km^2	.202 (0.484)	.151 (1.192)	.012 (0.069)	.162 (0.835)	.200 (0.796)
Average rainfall	-0.000 (-0.123)	-0.000 (-0.226)	-0.000 (-0.229)	.000 (-0.087)	.000 (1.045)
Dispersion of rainfall from its mean	-0.000 (-1.220)	-0.000 (-0.644)	.000 (0.439)	-0.000 (-0.501)	-0.000 (-1.311)
Commercial and Krishi Banks per km^2	-0.074 (-0.136)	-0.074 (-0.449)	.221 (1.013)	.526 (2.072)	.138 (0.422)
Constant	1.637 (3.202)	-0.159 (-1.027)	.347 (1.690)	-0.020 (-0.085)	.512 (1.665)
R^2	0.819	0.792	0.605	0.408	-0.640
Number of observations	357	357	357	357	357

Note: Figures in parentheses are t-statistics.

Source: Grameen Bank Branch Survey, 1991.

Table 7.3
Number of irregular and struggling borrowers, 1985-94

Year	Total			Women			Men		
	Borrowers	Irregular borrowers	Struggling borrowers	Borrowers	Irregular borrowers	Struggling borrowers	Borrowers	Irregular borrowers	Struggling borrowers
1985	152,463	3,533 (2.32)	1,222 (0.80)	99,332	1,261 (1.27)	497 (0.50)	53,131	2,272 (4.28)	725 (1.36)
1986	228,612	7,928 (3.47)	2,889 (1.26)	168,332	3,397 (2.02)	1,071 (0.64)	60,280	4,531 (7.52)	1,818 (3.02)
1987	328,557	10,382 (3.16)	3,662 (1.11)	265,415	4,508 (1.70)	1,593 (0.60)	63,142	5,874 (9.30)	2,069 (3.28)
1988	472,430	14,442 (3.06)	4,841 (1.02)	403,625	7,560 (1.87)	2,461 (0.61)	68,805	6,882 (10.00)	2,380 (3.46)
1989	648,267	24,796 (3.82)	8,775 (1.35)	575,117	15,698 (2.73)	5,666 (0.99)	73,150	9,098 (12.4)	3,109 (4.25)
1990	852,622	30,921 (3.63)	11,722 (1.37)	775,547	21,705 (2.80)	8,413 (1.08)	77,075	9,216 (11.96)	3,309 (4.29)
1991	1,041,630	49,538 (4.76)	17,301 (1.66)	962,148	37,357 (3.88)	12,839 (1.33)	79,482	12,181 (15.33)	4,462 (5.61)
1992	1,385,324	46,240 (3.34)	21,351 (1.54)	1,296,558	35,664 (2.75)	16,489 (1.27)	88,766	10,576 (11.91)	4,862 (5.48)
1993	1,682,916	42,697 (2.54)	18,670 (1.11)	1,585,483	33,116 (2.09)	14,469 (0.91)	97,431	9,581 (9.83)	4,201 (4.31)
1994	1,860,674	75,670 (4.07)	29,096 (1.56)	1,751,775	65,063 (3.71)	25,108 (1.43)	108,899	10,607 (9.74)	3,988 (3.66)

Note: Figures in parentheses are percentages of total borrowers in the same year.

Source: Program-level data.

Table 7.4
Number of 25- and 38-week defaulters, 1985-94

Year	Total			Women			Men		
	Borrowers	25-week defaulters	38-week defaulters	Borrowers	25-week defaulters	38-week defaulters	Borrowers	25-week defaulters	38-week defaulters
1985	152,463	3,183 (2.09)	0 (0.00)	99,332	1,267 (1.28)	0 (0.00)	53,131	1,916 (3.61)	0 (0.00)
1986	228,612	2,729 (1.19)	0 (0.00)	168,332	1,117 (0.66)	0 (0.00)	60,280	1,612 (2.67)	0 (0.00)
1987	328,557	12,548 (3.82)	0 (0.00)	265,415	8,835 (3.33)	0 (0.00)	63,142	3,713 (5.88)	0 (0.00)
1988	472,430	11,211 (2.37)	0 (0.00)	403,625	7,091 (1.76)	0 (0.00)	68,805	4,120 (5.99)	0 (0.00)
1989	64,867	11,976 (1.85)	0 (0.00)	575,115	8,638 (1.50)	0 (0.00)	73,150	3,338 (4.56)	0 (0.00)
1990	852,662	11,971 (1.40)	15,953 (1.87)	775,547	9,138 (1.18)	11,711 (1.51)	77,075	2,833 (3.68)	4,242 (5.50)
1991	1,041,630	14,257 (1.37)	17,983 (1.73)	962,148	11,816 (1.23)	14,964 (1.56)	79,482	2,441 (3.07)	3,019 (3.80)
1992	1,385,324	5,366 ((0.39)	8,062 (0.58)	1,296,558	4,288 (0.33)	6,604 (0.51)	88,766	1,078 (-1.21)	1,458 (1.64
1993	1,682,916	3,718 (0.22)	4,789 (0.28)	1,585,683	2,931 (0.19)	3,901 (0.25)	97,431	787 (0.81)	888 (0.91)
1994	1,860,674	14,085 (0.76)	16,491 (0.89)	1,751,775	12,584 (0.72)	14,575 (0.83)	108,899	1,501 (1.38)	1,916 (1.76)

Note: Figures in parentheses are the percentage of total borrowers in the same year.

Source: Grameen Bank.

Table 7.5
Number of long-term defaulters, 1985-94

Year	Total borrowers	Number of defaulters		
		52-weeks	78-weeks	103+ weeks
1985	152,463	0 (0.00)	0 (0.00)	0 (0.00)
1986	228,612	0 (0.00)	0 (0.00)	0 (0.00)
1987	328,557	3,602 (1.10)	2,104 (0.64)	4,834 (1.47)
1988	472,430	5,378 (1.14)	2,987 (0.63)	6,597 (1.40)
1989	648,267	8,173 (1.26)	3,710 (0.57)	7,613 (1.17)
1990	852,662	16,306 (1.91)	6,814 (0.80)	9,251 (1.09)
1991	1,041,630	28,129 (2.70)	14,243 (1.37)	19,409 (1.86)
1992	1,385,324	27,823 (2.01)	19,582 (1.41)	34,519 (2.49)
1993	1,682,914	17,607 (1.05)	13,798 (0.82)	40,116 (2.38)
1994	1,860,674	26,426 (1.42)	12,214 (0.66)	34,671 (1.86)

Note: Figures in parentheses are percentages of total number of borrowers.

Source: Grameen Bank.

Table 7.6
Fixed-effects estimates of general and joint loans overdue regressions

Variables	52-77 weeks	78-103 weeks	104+ weeks
Age	-0.00 (-0.219)	.00 (0.21)	-0.01 (-0.94)
Age squared	.00 (3.89)	.00 (2.97)	.00 (4.12)
Log of predicted manager's pay	-0.08 (-2.36)	-0.13 (-3.04)	-0.07 (-1.27)
Average training cost	-0.00 (-2.04)	-0.00 (-3.17)	-0.0 (-3.07)
Women only branches	-0.01 (-0.59)	-0.01 (-1.03)	-0.01 (-0.51)
Branches with technology loan	-0.00 (-0.38)	-0.01 (-0.41)	-0.11 (-0.59)
Electrification per km^2	-0.12 (-2.10)	-0.14 (-2.14)	-0.18 (-2.01)
Road-length per km^2	-0.25 (-2.07)	-0.25 (-1.69)	-0.29 (-1.49)
Secondary schools per km^2	-0.41 (-0.51)	-0.84 (-0.87)	-1.46 (-1.14)
Primary schools per km^2	-1.61 (-4.54)	-1.77 (-4.15)	-2.23 (-3.98)
Dispersion of rainfall from its mean	.00 (0.73)	-0.00 (-0.34)	-0.00 (-0.48)
Average yearly rainfall	-0.00 (-1.66)	-0.00 (-1.63)	-0.00 (-1.53)
Commercial and Krishi Banks per km^2	-1.13 (-2.51)	-0.84 (-1.54)	-1.12 (-1.56)
Constant	1.43 (4.49)	1.93 (5.04)	1.74 (3.46)
R^2	0.536	0.412	0.415
Number of observations	383	383	383

Note: Figures in parentheses are t-statistics.

Table 7.7
Impact of programs on aggregate village wage

Variables	Men		Women		Children		Mean (standard deviation)
	Ordinary least squares method	OLS with White's correction of standard errors	Ordinary least squares method	OLS with White's correction of standard errors	Ordinary least squares method	OLS with White's correction of standard errors	
If the village has BRDB: 1=yes, 0=no	-1.55 (-0.66)	1.55 (0.75)	0.59 (0.40)	0.59 (0.36)	-2.56 (-1.65)	-2.56 (-1.92)	.29 (.45)
If the village has GB: 1=yes, 0=no	4.39 (2.01)	4.39 (1.99)	-0.12 (-0.09)	-0.12 (-0.08)	2.25 (1.56)	2.25 (1.72)	.32 (.47)
If the village has BRAC: 1=yes, 0=no	1.52 (0.67)	1.52 (0.76)	-0.02 (-0.02)	-0.02 (-0.02)	-0.08 (-0.05)	-0.08 (-0.06)	.28 (.45)
If the village has pucca road: 1=yes, 0=no	0.24 (0.12)	0.24 (0.11)	1.83 (1.42)	1.83 (1.60)	1.62 (1.19)	1.62 (1.24)	.28 (.45)
If the village has any bank: 1=yes, 0=no	-1.76 (-0.61)	-1.76 (-0.62)	1.66 (0.92)	1.66 (0.94)	-0.44 (-0.23)	-0.44 (-0.28)	.10 (.31)
If the village has electricity: 1=yes, 0=no	-0.59 (-0.33)	-0.59 (-0.34)	1.57 (1.40)	1.57 (1.43)	-0.07 (-0.06)	-0.07 (-0.06)	.51 (.50)
Distance from thana HQ (km)	-0.43 (-2.78)	-0.43 (-2.70)	-0.18 (-1.86)	-0.18 (-1.84)	-0.28 (-2.73)	-0.28 (-2.67)	8.47 (5.79)
If the village any development program: 1=yes, 0=no	2.38 (1.69)	2.38 (1.42)	0.32 (0.31)	0.32 (0.31)	0.78 (0.70)	0.78 (0.71)	.54 (.50)
Constant	28.43 (10.26)	28.43 (10.44)	11.10 (6.42)	11.10 (5.97)	15.17 (8.29)	15.17 (8.35)	
F-statistics (87, 173)	2.14		1.94		2.40		
Adjusted R^2	0.034	0.034	0.028	0.028	0.016	0.041	
No. of observations	261	261	261	261	261	261	261

Note: T-statistics are in parentheses.

Source: Household Survey, 1991-92.

Table 7.8
Trends in subsidy, savings per member, and lending, 1987-94
(million taka)

Year	Total subsidy	Average loan outstanding	Total members' annual savings	Number of members (million)	Subsidy per taka loan outstanding (%)	Subsidy per member (taka)	Annual savings per member (taka)	Savings per taka loan outstanding (%)
1987	108.68	482.37	219.5	0.339	22.53	320.59	647.49 (105.30)	45.50
1988	173.59	864.24	263.9	0.490	20.09	354.27 (10.51)	538.57 (-16.82)	30.53
1989	283.94	1,344.06	396.8	0.662	21.12	428.91 (21.08)	599.40 (11.29)	29.52
1990	400.24	1,855.30	618.2	0.869	21.57	460.58 (7.38)	711.39 (18.68)	33.32
1991	493.00	2,334.27	688.7	1.066	21.12	462.48 (0.41)	646.06 (-9.18)	29.50
1992	592.74	3,529.1	1,103.0	1.424	16.80	416.25 (-9.98)	774.58 (19.89)	31.25
1993	780.58	6,561.8	2,785.1	1.815	11.90	430.1 (3.33)	1,534.53 (98.11)	42.44
1994	370.39	9,969.4	2,605.3	2.015	3.72	183.80 (-57.27)	1,292.87 (-15.75)	26.13

Note: Figures in parentheses are percentage chosen over the preceding year.

APPENDIX A

The sixteen decisions

1. The four principles of the Grameen Bank -- discipline, unity, courage, and hard work -- we will follows and advance in all walks of our lives.

2. We will bring prosperity to our families.

3. We will not live in dilapidated houses. We will repair our houses and work toward constructing new houses.

4. We will grow vegetables all year round. We will eat plenty of them and sell the surplus.

5. During the plantation seasons, we will plant as many seedlings a possible.

6. We will plan to keep our families small. We will minimize our expenditures. We will look after our health.

7. We will educate our children and ensure that they can pay for their education.

8. We will always keep our children and the environment clean.

9. We will build and use pit-latrines.

10. We will drink tubewell water. If it is not available, we will boil water or treat it with alum.

11. We will not take any dowry in our sons' wedding, neither will we give any dowry in our daughters' wedding. We will keep the center free from the curse of dowry. We will not practice child marriage.

12. We will not inflict injustice on anyone, nor will we allow anyone to do so.

13. For higher incomes we will collectively undertake bigger investments.

14. We will always be ready to help each other. If anyone is having difficulty, we will help him.

15. If we learn of any breach of discipline in any center, we will help to restore discipline.

16. We will introduce physical exercise in our centers. We will take part in all social activities collectively.

APPENDIX B

Cost function analyses for Grameen Bank branches

The data used for the cost function analyses was collected from 140 Grameen Bank branches. They were randomly selected to provide information based on a structured questionnaire. The data covers 1985-91 and includes disaggregated information on group membership, dropouts, loan disbursement, outstanding and overdue loans, and branch expenditures and incomes.

Information on thana-level area characteristics were gathered from various secondary sources to complement the branch-level data from Grameen Bank, Bangladesh Rural Advancement Committee and Bangladesh Rural Development Program RD-12 project. The secondary data covered 225 thanas corresponding to the areas where the branches of the three credit programs were situated. Information on area (thana) characteristics such as rainfall, rural infrastructure (including roadlength and number of villages electrified), schools, banks, and development finance institutions was collected from relevant agencies. In addition, time-invariant data for each thana on its distance to district headquarters, its susceptibility to floods, and its soil-moisture availability were collated.

The Grameen Bank branch-level data included capital, labor, wages, and fixed costs. The average training cost was obtained from the program-level information and the predicted managers' pay was derived from information on managers' characteristics supplied by the Grameen Bank head office. These data were then combined with information on area characteristics. During this data-cleaning and merging process, observations from 22 branches were dropped.

The data set analyzed included 357 observations from 118 branches. As branches that were established after 1986 were also included, the data set is uneven. Table B1 lists the mean, standard deviation and the ranges for each variable used in the estimation of production and cost functions. The average area characteristics show that there were only 0.03 branches of commercial and Krishi banks, 0.125 secondary schools, 0.386 primary schools, 0.158 electrified villages, and 0.125 kilometers of paved roads per square kilometer. The average annual rainfall was 215.6 centimeters, with a maximum of 539.7 centimeters and a minimum of 6.15 centimeters.

The average branch age was 4 years, with the newest being two years and the oldest being nine years. Fifty-two percent of the branches had only women members and 6.2 percent had made technology loans. Branches averaged 1,125.67 members, with a dropout rate of 8.4 percent. While Tk 3,309,492 was the average branch disbursement, average annual branch costs were Tk 379,244 and average savings were Tk 795,011. Branches averaged a loss of Tk 85,778 although this figure ranged from a loss of Tk 226,000 to a profit of Tk 415,600. In the average branch, 1.1 percent of loans were overdue beyond 52 weeks, 0.8 percent beyond 78 weeks, and 0.9 percent were in default (more than 104 weeks overdue).

Translog production functions were used to estimate the determinants of branch membership, disbursement, and savings. These three outputs were the left-hand-side variables of the estimation equations and branch age, capital, labor, managers' predicted pay, average training costs and area characteristics were the right-hand-side variables (Table B1)

Membership growth depends significantly on the age of the branch and the capital inputs, and their rate of change. However, the negative sign of the age-squared and capital-squared terms (reflecting growth rates) show that they exhibit diminishing returns. Among the area characteristics, the number of secondary schools had a negative impact on membership, indicating that there is less incentive to become a Grameen Bank member in relatively more developed areas. However, primary schools, electrification, and roads had no significant effect. The growth rate of predicted managers' pay had a positive impact on membership but was less significant.

Disbursement, on the other hand, is not significantly affected by predicted managers' pay or branch age. Average training cost has a significant positive impact on disbursement, as does the granting of technology loans. More staff and member training results in higher costs, but better enables branches to increase disbursement. Age-squred, capital inputs, and electrication are significant at lower levels in the estimation of disbursement.

In the case of savings, the coefficients of branch age and average training costs are positive and highly significant. The age-squared variable is negatively related to savings and is also significant;as the branch ages total savings grows, but at a diminishing rate.

Table B1
Fixed-effects estimates of production functions for membership, disbursement and savings

Explanatory variables	Membership	Disbursement	Savings
Age	0.143 (3.936)	0.056 (0.458)	.730 (6.262)
Age squared	-0.012 (-4.155)	-0.189 (-1.888)	-0.051 (-5.308)
Log capital	2.227 (9.516)	1.385 (1.725)	1.610 (2.109)
Log labor	0.333 (0.792)	-0.006 (-0.707)	1.073 (0.793)
Log capital squared	-0.230 (-5.550)	-0.119 (-0.843)	-0.111 (-0.827)
Log labor squared	0.034 (0.322)	-0.162 (-0.456)	0.069 (0.204)
Log capital times log labor	-0.037 (-0.509)	0.196 (0.797)	-0.141 (-0.602)
Predicted log of manager's pay	0.192 (1.671)	0.400 (1.031)	-0.105 (-0.286)
Average training cost	-0.000 (-0.469)	0.003 (1.644)	-0.029 (-0.053)
Electrification per square kilometer	-0.100 (-0.585)	0.943 (1.644)	-0.029 (-0.053)
Road-length per square kilometer	-0.002 (-0.005)	0.151 (0.112)	1.630 (1.270)
Secondary schools per sqaure kilometer	-4.504 (-1.941)	7.114 (0.888)	-4.464 (0.586)
Primary schools per square kilometer	0.890 (0.862)	2.942 (0.840)	4.259 (1.280)
Commercial and Krishi banks per square kilometer	2.002 (1.505)	-0.756 (-0.169)	0.870 (0.204)
Dispersion from mean rainfall	-0.000 (-0.222)	-0.000 (-0.181)	0.001 (1.394)
Average yearly rainfall	0.000 (0.174)	0.001 (0.959)	0.001 (0.440)

Table B1 (continued)
Fixed-effects estimates of production functions for membership, disbursement and savings

Explanatory variables	Membership	Disbursement	Savings
Branches with only women	-0.001 (-0.351)	0.056 (0.538)	-0.049 (-0.493)
Branches with technology loans	n.a.	0.389 (2.938)	-0.144 (-1.140)
Constant	-5.192 (-3.330)	-7.839 (-1.491)	-7.683 (-1.537)
Adjusted R^2	0.931	.764	0.891
F-statistics	36.71	9.51	22.51
Number of observations	357	357	357

Note: t-statistics are in the parentheses.

APPENDIX C
Replications of Grameen Bank

	Number of beneficiaries	Funds disbursed (cumulative)	Amount repaid (cumulative)	Repaymnet rate for loans (%)	Amount of outstanding loans	Date of establishment	Date of information
Project Dungganon (Philippines)	6,106	Pesos 9,060,810	Pesos 5,726,258.85	94.21	Pesos 348,372.40	August 1, 1990	July 1992
ACPC (Philippines)	2,591	$ 185,940	$ 89,982	94.00	$ 75,234	August 1990	July 1992
CARD (Philippines)	935	3.30 Million	2.30 Million	99.48	1.02 Million	January 1990	June 1992
Community Credit Service (Sri Lanka)	5,952	Rs 5.7 Million	-	95.00	-	1989	-
Projek Usahamaju (Malaysia)	2,415	$3,071,105		92.85	-	August 26, 1988	-
Presidential Trust Fund (Tanzania)	189	TSHS 9,692,675	-	95.00	-	December 1989	June 1992
Microenterprise Loan Program (North Carolina, U.S.A.)	151	$ 386,950	$196,444	86.00	$161,950	September 1989	May 1993
Amanah Ikhtiar Malaysia (Malaysia)	13,736	$2,870,435	-	99.91	-	-	July 1992
Credit with Education	11,000	$414,360	-	99.00	$93,837	Mali 1988 Honduras 1990 Bolivia 1990 Thailand 1989	June 1992
Foundacion Contigo (Chile)	625	$111,996,958	$33,212,000	98.80	353,461 Million	June 1989	September 1992
Tesfa Lemat (Ethiopia)	-	-	-	-	-	February 1988	-
Rural Development Organization (India)	595	Rs 5,65,250	Rs 80,330	100	Rs 4,84,920	October 1992	March 1993

APPENDIX C (continued)
Replication of Grameen Bank

	Number of beneficiaries	Funds disbursed (cumulative)	Amount repaid (cumulative)	Repaymnet rate for loans (%)	Amount of outstanding loans	Date of establishment	Date of information
Matara Integrated Rural Development Project 9Sri Lanka)	1,500	Rs 3.0 Million	-	80	-	1978	July 1992
Lift Above Poverty *1 (Nigeria)	358	183,100	64,324	94.00	118,776	1987	December 1992
KMBI*1 (Philippines)	92	Pesos 470,000	Pesos 144,494	100	Pesos 359,462	-	February 1993
Tau Yu Mai*1 (Vietnam)	200	$1,640	-	100	$1,040	August 1992	October 1992
Center for Community Transformation Inc. *1 (Philippines)	333	Pesos 165,000	34,720	100	Pesos 130,280	February 1992	April 1993
TSPI*1 (Philippines)	296	Pesos 777,000	Pesos 590,347	94.00	Pesos 186,653	November 1991	march 1993
Ahon Sa Hirap Inc. *1 (Philippines)	1,353	Pesos 2,760,000	Pesos 1,861,155.30	96.70	Pesos 898,844.70	January 1989	May 1993
Nalt-Nusho *1 (Nigeria)	15	Naira 12,500	Naira 737.50	100	Naira 11,762,50	-	February 1993
Alay sa Kabuhayan Inc.*2 (Philippines)	70	Pesos 105,500	-	94.00	Pesos 7,865.50	March 1992	October 1992

Notes: Grameen Trust has established a database to provide up to date information on projects engaged in delivering credit for the poor. These projects are requested to provide the latest information concerning activities to Grameen Trust on a regular basis so all projects can be informed about the activities of others.

*1 Projects which have received seed capital and training from Grameen Trust.
*2 Projects which have received training from Grameen Trust.

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