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RIGORÓZNÍ PRÁCE

MICROFINANCE:

FIGHTING POVERTY VS. SUSTAINABLE BANKING

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Prohlášení

Prohlašuji, že jsem diplomovou práci vypracoval samostatně a použil pouze uvedené prameny a literaturu.

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Poděkování

Rád bych poděkoval PhDr. Pavlu Streblovovi, MSc. za poskytnuté rady a cenné impulzy při odborném vedení diplomové práce. Zároveň bych chtěl poděkovat rodině, obzvláště mé mamě Evě, za neutuchající pomoc, podporu i oporu. Dík patří také Elišce a všem kamarádům a kolegům, že mě všestranně podporovali po dobu psaní této práce.

ABSTRACT

The thesis deals with microfinance institutions and their ability to serve very poor clients even without a continuous inflow of subsidies from donors. After disclosing the specificities that distinguish the clientele of these organizations from the clients of commercial banks in the developed world, the analysis of selected institutions from South Asia, including the famous Grameen Bank of Bangladesh, is performed. Using the data gathered from their annual reports of these microfinance institutions, the individual dependence on subsidies during one decade is evaluated. The final part of the thesis utilizes the similarities that appear in the individual examination and the econometric analysis of the data for the extraction of the key factors and strategies that can help to decrease the dependence of this sector on donor financial support. The analysis finds that higher depth of outreach of an organization to the very poor does not inevitably lead to lower level of self-sustainability. The way to profitability may reside in appropriate interest rate policy and mobilization of savings.

ABSTRAKT

Diplomová práce se zabývá organizacemi působícími ve sféře mikrofinancí a jejich schopnostmi poskytovat služby velmi chudým i bez soustavné finanční podpory ze strany dárců. Po nástinu specifik, jež odlišují klientelu těchto institucí od klientů bank v rozvinutých částech světa, následuje analýza jednotlivých mikrofinančních programů působících v jižní Asii, včetně proslulé Grameen Bank operující v Bangladéši. Data shromážděná z výročních zpráv vybraných společností jsou použita jako zdroj pro analýzu závislosti každého z programů na subvencích a finančních darech v průběhu jedné dekády jejich existence. Poslední část této práce sdružuje podobnosti, které se objevily při individuálním posuzování institucí, spolu s ekonometrickou analýzou nasbíraných dat pro identifikaci klíčových determinantů, jež by mohly pomoci i ostatním organizacím tohoto sektoru k vyšší ziskovosti a finanční soběstačnosti. Výsledkem analýzy je zjištění, že větší zastoupení velmi chudé populace při poskytování finančních služeb nemusí nutně vést k nižší finanční udržitelnosti. Klíčem k ziskovosti pak může být správné nastavení úrokových sazeb spolu s dostatečnou úrovní mobilizace úspor.

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List of acronyms

BURO.....	Bangladesh Unemployed Rehabilitation Organization
CEP.....	Capital Aid Fund for Employment of the Poor
CGAP.....	Consultative Group to Assist the Poor
FSS.....	Financial Self-Sufficiency
HK.....	Hattha Kaksekar
HKL.....	Hattha Kaksekar Limited
HCMC.....	Ho Chi Minh City
LSDV.....	Least-Square Dummy Variable
MFI.....	Microfinance Institution
MIX.....	Microfinance Information eXchange
NGO.....	Non-governmental Organization
NPC_S	Net Present Cost to Society
NUBL.....	Nirdhan Utthan Bank Limited
OLS.....	Ordinary Least Squares
SDI.....	Subsidy Dependence Index
ROE.....	Return on Equity
ROA.....	Return on Assets
RDRS.....	Rangpur Dinajpur Rural Service
RSS.....	Residual Sum of Squares

1. Introduction

Microfinance that started as a movement of few idealist individuals more than three decades ago has become a global opportunity and a source of hope for many poor people banned from provision of financial services of commercial banks. The importance of microfinance resides in the access to credit and savings services that affect the economic circumstances and quality of life of poor population of developing countries. Access to financial services gives people the ability to expand their options and thereby increase the productivity of their resources. Savings services allow depositors to store income as assets for future use, while credit services allow clients to invest or consume now, utilizing expected future income. Without access to financial services, individuals face more limited options and may find themselves locked in the situation of extreme poverty. In addition to personal benefit of clients, financial services enable microentrepreneurs to increase the contributions they make to the economy and thus create sound fundamentals for sustainable economic growth and development of home countries.

Some researchers have shown that enhanced liquidity management opportunities increase the productivity of the fixed capital used by microenterprises¹. However, for eventual achievements of effective financial management of the poor, microfinance should be available on an ongoing basis. A one-time injection of funds does not provide the continuing liquidity needed for microenterprise operations; liquidity management requires readily available funds. That is why the evaluation of microfinance institutions MFIs should focus mainly on continuity of their existence. As the financial support may not be an eternal source of critical funds, examination of financial self-sufficiency is of crucial importance. Although the financial sustainability is of major importance not only for the providers of microfinance but also for their clients, the state of knowledge of the current situation and of the crucial determinants of financial independence is limited.

The microfinance organizations show many particularities that have to be understood before any proper research can take place. Therefore, the first chapter of this thesis approaches the genesis of the microfinance movement and its consequent evolution

¹ See for ex. (Burkett, Vogel; 1992).

followed by the introduction into the specific conditions that have to be faced when providing financial services to the poor. The end of the chapter offers a presentation of possible mechanisms that can help MFIs to deal with difficulties given by the characteristics of their clientele.

Once the singularities of the provision of microfinance to the deprived population are revealed, the next chapter discusses the role and types of subsidies that are to be identified in the financial statements of microfinance institutions. The second chapter also creates a framework allowing the analysis of dependence of MFIs on subsidies.

The third chapter then applies the theoretical construction on the empirical evidence laboriously gathered from financial reports of some microfinance organizations in South Asia. It must be underlined that the availability and the quality of financial data from these organizations are the main obstacles that leave the territory of microfinance not entirely studied and comprehended even after decades of existence. However, the difficulties in the compilation and necessary adjustment of financial data of individual organizations can, through their analysis, offer the key knowledge necessary for creating measures and strategies that can eventually increase the financial self-sustainability of microfinance institutions.

After the analyses of selected South Asian microfinance institutions individually, the fourth and the last chapter tries to uncover similarities on the aggregate level. The aim of this analysis is to identify crucial determinants that can help organizations to cut their reliance on subsidized funds. These findings could be of further use as recommendations for the construction of market-based and self-sustainable MFIs around the world. As the main promise of microfinance is to help to alleviate poverty in a sustainable way, one of the major issues to be verified is the existence of the interdependence between depth of outreach to the poor and the dependence on subsidies. A question arises: Is there an inevitable trade-off between improving the conditions of the very poor through the provision of microfinancial services and sustainable banking?

2. The birth and the functioning of microfinance

2.1. Genesis of the microfinance movement

Microfinance is in fact a broader banking model extending the earlier concept of microcredit (see Box 1). Therefore, the search for the roots of the “Microfinance Revolution”² must start with the latter. The basic concept of microcredit is one of the ideas that appear to be very simple once set up and working. However, in order to come up with such an idea, one needs a lot of thinking and invention.

Box 1: Microfinance and microcredit

The term *microfinance* refers to the provision of various types of small-scale financial services to marginal clienteles (typically the poor) at the local levels of developing countries, both rural and urban (Gonzalez-Vega, 1998). In the beginning, microfinance was called *microcredit* as lending of small amounts to poor people was the main focus. The change reflects more than a simple mere terminology. The transition from microcredit to microfinance has brought a significant change of outlook, a growing realization that low-income households can profit also from the access to a broader set of financial services than just from credit. The shift in understanding led to other new ideas inspired as much by the traditional moneylenders as by the modern practices of commercial banks in more developed parts of the world. Recently, the poor have been conceptualized as a heterogeneous group of vulnerable households with complex livelihoods and varied needs (Scoones, 1998). From such a perspective microfinance is seen as a means for achieving household priorities (e.g. paying school fees, buying medicaments or meeting funeral expenses), reducing their vulnerability (e.g. a sudden drop in consumption, income or assets) and/or increasing their income.

² As referred to the story of microfinance by Marguerite S. Robinson (2001).

The beginning of microcredit's success story dates back to the severe famine of 1974 when a young economist teaching at the University of Chittagong in Bangladesh named Muhammad Yunus followed his will to make the real world closer to the well-working economic theories (Yunus, 1997). Yunus found that most villagers were unable to obtain credit at reasonable rates, so he initiated a research project in cooperation with the Rural Economics Project at the University of Chittagong to test his method for providing credit and banking services to the rural poor. The aim of his project was to test whether there is a possibility to help the poor to escape poverty by giving them contract-free loans to support income-generating businesses. The fundamentals of his experiment were partially taken from his observation of credit cooperatives in Bangladesh³.

Yunus started by lending the poor villagers money from his own pocket, allowing the villagers to buy materials for projects which enabled them to become self-employed entrepreneurs. The impact of his 26 dollars on the lives of 42 villagers was an important stimulus for further development of microfinance. With those 62 cents per person, the borrowers were not only able to repay all their debts accumulated in the past but also they could start their own businesses that permanently increased their income, so that they could repay even this last credit in a short time horizon. This revelation of an unexploited high productivity potential that was sleeping within poor villagers gave Yunus the determination to found the first, and until nowadays the most famous, microfinance institution named Grameen⁴ Bank in 1976. This bank exhibits much specificity as compared to commercial banking sector. Primarily, it focuses on the clientele that does not attract other banks - the poor. However, the size of this group that used to be called "not bankable" and thus was never granted with other credits than from local "loan-sharks" is not negligible.

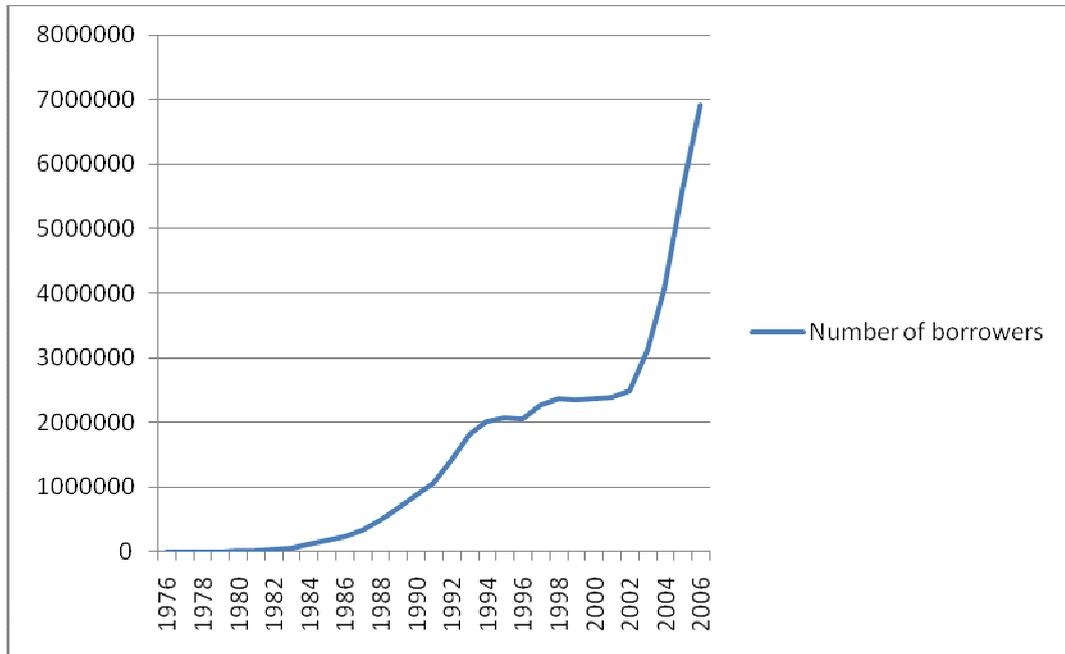
Even nowadays, at least 80 percent of the 900 million households in low and lower-middle-income countries do not have access to formal financial services (Robinson, 2001). It

³ Interestingly, credit cooperatives have European roots. In the late 19th century Europe saw the genesis of credit cooperatives designed to help low-income households save and get credit. The cooperatives started in Germany by Friedrich-Wilhelm Raiffeisen and grew to serve 1.4 million clients by 1910, with replications in Ireland, northern Italy and North America (Hollis and Sweetman 1998).

⁴ The word "grameen" means "rural" in Bengali.

is interesting to observe the impact of a simple idea of one man on the development of the provision of credit and subsequently also other services to the poor. To make a clearer picture of the achievement of Muhammad Yunus, a local approximation of the world bloom of microcredit is shown as a chart depicting the evolution of the number of borrowers of Grameen Bank in Bangladesh (see Figure 1). If on the beginning of Grameen Bank, in 1976, Yunus served only 10 poor villagers of the nearby villages and the total disbursement during the first year amounted to 1000 USD, in 2005 it was already 5.58 million of borrowers and the total disbursement went up to 608.79 million USD. Cumulative disbursement for this period of thirty years sums up to 5.03 billion USD (Grameen Communications, 2006). However, it was not only this institution that went through a steep growth of both loan portfolio and number of borrowers but there started to flourish a brand new sector of microfinance. Today, The Bangladesh Bank issues even a special annual report concerning only the microfinance institutions (MFIs). In 2005, there was a total number of 469⁵ MFIs that served 13.98 million of borrowers through 7733 branches and reached a total of 56,058 million Tk (846 million USD) in outstanding loans (Bangladesh Bank, 2006).

⁵ Total number of operating MFIs may be even higher as the report mentions receiving supporting documents from 582 institutions of which only 469 documents were able to report according to the given requirements. Microfinance Research and Reference Unit in Bangladesh Bank has a list of 900 MFIs that reported at least once to the Unit in the past.

Figure 1: Number of borrowers of Grameen Bank (1976 – 2006)

Source: Annual reports of Grameen Bank (various years)

This extraordinary expansion within Bangladesh itself is a strong motivation to dig deeper into the phenomenon of microfinance. In addition, it must be stated here that microfinance is far from being a local movement. It has grown more or less independently in different parts of the world. Table 1 shows the results of a survey conducted by the Microcredit Summit Campaign. By the end of 2005, the campaign had reports of 113.2 million clients served worldwide by 3133 MFIs (Daley-Harris, 2006). Furthermore, the United Nations have proclaimed the year 2005 as the International Year of Microcredit and Muhammad Yunus and Grameen Bank were jointly awarded the Nobel Peace Prize for 2006 "for their efforts to create economic and social development from below"⁶.

⁶ Press Release - Nobel Peace Prize 2006

Table 1: Evolution of MFIs worldwide (1997-2005)

Year	Number of programs reporting	Total number of clients reached (in mil.)
1997	618	13.48
1998	925	20.94
1999	1065	23.56
2000	1567	30.68
2001	2186	54.93
2002	2572	67.61
2003	2931	80.87
2004	3164	92.27
2005	3133	113.26

Source: Daley-Harris, 2006

2.2. The specificities of microfinance clientele

From the point of view of neoclassical economical theory, the poorer is the borrower the higher should be the profit from investments that he will undergo once having the opportunity to do so. According to the law of diminishing returns the higher is the stock of capital already invested the lower is the gain from every additional unit invested. In other words, the production function exhibits concave shape thus marginal returns to capital are decreasing. If we take an example of a villager “standing” without any capital on the bottom of his production function, his first investment will generate higher gain than all investments that will come afterwards⁷. This basic principle of the neoclassical theory may not be too far from the everyday reality of the developing world. People that are obliged to do their work

⁷ On the other hand, very poor people face substantial fixed costs in a variety of investment activities: business startups, nutritional or health investments, educational choices, migration decisions, crop adoptions (Banerjee, Duflo, 2007).

without appropriate tool (e.g. an axe for a wood-cutter or a sewing machine for a tailor) shall witness a significant jump in their productivity once they invest their first (borrowed) capital to buy it. There is an important implication of the diminishing returns to capital for the lender: When lending to the poor he can collect higher interest revenues than while lending to a richer client. This holds even for a “righteous lender” who takes always the same percentage of gain from every investment. In line with the economic theory a lender, which is maximizing his profit should prefer to lend his capital to the poorest borrower, whom he can charge higher interest than to a richer because his money should generate higher return than any alternative investment. Robert Lucas Jr. (1990) tested the difference in returns to capital in areas where it is relatively scarce compared to the well-equipped areas⁸. Lucas Jr. estimated the marginal product of capital and found out that borrowers in India should be willing to pay 58 times as much for capital as borrowers in the United States. Another empirical evidence for such reasoning is proposed Harper (2004), who found that the average annual return on investment in microenterprises in different places in Asia and Africa was 847 percent⁹. When we recall, that “the poor” means at least 900 million households around the world first fundamental question related to microfinance appears: How is it possible, that banks have missed the opportunity to extend their loan portfolios with such a big part of the world population, which, in addition, could be the most profitable one?

In order to answer this question help can be found in the theory of contracts. The problem becomes much simpler, if we imagine the credit relation as a well-known relation of type principal-agent¹⁰. From this point of view, the lender (the principal) lends a part of his wealth to the borrower (the agent), who engages in paying fixed interests from the credit

⁸ Lucas Jr. assumed that marginal returns to capital depend just on the amount of capital relative to other productive inputs. However, Lucas Jr. himself accuses the calculation from being somewhat simplistic as treating effective labor income per person as equal across countries and not controlling for human capital or labor quality.

⁹ The study of 215 investments discovered that the returns, after subtracting the opportunity cost of their owners’ labor, ranged from minus 480 % to plus 19200 % and only in 40 cases (mainly businesses with investments of over 500 USD) were the annual returns less than 100 %. The return was over 1000 % in 44 cases.

¹⁰ Further explanation of the theory of agency accompanied with an overview of literature is presented for example by Eisenhardt (1989).

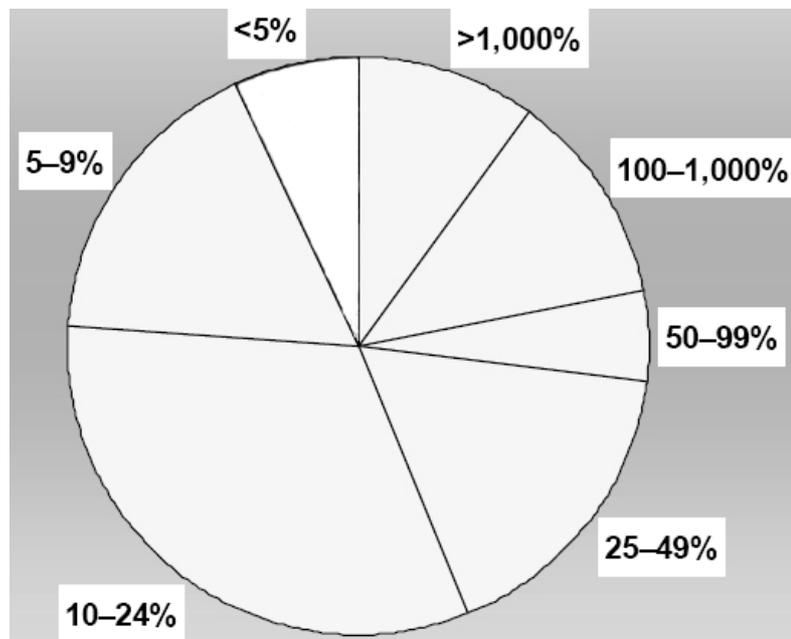
according to a contract established *ex ante* between both parties. The problem resides in diverging interests of both contractual sides, as the first is interested mainly in the returns from the loan and whether the client is solvent or not and the second wants only to make the credit economically advantageous for himself. In accord with the theory of agency, the importance of the problem is related to the existence of the incomplete and asymmetric information of both parties. For example, a client's effort to repay the credit is highly unobservable by the bank. This generates significant risk of moral hazard and banks can decide to reject the credit if no guarantee can be given by the borrower. This is what all credit relations have in common.

However, giving credit to poor is much different from giving credit to "rich" because these two thirds of the world population (the poor) are not able to provide any collateral, such as house, land or at least stable income through a regular wage. In other words, poor people do not possess any financial or physical capital that could possibly solve the principal-agent problem by decreasing probability of their moral hazard as it is the case of the collateral in the banking sectors of the developed world. Another factor increasing the riskiness of providing credit in the poor regions is the fact that there is only a very limited possibility of decreasing the risk of adverse selection *ex ante* compared to the developed world (Stiglitz, Weiss, 1981). For example in the case of corporate credits, the poor countries can only very rarely offer account books that would provide the bank with sufficient amount of information for the assessment of firm's financial health. The reason is that an important part of sales is never declared. Similarly, in the case of individuals there are no central databases listing information shedding light on their qualities as borrowers (e.g. credit history, health, criminal records,... etc.). The cost of gathering these information about every borrower by the own means of the bank are prohibitive on the field of microcredit as the average size of the credit can be as low as only 63 dollars in the case of Rangpur Dinajpur Rural Service (RDRS), another microfinance institution operating in Bangladesh (MIX, 2006). This makes the adverse selection quite difficult to overcome.

Last but not least, we must state the legal framework and its enforcement in the poor countries. The judicial system is usually on very low level of development with poor performance. That makes legal enforcement of creditor's rights very difficult and thus the relative level (compared to financial products in the developed world) of risk for the banks

rises even more. All these factors together led the commercial banks, risk-averse by their nature, to see the immense population in the poor regions of the world as not bankable. The local “loan-sharks” have seen their business flourish, as they were the lenders of first and last resort at the same time. This monopolist position has allowed the monthly effective nominal interest rate¹¹ of their loans to shoot up to 1000 percent (see Figure 2). The highest interests are charged for the very short loans. For example, in early 1990s one can easily find nominal interest rates of 10 percent for a small one-day loan (Robinson, 2001), which means 1645 percent in terms of nominal effective monthly interest rate.

Figure 2: Informal commercial moneylenders’ rates in 1980s and 1990s



Source: Survey of 28 research papers in Robinson (2001)

¹¹ Moneylenders typically calculate interest rates on a flat rate basis (in contrast to declining outstanding loan balance used by commercial banks) and therefore conversion has to be performed using the formula:

$$R = (1 + I)^n - 1,$$

where R is the nominal effective monthly interest rate, I is the nominal interest rate for the reported period and n is the number of such period in one month (Rosenberg, 1996).

Nonetheless, even the local moneylenders are interested in reducing the risk of their investments to maximize their profit. MFIs are their natural competitors and that is why the analysis of their activities can grant us with key knowledge for deeper understanding of the basis of microcredit. The transactions offered by the moneylenders are based on personal relations with borrowers and last usually only for a short period of time (Aryeetey, E., Udry, C., 1997). There are two fundamental features of the moneylender's activities that allow them overcome the listed problems of lenders: Firstly, they are in proximity, not only geographically but also culturally, with the borrowers. And secondly, they use a combination of social pressure, subordination of any future credit to repayment of the old one and, if necessary, even violence can serve as an effective tool for getting their money back. "Payments may be due by a certain hour on a certain day and a few minutes of default may result in a rise in interest rates, or even more drastic action."¹² These mechanisms help the moneylenders to decrease the risk of both adverse selection and moral hazard, thus the transaction costs related to their activities are minimized.

2.3. The mechanisms of microfinance

We have seen that problems of moral hazard and adverse selection are the major determinants of the feasibility of the (micro)credit. Credit market imperfections, although existing everywhere in the world, are of greater importance and have more severe implications¹³ in the developing countries. This follows from the fact that people who are living below the poverty line do not have any possessions that they could put up as a security for a bank loan. The poor households tend to be more severely restricted in obtaining a bank loan. At the same time they need some initial capital to be able to gain their own living as it is impossible to generate a sustainable income flow out of nothing. Non-Governmental Organizations (NGOs) that are running MFIs are supposed to be more caring about the borrowers and about the improvement of their standard of living but they are still facing the

¹² (Kaplan; Matteis, 1968), p. 239

¹³ For an analysis of how an economy may get stuck in a poverty trap because of credit market imperfections see Banerjee and Newman (1993).

same fundamental constraint of loan feasibility as commercial banks. The crucial challenge of these organizations is to lower the high costs of the implementation of their services that are stemming from the specific characteristics of both the clients and their environment.

In order to accomplish the task of feasibility microfinance institutions have to mitigate the riskiness of lending to poor households a substitute for missing collateral and legal enforcement must be found. Mechanisms for providing microfinancial services are the key source of impetus of the whole “microfinance revolution”. They exhibit much specificity, innovation and, what is the most important for the aim of this work, they are the main drivers of the cost reduction. Therefore, this section will be dedicated to an overview and brief analysis of the main mechanism MFIs intensively rely on. The acquired knowledge will also be useful for the further classification of MFIs prior to the evaluation of their financial performance.

2.3.1. Group lending

No doubt that the concept of group lending is the most celebrated theoretic mechanism of microfinance. One of the reasons is its presence at the genesis of the whole movement because it has been the main concept running the Grameen Bank. Before getting to the theoretical analysis of this concept, let us take a close look on an every day functioning of this pioneer of microfinance (the Grameen Bank) as described by itself:

“A bank unit is set up with a Field Manager and a number of bank workers, covering an area of about 15 to 22 villages. The manager and workers start by visiting villages to familiarize themselves with the local milieu in which they will be operating and identify prospective clientele, as well as explain the purpose, functions, and mode of operation of the bank to the local population. Groups of five prospective borrowers are formed; in the first stage, only two of them are eligible for, and receive, a loan. The group is observed for a month to see if the members are conforming to rules of the bank. Only if the first two borrowers repay the principal plus interest over a period of fifty weeks do other members of the group become eligible themselves for a loan.”¹⁴

¹⁴ (Grameen Bank, 2007)

Theoretically, this is a model of lending to the local cooperatives of socially interlinked individuals with common characteristics and also common needs. In order to solve the principal agent-problem described above the missing physical collateral is here replaced by the social capital. There are three key factors constituting the social capital (Ledgerwood, 1999). The first one is the density of social networks, which is leading to a situation, where people have sufficient information about skills and capacities of the others. The second is the role of trust, because potential debtor has to be trustworthy for other members of the community. And the third factor is the tradition which provides moral norms and values assuring the repayment of the debt.

The limited size of the groups of borrowers (usually only five individuals) is of particular importance because it strengthens the social ties among the members and thus amplifies described factors generating the social capital. At the best, the individual's determination to preserve his build social capital in the community and the collective responsibility of the group for the credit creates a substantial pressure that makes the repayment self-enforcing. The possible sanctions may involve, for example, the loss of the defaulting borrower's reputation in the community, social isolation or restrictions on access to inputs necessary for business (Armendáriz, Morduch, 2000).

The joint liability of the members of the group for each outstanding loan is, at least, a partial cure to the problem of moral hazard. The proximity of the members mitigates the risk of evasion of the repayment as the information over the borrower's current situation that was relatively too costly to be revealed by a bank is now difficult to hide from the sight of the peers. Mutual monitoring of the group members can also provide benefits by inducing borrowers not to take any risks that would undermine the profitability of the bank as their peers will do their best to dissuade them from risky activities¹⁵.

The abundance of local information is useful not only for the *ex post* monitoring but naturally helps also against the other type of problems resulting from the asymmetry of information – the adverse selection. Before even the first loan is disbursed, effective peer selection is eliminating the most risky borrowers from the whole system because the joint

¹⁵ Stiglitz (1990) shows that when the fee charged to a borrower if his group member fails to repay his loan is set high enough, borrowers will always choose to perform only the safe activity.

liability makes unwanted partners out of them. In contrast, safe borrowers, who fail only very rarely to their obligations, are easily grouped with their similar peers that do not want to bear higher financial risk than necessary.¹⁶

Group lending in practice, however, has both benefits and costs. Positive and important for the financial performance of MFIs is that group lending makes possible to reduce the implementation costs residing in the intensive need of field workers who have to contact new members, lend and collect money,... etc. In fact, the provision of microfinance services follows the very opposite pattern than that one known from the commercial banks in developed countries, where individuals have to contact the bank by their own means for each operation they desire. That is why weekly group meetings necessitated by this lending mechanism exhibit some simple advantages for the lenders and the customers. The bank sees its transaction cost greatly reduced as the multiple lending or saving transactions of dozens of people can take place in a relatively short period of time. Nevertheless, group meetings offer convenience to the villagers as well because regular presence of the bank representative offers them the possibility to solve many problems on the spot.

Still, there are also some flaws of this mechanism that need to be mentioned in order to complete this analysis without a positive bias. First, group pressure pushes only for repayment and hence, it is not supportive when production fails (Khandker, 1996). Another critical point is that attending group meetings and monitoring other group members can sometimes be too costly, especially in areas where houses are not close to each other. This argument is supported by a survey searching for reasons of desertion from the Shakti Foundation for Disadvantaged Women in Bangladesh conducted by Inez Murray (2001) on over 1000 clients of this MFI¹⁷. When respondents were asked to choose from a list of reasons that other people had for leaving a MFI the reason that apply to them, problems with meetings ended on the second and third place in the ranking based on the most frequently answered reasons (see Table 2). The third complaint is that loan terms are limited

¹⁶ Formalized model describing how group lending scheme provides incentives for similar types of individuals to group together is proposed by Ghatak (1999).

¹⁷ For the avoidance of a negative bias, two populations were surveyed: active (515 individuals) and former borrowers (541 individuals). Respondents were selected based on stratified random sampling and a sufficient number of interviews were conducted to give a margin of error of +/-4 percent.

by what the group feels that it can jointly guarantee. That is why a client with growing businesses who get well ahead of his peers may find that the group contract slows him down (Madajewicz, 2005). There is even a potential of exclusion of some righteous individuals from the lending system as a consequence of the shift of the responsibility for screening and monitoring in the group lending scheme towards the clients (Kabeer, 2002). This is advantageous for the bank that sees the risk of its lending decreasing but the opposite is true for the borrower. He finds himself facing not only the risk of his own default but also that of his co-borrowers. This situation can ultimately end in a peer pressure of an extent that is socially damaging (Montgomery, 1996).

Figure 3: Top ten reasons of desertion in Bangladesh

1.	Loan amount was too small (33%)
2.	Too many meetings (28%)
3.	The meetings were too long (25%)
4.	A member defaulted and I did not want to pay for her (25%)
5.	Loan was too expensive (high interest rates) (22%)
6.	The institution does not understand my special needs as a woman (20%)
7.	I do not need a loan right now (18%)
8.	I had to go to the village (17%)
9.	I (or someone in my family) got sick (17%)
10.	My business was not profitable (17%)

Source: (Murray, 2001)

2.3.2. Dynamic incentives

In a typical situation, when everything goes well with repayments, borrowers are offered a larger loan repayable in the next “loan cycle”¹⁸. Thus, if the relationship between the bank and the borrower continues the borrower sees the loan size grow over the years. On the other side, the repeated nature of transactions helps the lender to overcome the

¹⁸ Loan cycle denominates the period from the initial disbursement until the repayment of the last installment. In the “classic” Grameen system the loan cycle takes typically one year.

problem of a lack of information by building up his proper credit history. In addition, the functioning of microcredit is also fostered by the threat of no future credit available for any member of the group in the case of an unrepaid credit of a single individual. This threat is even more efficient as the alternative ways of financing for the poor are very limited. In practice, a borrower who does not want to lose the access to microcredit loan usually accepts to bail out his fellow group members in the times of need (Armendáriz, Morduch, 2000). Nevertheless, dynamic incentives can improve efficiency of providing different types of financial services even if group lending is not involved. History of interactions created by more and more advantageous conditions for the client gives important information to the bank also when dealing with individuals. It gives the MFI the opportunity to test the client on small projects first before deciding whether to risk a more expensive business together.¹⁹

However, with increasing competition in the microfinance industry, the effectiveness of dynamic incentives as a tool reducing the extent of moral hazard is decreasing. The reason is that the higher number of microfinance suppliers compromises the credibility of threat of no future access to financial services in case of client's abuse of confidence. This theoretical assertion has been proved for example by the study conducted by McIntosh et al. (2005) in Uganda, which attests that increased competition induces a decline in repayment performance. From another point of view, the easier is for the client to migrate after the default to another MFI, the higher is the risk that one will be seduced by this idea and the repayment rate of the lender will suffer. This logic is also supported by the real facts from the field. The Bank Rakyat Indonesia, one of the MFIs, has faced greater trouble while securing the repayments in its urban programs than in the rural ones (Morduch, 1999a). This is in line with the later reasoning as the urban households exhibit higher degree of mobility and catching defaulters may be more difficult than in a distant small village. The remedy for this potential problem would be the existence of a central credit agency that would gather the credit history of borrowers from different MFIs within the same territory. In this case, the temptation to default and run is cut by the initial threat of no refinancing opportunity that under given conditions does not suffer from the lack of credibility any more.

¹⁹ Theoretical analysis of cooperative behavior in communities where the flow of information regarding past conduct is limited or missing has been proposed by Ghosh and Ray (1996).

2.3.3. Repayment schedules

Another feature that improves the financial performance of MFI but usually stays unnoticed in the shadow of the group lending is the specific timing of repayments. In a traditional lending process, the borrower receives the loan, uses the money for his preferred investment and at the end of the loan period gives the money back to the lender with an interest payment in addition. Grameen-model of providing financial services functions differently. As soon as the credit is given, bank calculates the installment of a loan for one year (usual length of the loan cycle) by adding up the principal and interest due in total and dividing by 50 (the number of weeks in the loan cycle). The bank starts to collect the money back on a weekly bases just a couple of weeks after the disbursement (Sharma, Zeller 1997). This practice is known from standard consumer credits but is quite unusual in the case of business investments in developed countries. Commercial banks normally wait with the repayment of a business loan until the end of the loan term to allow the borrower to collect the profit of his investment.

In the case of microcredit, the regular repayment schedule is used as a tool for decreasing the risk of moral hazard. One reason of functioning of this risk decreasing mechanism is the existence of an early warning about possible problems in the future. The weekly meetings of credit officers and the borrowers provides the MFI with important information on the repayment capacities of individuals. This gives the bank the opportunity to deal with problems even before they actually emerge by choosing the trustworthy clientele. In addition, Jain (1996) has suggested that the weekly meetings, where the installment repayments are made, might establish the “cultural habit” of following the bank norms on saving, repayments, etc²⁰.

Even from the point of view of the poor borrower, this system may offer some advantages. In order to understand, why frequent repayments can be seen as helpful also for the borrower, the difference in time horizon between the developed world and the poorer regions should be discussed. The poor have a higher rate of time preference because

²⁰ In the case of many MFIs social development programs melded with the delivery of microfinancial services. The most cited example are the “Grameen Bank's Sixteen Decisions”, which promote women’s empowerment, better hygiene and other changes in the everyday lives of the poor clients.

they are more concerned about satisfaction of their present needs than they are about savings for the future (Lawrence, 1991). As the poor are assumed to have shorter time horizon, they may tend to underestimate the difficulty to meet their repayment obligations in a more distant future. In other words, if the repayment schedule has a low frequency, as is the case of monthly or even annually installments in formal banking sector, funds may no longer be there to pay the bank. On the contrary, with weekly or biweekly installments starting soon after disbursement the poor are able to include the repayment in their budget constraint and count with it while taking investment decisions.

However, there are clearly also costs to imposing a rigid repayment structure with frequent installment payments. First, it limits the types of projects that can be financed with microcredit loans. Long-term projects or even seasonal working capital needs for agricultural production are difficult to be financed by loans for which repayments begin long before the returns from the project are realized (Jain, Mansuri, 2002). In case of such long term investment project, other source of income is needed for securing the repayment. This can limit the very poor households that do not have any relatively constant flow of income. On the other hand, this mechanism can serve some poorer households that generate some income but are for some reason not able to save it for future use (e.g. begging of neighbors, buying sweets for children,... etc.). Frequent and early starting repayment schedule forces the poor to use the income for installments as soon as it is earned and thus it can limit wasting of resources.

Together, the ideal feature of repayment schedule is to be parallel to the stream of income of the borrower that helps to decrease the risk for the MFI and limits unproductive use of borrower's resources in the meantime. However, there is a trade-off between the frequency of installments and the important transaction costs of collecting them at meetings in each "center" of groups. That is why the optimum repayment schedule depends also on saving abilities of borrowers. If households are able to save without difficulties, frequency of installments can decrease and the whole repayment process is less costly for the MFI that has further space for decreasing the interest rate.

2.3.4. Borrowing to women

At the end of 2005, 3,133 MFIs all over the world reported reaching 113,261,390 clients, 81,949,036 of whom were among the poorest when they took their first loan. Finally, of these poorest clients, 84.2 percent i.e. 69 million were women (Daley-Harris, 2006). Surprisingly, this fact can be seen not only as an evidence of cultural differences (compared to the developed world where cash flow management is more usually a male obligation) but it can also be proven that lending to women is actually another mechanism important to the performance of some MFIs.

In the developing regions, women still face many barriers to economic, social and political opportunities and their sphere of work is usually restricted to their homes. "In many countries, women are facing continuing legal discrimination. They are not treated as equal to men - whether in property rights, rights of inheritance, laws related to marriage and divorce, or the rights to acquire nationality, manage property or seek employment"²¹. While getting back to the assertion from the neoclassical theory of diminishing returns, poor women whose opportunities are lagging behind those of their husbands should be a perfect target group for a profit-maximizing lender as they dispose with an immense potential to move up. Experience has shown that attracting female clients can really greatly improve bank performance. At the Grameen Bank of Bangladesh, for example, 97 percent of clients are women (Grameen Bank, 2007) and they have proven to be more reliable than are male borrowers. Khandker et al. (1995), when analyzing the performance of this flagship of microfinance, have shown that 15.3 percent of male borrowers were missing some payments during the annual loan cycle in 1991, however this was true just for 1.3 percent of women. While men can be argumentative and noncompliant, Rahman (1999) has found that women, in contrast, tend to be much more sensitive to the verbal hostility of fellow members and bank workers when repayment difficulties arise²².

²¹ (Latifee, 2003), p. 4

²² The sensitivity of female borrowers makes the group lending and its public meeting, where repayments take place, even more efficient.

Lending to female clients can significantly decrease the risk of *ex-post* moral hazard also because of their limited mobility that is partially given by cultural habits and nature (maternity). Last but not least, women tend to have fewer alternative borrowing possibilities than men (Armendáriz, Morduch, 2000) and thus are ready to make more sacrifices for the successful repayment and to ensure consequent refinancing. In other words, the dynamic incentives discussed before are even more efficient in the case of female clientele as women value more the availability of consequent loans. This is true also because they usually take the responsibility for feeding and educating their children. In summary, borrowing to women can be seen as another mechanism with risk decreasing potential that allows the MFI to increase the repayment rate and consequently reduces the costs of lending.

2.3.5. Forced and voluntary savings mechanisms

Forced savings and the mobilization of voluntary savings have evolved during time driven mainly by the demand side. These instruments distinguish MFIs from organizations specializing only on microlending. However, savings are not interesting only because of widening the range of products for the poor, they have also important side effects for the functioning of MFIs and their efficiency.

The idea of forced saving is to make savings an integral part of the microcredit. Given fraction of the credit disbursed is withheld and transferred to a deposit account in the MFI. The main objective of forced savings is to contribute to repayment performance through the process of small, regular payments that are given aside. Many of these programs restrict opportunities to withdraw the forced saving account. Savings are made available for example only after a certain number of years without repayment problems. Alternatively, preliminary savings with a given minimum to be achieved by the saver can be the necessary condition for the availability of the first credit. Furthermore, there are some programs that necessitate member contributions or entrance fees that are locked away in a special fund.

The blocked money consequently replaces the missing collateral. Such substitute may enhance the repayment as it forces the interests to converge. Forced (preliminary) savings also help the bank to overcome the problem of adverse selection by creating an alternative

to the missing credit history - the savings record. Information gained by observing the saving abilities of clients can be used by the MFI as a selection criterion for further credit rationing. Huppi and Feder (1990) have reported that group lending programs in Bangladesh, Malawi, and Nepal that create common interest by holding part (5 – 10 percent) of the group's loan as a temporary deposit witness high repayment rates. Holding back some part of the loans thus lowers the probability of default.

However, if blocked savings are deducted from the credit disbursed, the customer will take them as an additional cost of obtaining credit (Fiebig et al., 1999). Increase of the effective interest rate could deteriorate the access to credit for poorer borrowers. In addition, forced (preliminary) savings and membership fees could also undermine the confidence of the clients in the institution because the customer does not feel free to choose saving product according to his needs.

Some microfinance institutions also propose a variety of voluntary savings products with the aim to mobilize the surplus capital that the households or microentrepreneurs do not need to keep liquid. Successful attraction of all types of savings from the clientele gives the bank a cheap source of money for relending and facilitates its liquidity management (Robinson, 2001). Furthermore, if the institution does not fail to its obligations during the tenure of the deposit, these transactions strengthen the ties between the borrower and the lender. Such bond is of particular importance for the limitation of principal agent problem when also lending takes place. Last but not least, households learn how to convert their ability to save in regular but small amounts into a useful sum of money (Murdoch, 1999). Subsequently, savers become able to build up their own assets and become less dependent on unfavorable external conditions (e.g. crop failure, illness, additional childbirth). As a consequence savers' financial discipline rises and their quality as borrowers increases.

3. Financial sustainability of microfinance institutions

Institutions that have decided to provide microfinancial services to its specific clientele face many barriers described before. In order to overcome these obstacles, MFIs have to mobilize special banking approaches. Nevertheless, the costs of these activities are substantial. The intensive need of field workers, who are travelling to contact new members, organize the meetings and collect the repayments, is one of the examples of the cost generating activities that have much more significant weight in the cash flow statement of a MFI compared to the situation of commercial banks in the developed world. In order to secure balanced financial performance while facing these costs, MFIs use different sources of funds.

The chapter defines different inflows, which should be treated as subsidies. Subsidized funds are then classified according to their impact on the credibility of reported results of MFIs. The ultimate aim of this section is to use the knowledge of the typology of subsidies to build up a consistent framework for the analysis of the dependence of given MFI on subsidies, while using widely accessible data from annual reports. Consecutively, this framework will be used for the evaluation of financial self-sustainability of a set of institutions within microfinance sector in South Asia.

The motivation for the quantification of subsidies and the analysis of the extent up to which a MFI relies on these funds is to find out the possible time frame of the supply of microfinance services. A common proxy for length is the ability to attract grants or soft loans or, in the absence of perpetual subsidies, the ability to earn enough profit to maintain the real value of equity (Schreiner, Yaron; 1999). The length of the activity of MFI matters because society cares about the well-being of the poor both now and in the future. It matters also for the clients that need a continual provision of services to improve their situation on a sustainable basis. In addition, continuity is important also for the creation of relationship based on mutual trust between the microfinance institution and the client, which limits the moral hazard and allows improvement in the quality of services. However, this can be hardly achieved in a situation, where an unexpected cut in subsidies rapidly leads to bankrupt.

3.1. The origin and types of MFIs' funds and sustainability

For decades, governments and donors have tried to improve social welfare through public support for MFIs. The private donors give in stake their own resources. There is no shift between the owner of funds and the representative that decides about their respective uses. Hence the fact that a private owner of capital entrust it to a MFI is itself a proof that the benefit of this transaction exceeds the expenses, at least from the point of view of the private donor.

Contrary to the private spending, funds allotted by public entities belong to the society and the choices of representatives may not be only profit oriented. Specifically, the price charged to destination MFI is not only set outside the market but may also lack any link to the real social value of funds in their alternative uses (e.g. building hospitals, paving roads or buying textbooks to local school). As with all investments the quantification of the size of public funds should be carried out reflecting their opportunity costs. For that reason, the further analysis will use the concept subsidy as a social cost. In line with this approach, *subsidy* can be defined as the opportunity cost to society of the public funds acquired by a MFI less what the MFI actually pays for this money (Schreiner, Yaron, 1999). That is why correct assessment of financial economic sustainability cannot take figures in MFI's annual reports as incontestable but should rather verify the real value of subsidized financial inflows.

According to a classification proposed by Khandker et al. (1995), there are two types of subsidies: financial and economic/social. *Financial subsidy* is the funding that is necessary for the survival of a MFI that is not cost-effective. *Economic/social subsidy*²³ arises in the case when the cost of funding for relending is lower than the opportunity cost of the funds. This implies the existence of financial and economic sustainability, which depend on the type and extent of subsidies that MFI needs for the continuity of its operation (for broader stratification of sustainability see Box 2). Financial sustainability can be calculated using available financial information and with market interest rate as a proxy for the real worth of capital for the calculation of social costs.

²³ This type of subsidy may also be called social subsidy which stems from the fact that the subsidized funds are given to the microfinance program to lend to the poor with the objective of poverty reduction.

Box 2: Degrees of (self-)sustainability

There are four distinct terms describing the level of financial viability of an institution: social worthwhileness, subsidy independence, private profitability, and self-sustainability. A MFI can be called *socially worthwhile* when it attains to create social benefits that exceed social costs in present-value terms. A *subsidy-independent* MFI can pay even the full social opportunity cost (social costs of investment equal zero) of public funds and yet show a profit. Furthermore, a *privately profitable* MFI can pay the opportunity cost of all funds (private funds included) and still show a profit. Finally, a *self-sustainable* MFI can meet its goals now as well as in the long term.

Social worthwhileness matters because public support for MFIs aims to improve social welfare. Subsidy independence matters because, if customers benefit from a MFI and if there are no external social costs, then zero social cost implies also social worthwhileness. Private profitability matters because, as public funds are limited, MFIs will be only few and small unless private investors would use their own funds to buy MFIs or to start new ones from scratch. Finally, self-sustainability matters because society cares about improved welfare both now and in the future.

Subsidy independence is necessary and sufficient condition for private profitability only if the social opportunity cost equals or exceeds the private opportunity cost. Subsequently, private profitability is needed for self-sustainability. Privately profitable MFIs may also improve social welfare more than subsidy-dependent ones (Rosenberg, 1996). Privately profitable MFIs may also attract private funds and thus produce more development finance at less cost to the public purse.

Source: (Schreiner, Yaron, 1999)

An even more detailed typology of subsidies has been proposed by Schreiner (1999), who recognizes 6 forms of subsidized funds that are subsequently divided to profit grants and equity grants (see Table 2). *Profit grants* are crucial to be identified because they distort the accounting profit either by inflating the revenues or by deflating the expenses. *Equity grants* are like a direct injection of capital into equity and as such they do not pass through the profit and loss statement and neither do they change the accounting profit directly. Still there are significant sources of money for the MFI that can consequently be used in a productive way without fully bearing the costs.

Table 2: Types of subsidies

Type of subsidy	Notation	Type of grant	Cash/Non-cash
Direct grant	DG	Equity grant, EG	Cash
Public paid-in capital	PC_{pub}		
Revenue grant	RG	Profit grant, PG	Non-cash
Discount on public debt	$A^*(m-c)$		
Discount on expenses	DX		
Implicit subsidy on equity	m^*E		
True profit	TP	Equity grant, EG	

Source: (Schreiner, 1999), (Morduch, 1999b)

Among the profit grants belong *revenue grants* (RG), which are direct subsidies counted as an income. The next is the *discount on public debt* ($A^*(m-c)$) that reflects the unpaid social opportunity costs of the total debt toward public donors (A), where the discount rate is enumerated as the difference between the market lending interest rate (m) and the average rate actually paid for each dollar borrowed by the MFI, denoted by c. The third type of subsidy falling into the revenue grants category is the *discount on expenses* (DX) that is the common denominator for different reductions decreasing the real costs of MFIs' operations below the levels usually charged to other participants on the market. Among the examples of discounts on expenses can be cited only difficulty traceable assistances free of

charge - such as the IT support, feasibility studies, consultations, free use of government facilities etc. - or also government guaranties and exemptions from taxes and other fees. Morduch (1999b) extends the group of profit grants by adding the *implicit subsidy on equity* ($m * E$). The main idea is that the bulk of subsidized equity which comes from retained earnings and other funds that were built up with proceeds from soft funds should be treated like a zero-interest loan. There is an implicit subsidy associated with these funds since the MFI offers sub-market returns to the real owners of the capital yet relies on continued access to these amounts. As its notation suggests, the implicit subsidy on equity can be calculated by multiplying the subsidized equity by the market lending rate in the current year.

In the group of equity grants can be found *direct grants* (DG), which represent analogical injections to MFI's equity as the revenue grants, but do not distort the reported profit directly inflating the income side of financial statement. *Public paid-in capital* (PC_{pub}) that sums the sales of shares to government and public donors that usually do not see this transaction as a business deal leading to (partial) control over the MFI operation, but rather as a form of donation²⁴ without any claims. Last but not least is *true profit* (TP), which may look strange in this category nevertheless this is a type of subsidy too. The true profit can be defined as a change in retained earnings (P) that MFI would reach in the absence of all types of profit grants (Equation 1). This is a special case of subsidy because positive true profit equals social benefit of donors that could be withdrawn but remains disposable and raises the equity of MFI. Symmetrically, negative true profit is in fact a social cost.

$$TP = P - [RG + A * (m - c) + m * E + DX] \quad (1)$$

The true profit should be considered more testifying about the real performance of MFI than reported profit. Although financial accounts of MFIs are monitored and completed by certified public accountants, they do not always follow strictly the international accounting standards; there is often just a loose justification for why some expenditure

²⁴ For simplicity, further analysis assumes that all paid-in capital is provided by public entities.

categories are above or below the line or some categories change side in the balance sheet in a year-on-year comparison (Morduch, 1999b). These disaccords can easily inflate credibility of the reported numbers as well as the accuracy of any analysis using this data as a source. That is why close and careful inspection of available financial records²⁵ had to be carried out for the following analysis.

²⁵ The used data have been made publicly available by the MFIs in the form of annual reports downloadable via internet. However, all MFIs do not use the same standards. Therefore, some necessary adjustments had to be made to allow the comparison.

3.2. Framework for the analysis of dependence on subsidies

While performing the assessment of financial performance using the data from MFIs' annual reports, common financial ratios - such as Return on Equity (ROE), Return on Assets (ROA), interest margin or nonperforming loans ratio - may hide the true performance of MFIs because their measures of cost may not reflect the existence of social opportunity costs and may be heavily affected by the amount of subsidies received. That is why the evaluation of MFIs' financial performance can not rely on traditional measures but necessitates other tools suitable to capture specific costs and benefits associated with the operation and funding of MFIs. As a remedy to failures of traditional methods in this special context Yaron (1992), a finance specialist at the World Bank, has developed a performance evaluation framework that uses the "self-sustainability" of MFIs measured by the Subsidy Dependence Index (SDI) as the primary assessment criteria. Since its introduction, this framework has gained wide acceptance among both practitioners and academics as an instrument for the assessment of performance of MFIs, rural banks, and others²⁶.

The SDI discloses the increase in annual yield on the loan portfolio of a given MFI that would be necessary to reach the full subsidy independence. The SDI answers the question: How far is actually the MFI from being able to compensate the society for the opportunity costs of provided funds and still show a profit? Alternatively, the SDI results in the notion of an increase in the current average microcredit interest rate, which would equal to the subsidy-free interest rate that, once charged by the MFI, would lead to break-even financial performance even without the donor and governmental support²⁷.

An important feature of this framework is that the SDI quantifies the total explicit and implicit subsidies to a MFI, and thereby allows the cost comparison of different social programs. This concept can be used to track subsidy dependence over time. Thus, it can be

²⁶ The SDI is not the only instrument elaborated to measure the dependence on subsidy of given institution. There is also the Financial Self-Sufficiency ratio promoted later by Ledgerwood (1999) that shares similar definition similar to the SDI. Or for example the Net Present Cost to Society (NPC_s) first proposed by Schreiner (1999), which in addition treats funds as flows, but on the other hand needs adequate source of data and appropriate discount factor.

²⁷ The SDI assumes that that the lending rate is the only change made to compensate for loss of subsidy. However, it does not mean that adjusting the interest rate is required or feasible (Yaron, 1992).

used as a planning and monitoring device for donors, investors and scientists. This concept also allows the comparison the subsidy dependence of in different MFIs, in the same or different countries that serve similar clientele using different operational methods.

3.2.1. Computation of the SDI

The first step of the calculation of the Subsidy Dependence Index is to compute the amount of the annual subsidy received by a given MFI. Yaron (1992) has defined this amount of subsidy (S) as

$$S = m * E + A * (m - c) + K - P \quad (2)$$

where

S = Subsidy received by the MFI in a given period

m = Social opportunity costs (interest rate that the MFI would be assumed to pay for borrowed funds without access to concessionary funds)

E = Equity (including equity grants)

A = MFI concessionary borrowed funds outstanding (public debt)

c = Interest rate on MFI's (concessionary) borrowed funds outstanding in a given period

K = Sum of all other subsidies received in a given period by the MFI (such as revenue grants and discounts on expenses)

P = Reported annual profit before tax.

The total amount of subsidy is the sum of the social opportunity cost of subsidized funds embedded in the equity of the MFI and the 3 types of profit grants acquired by the MFI during a given period and unrepaid from the profit. This amount S will be of further use for the computation of the SDI.

The question that the Subsidy Dependence Index tries to answer is: What is the extent of the increase of the lending interest rates necessary for the MFI to operate without subsidies? The level of interest rate that allows to repay the whole amount of subsidies, the zero subsidy interest rate i^* , solves the equation:

$$LP * (1 + i^*) + I = LP + C + m * E + A * (m - c) + K \quad (3)$$

where LP is the volume of the outstanding loan portfolio, I is total investment income, C are total costs (including the cost of capital); the other symbols are the same as in Equation 2. The left side of Equation 3 gives the expected income and the right side stands for the costs (in the absence of soft loans).

The zero subsidy interest rate is thus:

$$i^* = \frac{C + m * E + A * (m - c) + K - I}{LP} \quad (4)$$

For the matter of comparability, the necessary increase of the current interest rate i is given as a percentage change, which gives:

$$\frac{i^* - i}{i} = \frac{C + m * E + A * (m - c) + K - I - LP * i}{LP * i} \quad (5)$$

Equation 5 can be rewritten using the notion of reported profit P that is the result of net revenues from lending services and the net proceeds from investment as

$$\frac{i^* - i}{i} = \frac{m * E + A * (m - c) + K - P}{LP * i} \quad (6)$$

The Subsidy Dependence Index thus can be expressed as

$$SDI = \frac{m * E + A * (m - c) + K - P}{LP * i} = \frac{S}{LP * i} \quad (7)$$

where

S = Subsidy received by the MFI (Equation 2) in a given period

LP = Outstanding loan portfolio of the MFI in a given period

i = Average yield earned on the loan portfolio of the MFI.

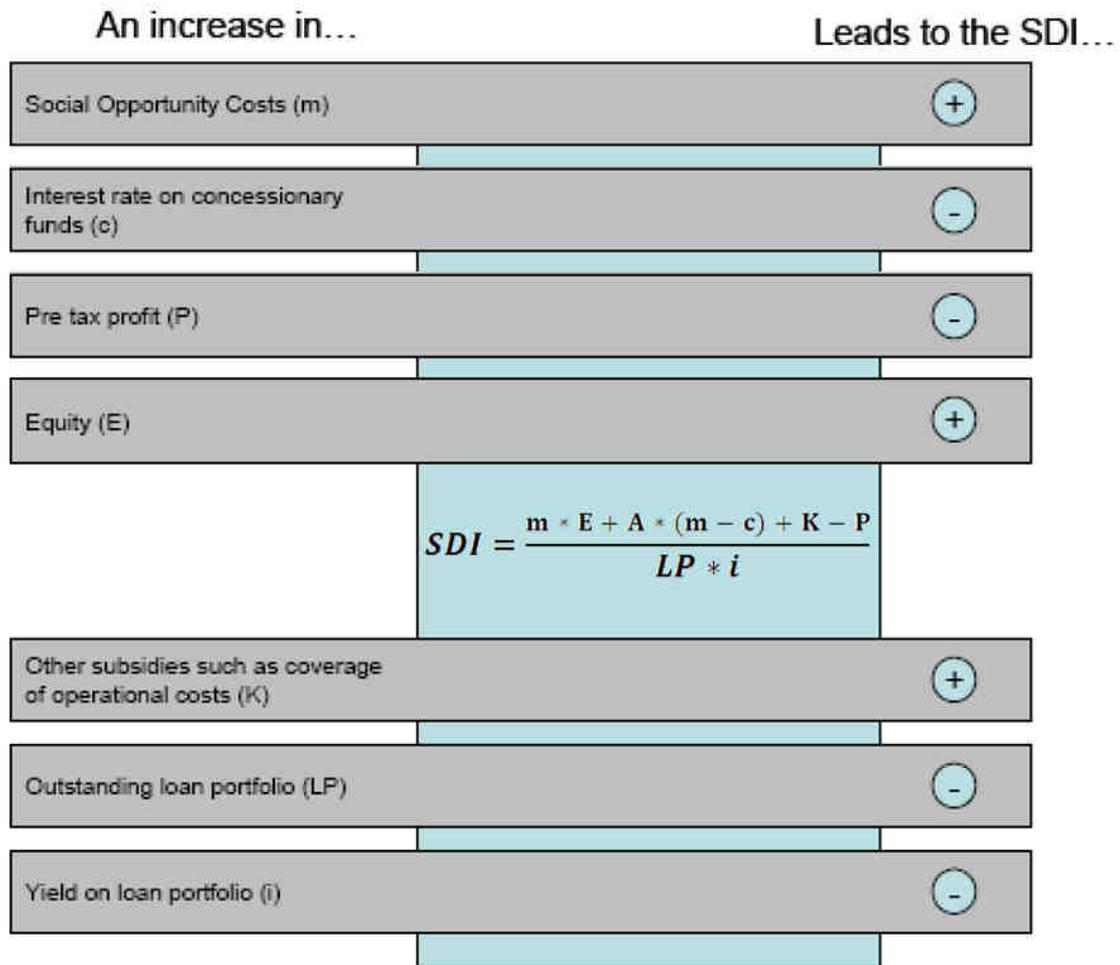
3.2.2. Interpretation and properties of the SDI

The Subsidy Dependence Index is the change in revenue from loans that, *ceteris paribus*, would make the MFI independent on subsidies and profitable. Therefore, an SDI of 1.00 technically indicates that a doubling (increase of 100 percent) of the average lending interest rate is required if subsidies are to be eliminated. An SDI of zero means that a MFI has achieved full subsidy-independence. A negative SDI indicates that a MFI is not only fully subsidy-independent but also that its annual accounting profit minus its subsidized equity charged at the approximate market interest rate exceeds the total annual value (including social opportunity costs) of subsidies.

The revenues from lending are taken as a major concern for different reasons. Firstly, MFI can often change the lending interest rate with a simple stroke of a pen which makes this accessible instrument very efficient. Furthermore, the revenue from loans is the biggest source of MFIs' income that even usually exceeds all other sources of operational income combined. This means that a marginal change of interest rate can make a big difference in the resulting profit or loss. Another reason is that the comparison of the total amount of subsidized funds with the revenue from lending operations places the analysis in the context of the size of the MFI, which is of further assistance for deeper understanding of subsidy dependence.

However, it should be noted that the change of interest rate suggested by the SDI is neither the only possible nor recommended way of increasing the MFI's self-sufficiency. The closer analysis of the structure of the SDI may provide important clues for the financial sustainability that will be discussed later. Figure 4 summarizes the effect that each of the parameters may have on the SDI. Generally, any type of cost reduction will automatically be reflected in an increase of annual profit (reduction of annual loss). Therefore, any cost reduction will inevitably lower the SDI.

Figure 4: Comparative statics of the SDI



Source: (Francisco et al., 2008)

The SDI can be computed for any period - a month or a decade (to overcome business cycle issues). However, practical experience shows that an annual analysis that relates to the period, for which the budget and the audited financial statements are prepared is the most appropriate. Still, the use of year-end financial statements implicitly assumes that flows and changes in stocks take place at a constant pace during the year. This is a practical and widely accepted compromise that implies simplification; therefore knowledge of the actual timing of flows should be used when such data are available.

4. Subsidy dependence analysis of MFIs in South Asia

The aim of this chapter is to analyze the financial inflows of different institutions for the assessment of their financial sustainability. The selection of MFIs is restraint to South Asia. The choice of this region is not accidental but is partially a consequence of the will to include the glorified Grameen Bank of Bangladesh into the subsequent comparison without inflating the credibility by an inappropriate cross-continental comparison. Another reason for the selection is to reflect the wide variety of different types of MFIs that appear in the sector of microfinance. Every MFI is shortly characterized at first to highlight its specificities. The financial analysis is focused mainly on the quantity of the different types of subsidies (as described in subchapter 3.1.) and their respective importance in the financial performance of the selected institutions.

4.1. Sources of financial data and complementary information

In order to perform the analysis of the subsidy dependence of microfinance institutions an adequate source of data must be found. The following analysis uses as the base of data the annual reports of the selected MFIs operating in South Asia. However, as discussed before, some figures had to be adjusted to enhance both the evaluation within the group and to fit international reporting standards. With respect to the possibility of cross-country comparison, all figures are converted to U.S. dollars using the end year exchange rates (as noted in the heading of each column in the tables)²⁸.

Although the MFIs try to show through the financial statements their necessity to donors or/and their attraction to other investors, the availability of the annual reports for a longer period of time (e.g. a decade) is not self-evident. That is why one of the conditions that appear to be crucial for the selection of MFI is the availability of financial data for a relevant period.

²⁸ Source of the data: International Financial Statistics service of the International Monetary Fund, www.imfstatistics.org

Nevertheless, the main aim of the choice of MFIs is to reflect the heterogeneity of the field of existing institutions. In order to accomplish this task the data possesses also a qualitative information on the lending style employed by the MFI, the range of the services it offers, its profit status, ownership structure, and main sources of funds. This information is part of the annual reports or other publications of MFIs or in the specification of each institution covered by Microfinance Information eXchange (MIX).²⁹

As an important concern of the subsequent analysis is to explore the link between the financial self-sustainability of a MFI and the depth of its outreach³⁰, the specification of MFI also contains a proxy for the assessment of the poverty of MFI's borrowers – the average loan balance per borrower. This widely used indicator of the depth of outreach of credit institutions is based on a simple logic that the poorer the lender, the lower the size of the credit that can be granted by the bank to borrower.

The knowledge of the degree of financial self-sufficiency of MFIs with different characteristics will later serve as a starting point for the discussion of the ideal features of MFI that can substantially decrease the dependence on subsidies.

²⁹ The detailed information about MFIs is a by-product of collecting data for the MicroBanking Bulletin project. Summary statistics on the 1162 institutions covered worldwide are published in the Bulletin. The Bulletin and MFI specifications are available at www.mixmarket.org.

³⁰ The ability to reach large numbers of people, especially the very poor, with quality financial services.

4.2. Grameen Bank - Bangladesh

Grameen Bank was created in 1983, when the Grameen Bank Project of Muhammad Yunus was transformed into a formal bank under a special law passed for this operation. It grew steadily in the 1980s and even more quickly in the 1990s. Today, Grameen Bank covers every district in Bangladesh. In 2006, the number of registered account holders (called members) totaled made almost 7 million³¹ and virtually all of them are rural women (96.7 percent in 2006, MIX).

The everyday functioning of the Grameen Bank has been already described in Chapter 2. In the first stage of its existence that lasted until 2001, the bank used loan officers who organized rural clients into five-person groups of people already known to each other but not living in the same households. Group members were required to support each other in using the bank's loans. Eight such groups met weekly in their own village to form a centre assisted by the loan officers coming to conduct "outdoor banking".

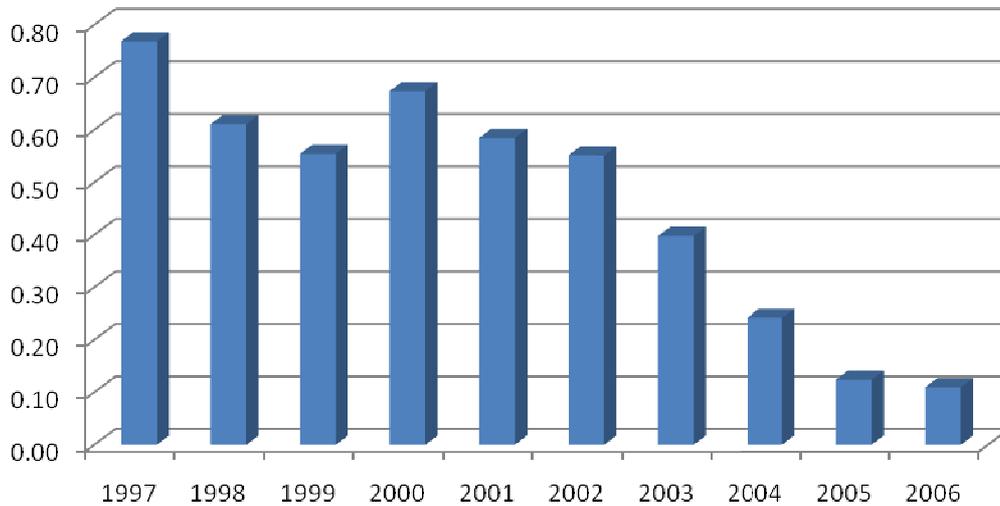
Despite the group lending mechanism and lending mainly to women, Grameen Bank used the instrument of forced savings. Each member committed to a small weekly saving deposit that could not be withdrawn until she terminated her membership. Dynamic incentives were involved as well because the disbursement in each center staggered among groups and continued only as long as those already holding a loan were repaying regularly. Repayment was fixed in equal weekly installments for one year. As soon as they had paid off a loan, members usually took out a new one, allowed to be larger than the previous one. As time went on, Grameen introduced further lending products such as seasonal loans, water-pump loans, or telephone loans.

In 1998 Bangladesh experienced nationwide floods that interrupted services and revealed weaknesses in the bank's portfolio. Many members were already having difficulty keeping up with growing weekly repayments, and at the time of the floods many gave up repaying completely. In response, Yunus developed Grameen Bank II – a new methodology utilized since 2001. In fact, the basic approach – formation of group and outdoor banking –

³¹ The size of the whole population in Bangladesh is about 125 millions, of which 56% live below the official poverty line.

has remained the same but some new services have been introduced and existing services have been simplified (Yunus, 2002). Loans can now be of any term from 3 to 36 months, and members are not forced to borrow continuously. Repayments continue to be made weekly but the size of installments is not necessarily equal during the whole repayment period, which gives higher possibility to fit the irregularities in cash flow of the customer during the year. Savings services are greatly improved. Grameen Bank II has introduced passbook savings allowing every member withdrawal-on-demand and a contractual savings account, known as “pension savings”, with monthly deposits and an attractive interest rate. Grameen Bank II is also using its formal bank license to mobilize deposits from the general (non-poor) public.

In the decade ending in 2006, Grameen Bank reported positive net profit every year; starting with modest 190,000 USD in 1997 and ending up with more than 20 million USD in the year 2006 (see row “Net reported profit” in Table 3). However close examination of financial statements and sources of funding shows up that the word “profit” may have a different meaning when a large fraction of (financial) inputs is subsidized. The true net profit, taking into account the social cost of all types of the received subsidies, is much less optimistic for the pioneering institution of microfinance. Even if the absolute value of the true profit is gradually decreasing in time, at the end of the analyzed period Grameen still remains in red numbers. This means that the subsidized funds keep being of crucial importance for the ongoing operation of the microfinance institution till the end of the surveyed decade.

Figure 5: Subsidy Dependence Index of Grameen Bank (1997-2006)

Source: Author's calculations

The evolution of respective weight of subsidized funds compared to the income from lending, which is the major revenue generated by Grameen, can be observed on the chart depicting the annual Subsidy Dependence Index until 2006 (see Figure 5). There are not many dynamic changes neither in the total amount of subsidy nor in the revenues from lending until the end of 2002. Worth mentioning is only the decrease in the size of the loan portfolio of the bank after the nationwide floods in 1998 and the related decrease in interest income. However, as the decline in borrowings was accompanied with lower subsidies, there was little development of the SDI during these years that could be translated in the necessity of an average increase in actual lending rate by about 60 percent in order to make Grameen Bank entirely subsidy independent.

Table 3: Subsidy dependence analysis of Grameen Bank (1997-2006)

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>End year exchange rate (Tk/USD)</i>		45.29	48.356	50.839	53.85	54.675	55.928	57.013	59.6	66.225	68.987
Direct subsidy via grants	RG	2.762	1.052	0.261	0.358	0.000	0.000	0.000	0.000	0.000	0.000
Discount on expenses	DX	1.667	2.326	2.737	2.550	3.009	2.525	2.866	4.241	10.758	11.278
Public debt	A	254.408	224.078	228.961	197.390	178.895	124.763	73.892	48.588	28.953	26.894
Implicit subsidy via loans	A(m-c)	27.390	24.983	21.705	21.642	19.269	15.652	8.644	4.607	3.224	3.577
Equity grant	EG	0.645	0.252	0.410	0.092	0.071	0.067	0.264	0.453	0.000	1.812
Subsidized equity	E	30.534	44.800	39.901	37.762	37.241	36.474	82.213	79.097	71.184	88.585
Implicit subsidy on equity	m*E	4.275	6.272	5.636	5.853	5.895	5.836	13.154	11.667	9.966	13.580
Net reported profit	P	0.190	1.295	1.513	0.207	1.069	1.067	6.271	7.083	15.107	20.267
True net profit	TP	-35.904	-33.338	-28.826	-30.196	-27.104	-22.946	-18.393	-13.432	-8.842	-8.168
Total subsidy	S	36.549	33.591	29.236	30.288	27.175	23.013	18.657	13.885	8.842	9.980
Interest income	LP.i	47.540	54.998	52.725	44.956	46.495	41.712	46.912	57.474	71.374	90.911
Subsidy Dependence Index	SDI	0.77	0.61	0.55	0.67	0.58	0.55	0.40	0.24	0.12	0.11
Interest on borrowings		8.23	6.39	10.64	8.95	9.05	4.31	3.18	2.56	0.83	0.55
Rate paid	c	3.23%	2.85%	4.65%	4.54%	5.06%	3.45%	4.30%	5.27%	2.86%	2.03%
Market rate	m	14.00%	14.00%	14.13%	15.50%	15.83%	16.00%	16.00%	14.75%	14.00%	15.33%
Savings		109.914	107.991	109.188	113.556	131.120	160.063	233.385	349.547	479.743	642.759
<i>y/y change in savings</i>			-1.75%	1.11%	4.00%	15.47%	22.07%	45.81%	49.77%	37.25%	33.98%
Gross loan portfolio		313.138	335.218	282.882	244.188	240.213	239.595	283.061	337.701	424.440	482.107
<i>y/y change in loan portfolio</i>			7.05%	-15.61%	-13.68%	-1.63%	-0.26%	18.14%	19.30%	25.69%	13.59%
Average lending interest rate		15.18%	16.41%	18.64%	18.41%	19.36%	17.41%	16.57%	17.02%	16.82%	18.86%
Zero subsidy interest rate (based on SDI)		26.85%	29.02%	32.97%	32.56%	34.24%	30.79%	29.31%	30.10%	29.74%	33.35%

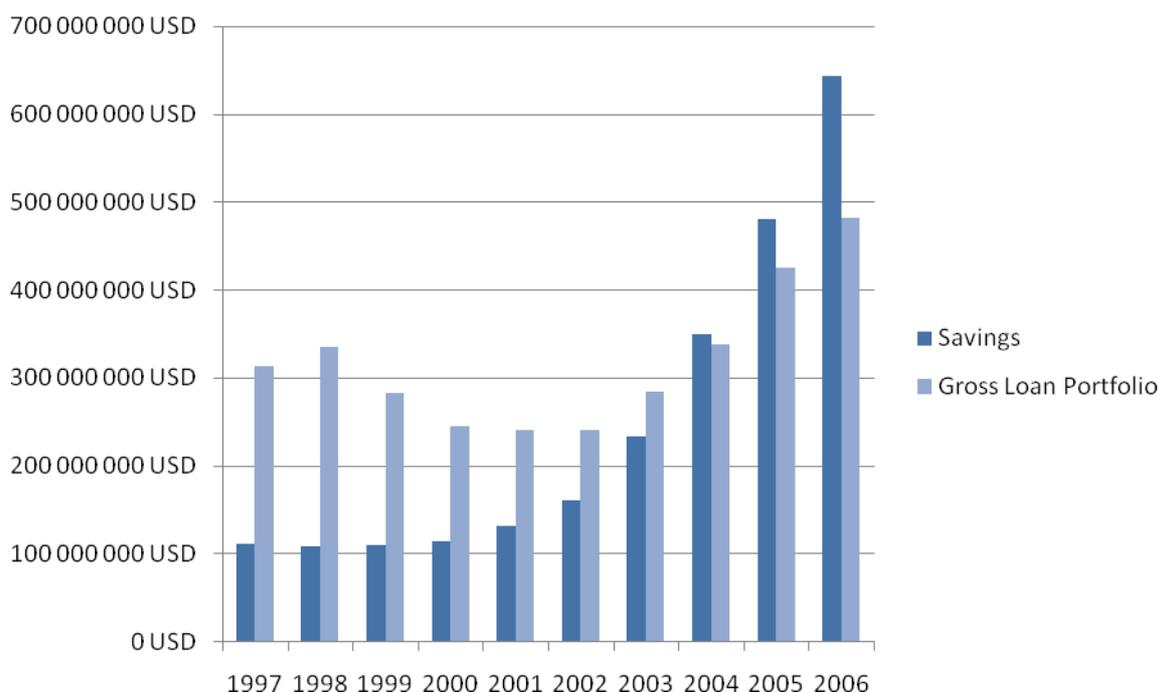
Note: All data are expressed in millions of USD, if not noted otherwise, or without any units in case of the SDI

Source: Annual reports of Grameen Bank and author's calculations

Positive changes appear since financial results in 2003 – 2 years after the introduction of Grameen II. The revenues from lending start to grow again along with the increase in the loan portfolio of the bank amounting almost to 20 percent. In addition, the total amount of subsidies follows the slowly decreasing trend. A combination of both these factors causes a significant decline in the Subsidy Dependence Index. This tendency, even if slightly weakening with time, continues until the end of the observed period, ending in 2006 with the Subsidy Dependence Index as low as 0.11.

The key to the comprehension of the reasons of such an alteration may be found in the inspection of the degree of the mobilization of deposits of customers. The chart comparing the total amount of savings to Grameen's gross loan portfolio during the decade (see Figure 6) discloses considerable growth of relative importance of savings since 2001. Starting from the year 2004, the total amount of savings is even higher than the gross loan portfolio.

Figure 6: Savings vs. loan portfolio of Grameen Bank (1997-2006)

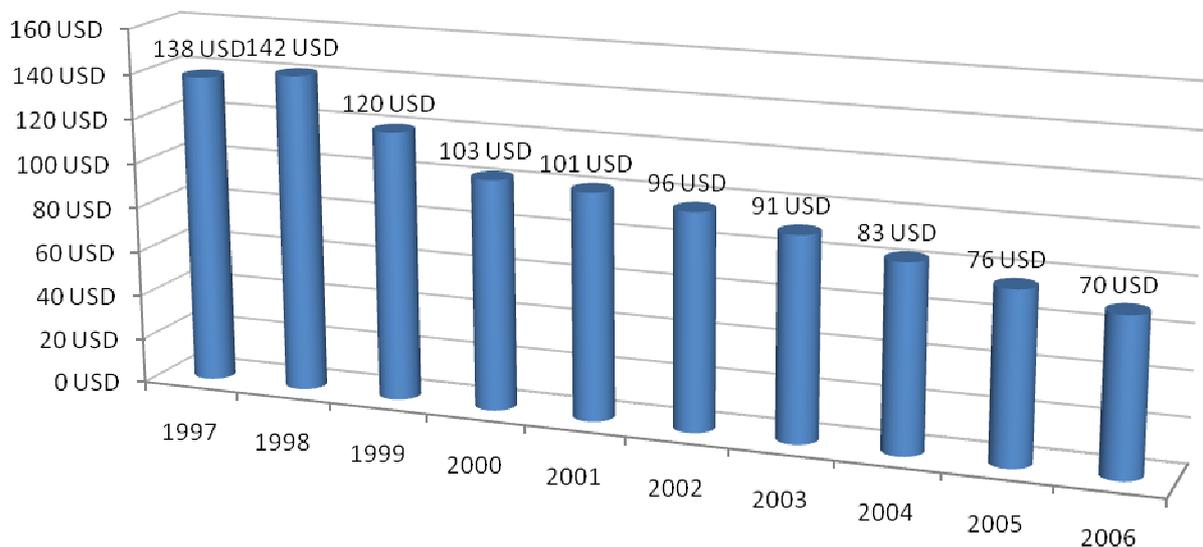


Source: Annual reports of Grameen Bank

Mobilization of savings even from non-poor customers made possible by the bank license allowed Grameen to fund much of its loan portfolio from deposits and to stop taking grants and soft loans from donors - public debt decreased from 180 million USD in 2001 to less than 30 million USD in 2006 (see Table 3).

The evolution of the depth of outreach of Grameen Bank approximated by the average loan balance per borrower (see Figure 7) shows that the loan size is gradually decreasing in time. This is in contrast with the simplifying assertion that the poorer the clientele the lower the profitability of the bank. Even if the Grameen Bank is providing its services to customers well below the poverty line, it is getting closer to the point, where it can show not only accounting but even true profit.

Figure 7: Average loan balance per Grameen Bank's borrower (1997-2006)



Source: Author's calculations

On the other hand, Morduch (1999b) assumes that the strategy of the Grameen Bank may be creation of new financial instruments aimed at better-off clients that is allowing the bank to make a profit in order to cross-subsidize their poorer clients. These new instruments include leasing arrangements for mini-buses and cellular telephones. The problem is that the cross-subsidization is typically only a short-term answer, since each profitable sector eventually tends to draw competition and as a consequence profit erodes.

Nevertheless, the impact of growing savings mobilization that started only in 2001 shows a possible way which could lead also other microfinance institution to a lower dependence on sources of funds that are acquired for a price below their social opportunity costs. Essential is that the dependence on subsidies may be eliminated even without a divergence from the initial goal of the institutions - the poverty reduction.

4.3. Hattha Kaksekar Limited – Cambodia

Hattha Kaksekar³² (HK) was established a non-governmental organization (NGO) in 1996 by a transformation of the Food Security Project, which was initiated thanks to the support of a donor from Canada. HK NGO started its microfinance program in the Pursat province of Cambodia providing financial services to the poor.

In 2001, in order to fulfill the regulation issued by the National Bank of Cambodia on licensing of MFIs, HK NGO registered the limited liability company and became Hattha Kaksekar Limited (HKL). In October 2001, the National Bank of Cambodia, after a thorough inspection, granted HKL a microfinance license allowing the institution to provide credit and mobilize savings in Cambodia.

The whole company was totally restructured in 2002 with the aim of becoming a sustainable organization. A set of new departments - such as Internal Audit, Credit, Financial, Management of Information System and Human Resources - was formed in order to manage the company's operational as well as financial activities more efficiently. To achieve its mission and goals, at the beginning of 2002, it officially opened another branch in Banteay Meanchey province under a partial support of an American organization Save the Children, in terms of both office equipment and fund capital.

Over years HKL expanded geographically while opening 7 branches and 21 sub-branches and increasing the size of its clientele from about 4 thousands active borrowers in 1999 to more than 23 thousands in 2007 (MIX). Hattha Kaksekar Limited declares its mission as: "To improve income in agricultural, commercial and manufacturing enterprises in rural areas of Cambodia by providing loans at reasonable interest rates and encouraging savings and specifically targeting women and poor families in order to help them to achieve a higher income."³³

The portfolio of offered financial services contains two types of lending: individual loans and group loans. Individual loans are provided to rural and urban people for all legal

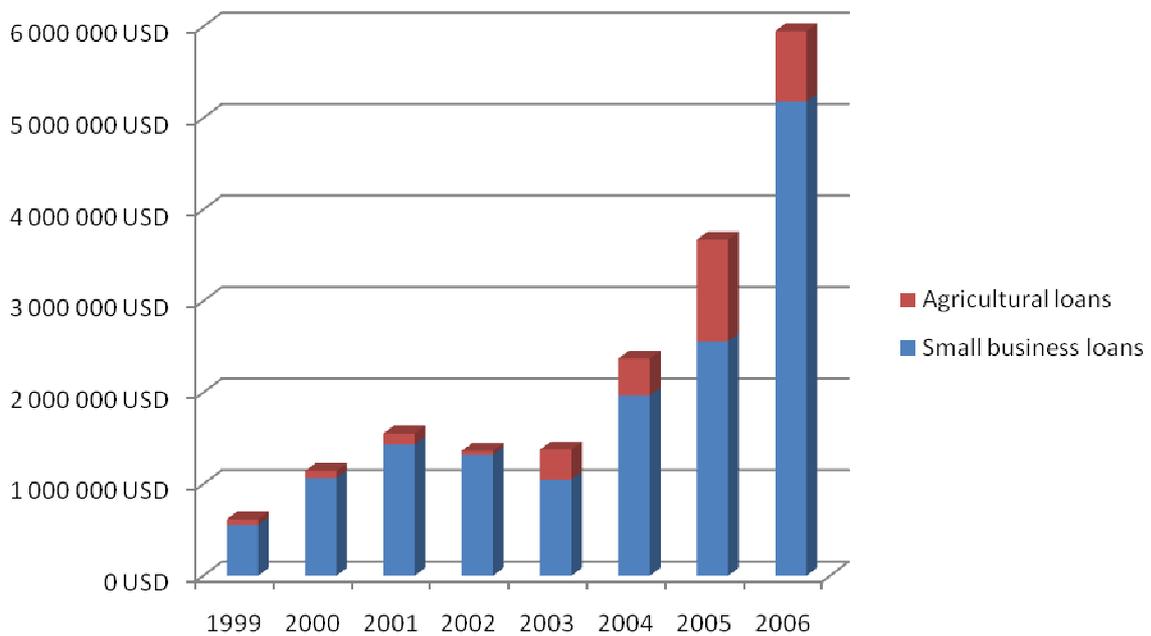
³² Hattha Kaksekar in Khmer literature means "farmer's hand" or "a helping hand for farmer".

³³ www.hkl.com.kh

business sectors, and each individual is eligible to apply for this kind of loan. However, the size of the loan is delimited by the customer's occupation capacity as well as by the available collateral and guarantor's capacity. The loan term for individual borrower can be up to 24 months.

Group loans have been started only recently and are theoretically designed for low income communities that have no land title nor land certificate and need loans to improve their income through group loan methodology (bringing together 2-8 people). In this kind of group, each member could access a loan up to 400 USD and group solidarity stands here as a guarantee. Thus the relative weight of such loans is very limited in reality. According to the HKL annual reports of 2005 and 2006, which are the only available reports disclosing this information, there were no group loans in the balance sheet of the microfinance institution in 2005. The year after, group loans were summing up to approximately 14,000 USD in the total gross loan portfolio of almost 6 million USD.

Only qualitative characteristic of the loan portfolio that is continually available throughout the observed period 1999-2006 indicates the general split between sectors, namely distinction of small business loans and agricultural loans. This stratification accompanied with the total value of the gross loan portfolio in US dollars can be observed on Figure 8. The average fraction of all loans ending up in agriculture in the observed time is 14 percent but the peak is in 2005, where the agricultural loans represented more than 30 percent of the HKL's loan portfolio (Annual report of HKL, 2005).

Figure 8: Evolution of gross loan portfolio of HKL (1999-2006)

Source: Annual reports of HKL

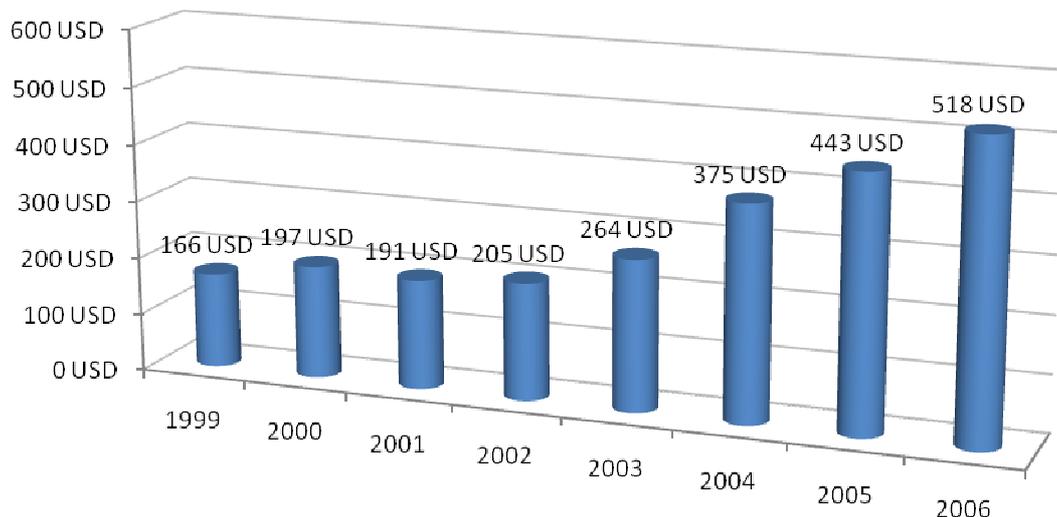
Even if the group lending technique is rather marginally represented in the operations of HKL, it does not directly imply that the bank leaves poor borrowers aside. In the years 2003-2006, when annual reports contained also the fraction of each credit product in the portfolio³⁴, micro-loan (with minimum size set by HKL to be 50 USD) take in average over 50 percent of the total amount of loans disbursed. This representation of microlending started on almost 70 percent in 2003 to decrease year by year to 42 percent in 2006.

Overall conditions of lending appear to be quite flexible and enable adaptation to the characteristics and needs of particular clients, such as the introduction of *ad hoc* repayment schedule, designed to allow the best fit to any effective client's cash flow and repayment capacity.

³⁴ The complete spectrum of available credit services of HKL contains the following products with respective minimum balances: micro-loan (50 USD), small loan (1000 USD), medium loan (2500 USD) and special loan (3000 USD).

The analysis of the evolution of average loan balance per borrower (see Figure 9) reveals that the average borrower is becoming year by year more and more wealthy. This means that, with the growing scale of the institution, Hattha Kaksekar might be diverging from its initial goal of helping the very poor. The shape of the chart is in compliance with the earlier mentioned accelerated decrease of representation of “micro-loans” in the HKL’s gross loan portfolio since 2003. Although the institution is still operating within the poorer region of the borrower’s spectrum in Cambodia, its path of provision of services is not anymore directed to the very bottom. The significance of the shift between the beginning of operation and the most recent data is visible on the percentage of gross national income *per capita* in a given year that represents the average loan balance per borrower of HKL. This indicator more than doubled within the decade, starting on 41.65 percent in 1997 and increased to 107.88 percent in 2006 (MIX).

Figure 9: Average Loan Balance per Borrower of HKL (1999-2006)



Source: Annual reports of HKL and author’s calculations

Table 4: Subsidy dependence analysis of Hattha Kaksekar (1999-2006)

		1999	2000	2001	2002	2003	2004	2005	2006
Direct subsidy via grants	RG	98 289	67 695	60 279	61 681	38 588	34 234	70 545	123 305
Discount on expenses	DX	75 165	22 700	0	6 000	0	0	0	0
Public debt	A	70 000	415 000	450 000	390 000	100 000	1 360 914	2 116 733	3 893 825
Implicit subsidy via loans	A(m-c)	7 182	37 571	23 828	19 807	8 022	138 269	212 408	371 444
Equity grant	EG	69 565	263 101	252 202	176 053	191 993	176 285	319 160	604 564
Subsidized equity	E	429 382	514 547	936 307	934 686	891 771	1 149 629	1 271 701	1 519 324
Implicit subsidy on equity	m*E	75 399	89 222	154 491	151 700	164 710	202 565	220 386	249 169
Net profit (reported)	P	94 831	16 068	37 360	48 897	47 988	160 571	317 402	564 154
True net profit	TP	-161 204	-201 120	-201 238	-190 291	-163 332	-214 496	-185 937	-179 764
Total subsidy	S	230 769	464 221	453 440	366 344	355 325	390 781	505 097	784 328
Interest income	LP.i	162 749	309 775	348 338	383 261	395 811	589 411	962 057	1 539 138
Subsidy dependence	SDI	1.42	1.50	1.30	0.96	0.90	0.66	0.53	0.51
Interest on borrowings		5 110	34 390	50 422	43 490	10 448	101 524	133 254	267 143
Rate paid	c	7.30%	8.29%	11.20%	11.15%	10.45%	7.46%	7.30%	6.86%
Market rate	m	17.56%	17.34%	16.50%	16.23%	18.47%	17.62%	17.33%	16.40%
Gross Loan Portfolio		616 002	1 143 895	1 554 250	1 363 365	1 377 150	2 372 294	3 671 125	5 950 760
<i>y/y change in loan portfolio</i>			85.70%	35.87%	-12.28%	1.01%	72.26%	54.75%	62.10%
Savings		31 866	51 085	82 599	77 634	62 426	97 427	170 323	257 174
<i>y/y change in savings</i>			60.31%	61.69%	-6.01%	-19.59%	56.07%	74.82%	50.99%
Average lending interest rate		26.42%	27.08%	22.41%	28.11%	28.74%	24.85%	26.21%	25.86%
Zero subsidy interest rate (based on SDI)		63.88%	67.66%	51.59%	54.98%	54.54%	41.32%	39.96%	39.04%

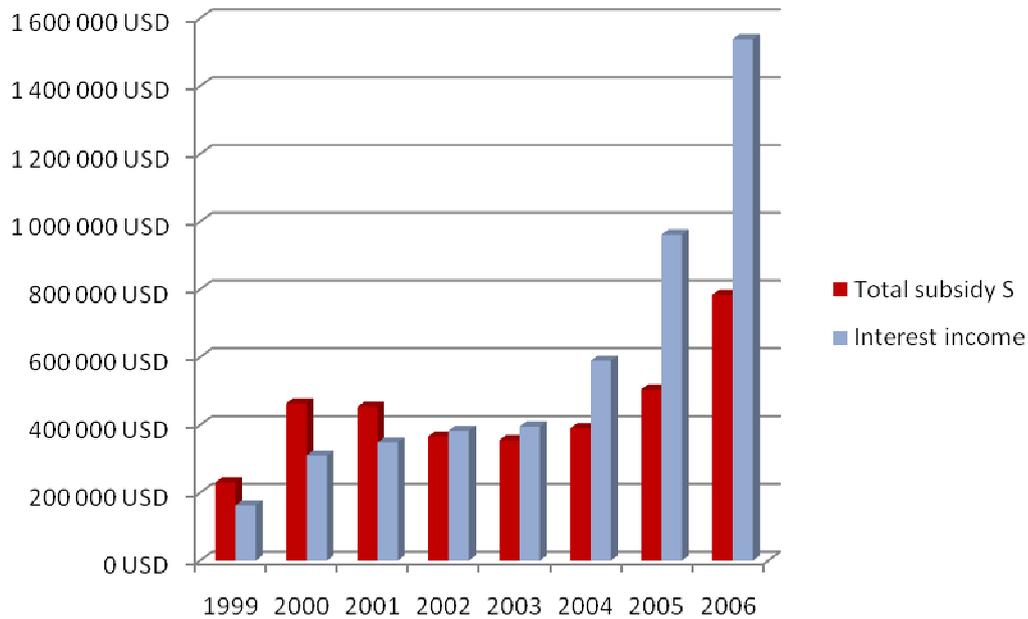
Note: All data are expressed in USD, if not noted otherwise, or without any units in case of the SDI

Source: Annual reports of Hattha Kaksekar and author's calculations

This detailed analysis of the role of subsidized funds in the financial sustainability of the institution (see Table 4), almost since the beginning of operation,³⁵ demonstrates the importance of the donor capital in the initial phase of the life of this NGO. Up to the year 2001, its dependence on this capital measured by the Subsidy Dependence Index was between 1.5 and 1.3. Such level of the SDI implies, as one of the possible solutions, an increase of interest rate to approx. 65 percent in the first two years, which would generate a sufficient amount of resources to allow the NGO replace all subsidized funds with the proceeds from lending.

After receiving the banking license, Hattha Kaksekar Limited lowers the total amount of subsidized funds by 20 percent in 2002 compared to the level of subsidies in the two preceding years (see Figure 10). At the same time HLK also slightly increased the interest income due to higher average interest rate of disbursed loans while the gross loan portfolio decreased a little bit. The combination of these two main determinants of the SDI results in a significant fall of subsidy dependence in 2002. Further after only marginal changes in the next year, the year 2004 exhibits much more dynamics. The year-on-year growth of HKL's gross loan portfolio, after the two years of stagnation, reaches more than 70 percent (see Figure 8) and the mobilization of savings is 60 percent higher than the year before. These paces indicate fundamental changes in the operation of the institution. This finding is supported also by the discussed increase in the average loan balance per borrower that reveals the shift to more lucrative borrowers. The structural changes ultimately result in a considerable increase of the interest income. Similar evolution as described for 2004 appears also in the last two years of the analyzed period.

³⁵ The period 1999-2006 is the maximum time frame currently covered by available audited financial statements of Hattha Kaksekar.

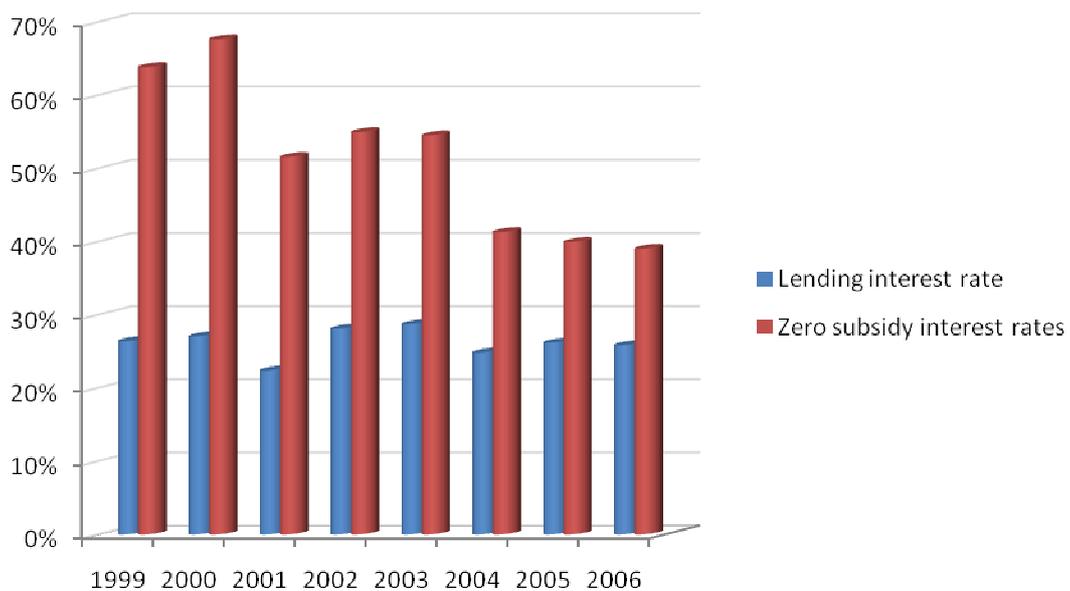
Figure 10: Evolution of subsidies and interest income of HKL (1999-2006)

Source: Annual reports of Hattha Kaksekar and author's calculations

However, the positive impact of all enumerated changes in functioning of the MFI on its subsidy dependence is important only in 2004, when the SDI falls significantly. In the two following years the ratio of the total amount of subsidy to the interest income - measuring the SDI - improves only slightly. The main reason of such evolution is the increasing importance of the public debt of HKL that starts on 1.3 million in 2004 and then almost doubles in the both consecutive years. The major part of these funds is designated for relending to the clients. Although this capital is highly productive for HLK, it brings sub-market interest to the public lenders, thus there is a substantial and growing implicit subsidy on these resources. As a consequence, the financial self-sustainability does not improve a lot at the end of the time frame even if the interest income does.

Average lending interest rate of Hattha Kaksekar (see Figure 11) throughout the analyzed years is much higher than in the case of Grameen Bank. This fact also supports the idea that these two institutions do not follow the same mechanisms of operation and also serve a differently structured clientele. Even more interesting is the fact that the actual average interest rates on lending of Hattha Kaksekar - just below 30 percent - almost equal the zero subsidy lending interest rate stemming from the SDI. In other words, this comparison indicates the possibility of full subsidy independence of the Grameen Bank if this charges its borrowers similar interest rates as HKL.

Figure 11: Lending interest rates of HKL (1999-2006)



Source: Annual reports of Hattha Kaksekar and author's calculations

The decreasing trend of the SDI of Hattha Kaksekar during the studied years is naturally reflected by a similar evolution in the zero subsidy interest rate based on this indicator, which falls from almost 70 percent per annum in 2000 to about 40 percent per annum in 2006 (see Figure 11) after the transformation of the institution, implying still a 50 percent increase from the currently charge rate.

The analysis of the subsidy dependence of HKL brings interesting conclusions. It shows that even turning a microfinance institution toward a wealthier segment of the poor clientele itself does not automatically drive the organization to the full financial sustainability and positive true profit. Even after a significant improvement of the need of subsidization, the continuity of the provision of HKL's services to its clientele reposes on the steady inflow of subsidized lending. Nevertheless the situation of HKL is not insolvable as one of its possible sources of cheap funds for relending, which is not subsidized, remains unexploited. It is the mobilization of savings that is still waiting for its time to expand to a more significant volume. Even after a dynamic growth since 2003 the total amount of savings in 2006 equals only 5 percent of the gross loan portfolio. Therefore, there is a considerable potential of this sphere of financial activity to grow and help HKL to become (more) financially self-sufficient.

4.4. Seilanithih – Cambodia

Another microfinance institution operating smaller scale in Cambodia is named Seilanithih. It was established in 1996 by the merger of three Cambodian projects of Care, an international non-government organization. These projects started in 1993 and one of them called SEILA³⁶ Project was created as an innovative urban poverty alleviation program in Phnom Penh. The project was intended to support one of the poorest peripheral urban areas for income generation and job creating activities. At the same time, Care Cambodia set up two Village Banks projects. These entities became three branches of Seilanithih. One year after its establishment, Seilanithih attracted Agence Française de Développement that became the main donor of this NGO; it providing grants and donations for the operation and further development of the organization.

The philosophy of the organization is “to contribute to improving the standard of living of people with financial sustainability of Seilanithih Limited through providing financial service for rural community and micro-enterprises with appropriate interest rates.”³⁷

Following the new Cambodian microfinance regulation, Seilanithih became a private liability company named Seilanithih Limited. Seilanithih Limited has been licensed microfinance institution by the National Bank of Cambodia since December 2003. After this temporary step toward a fully recognized MFI, the company received a full permanent microfinancial license in 2007 from the national bank and is legally registered with the Ministry of Commerce.

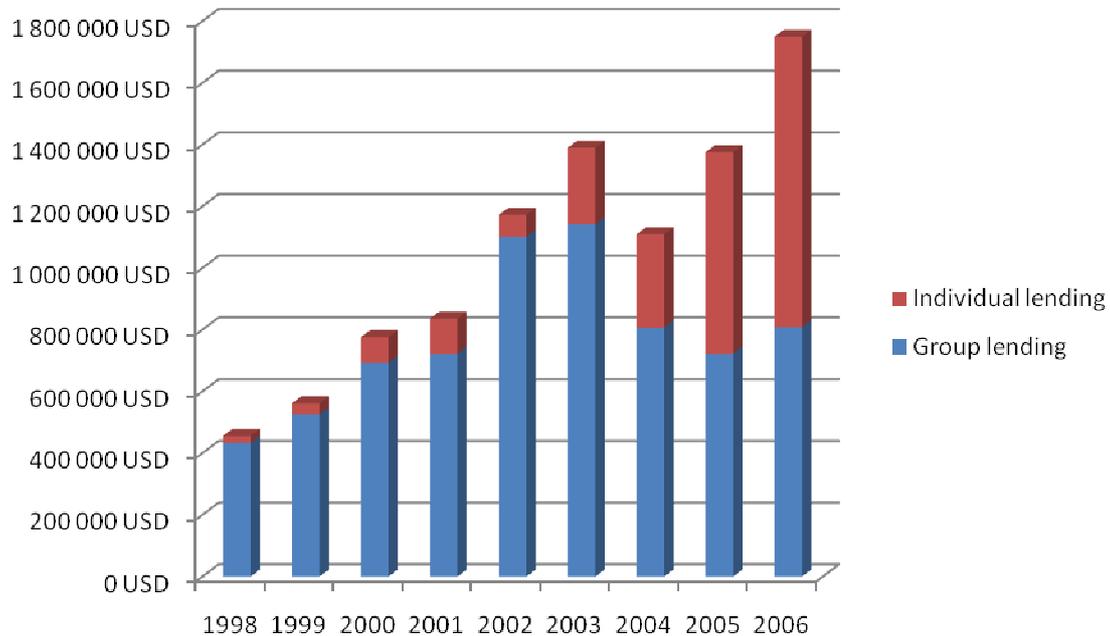
The period analyzed in this section covers the years 1998 - 2006. The beginning of this period corresponds to the starting point of a new lending product - the individual loan. This new offer of Seilanithih started as a marginal service proposing individual loans with loan size up to 500 USD and was initially tested on 100 clients in Phnom Penh branch. This loan started on the periphery of company's interest and stayed more than 5 years in the shadow of the majority of loans falling into the group lending scheme (see Figure 12). Group loans of Seilanithih are designated for clients whose professions are in agriculture and

³⁶ The name of the project is an acronym of “Social Economic Improvement for Local Agency”.

³⁷ www.seilanithih.com.kh

should support the farmers with enough resources to allow their production to grow (e.g. money for animal feeding and for rice planting).

Figure 12: Evolution of gross loan portfolio of Seilanithih (1998-2006)

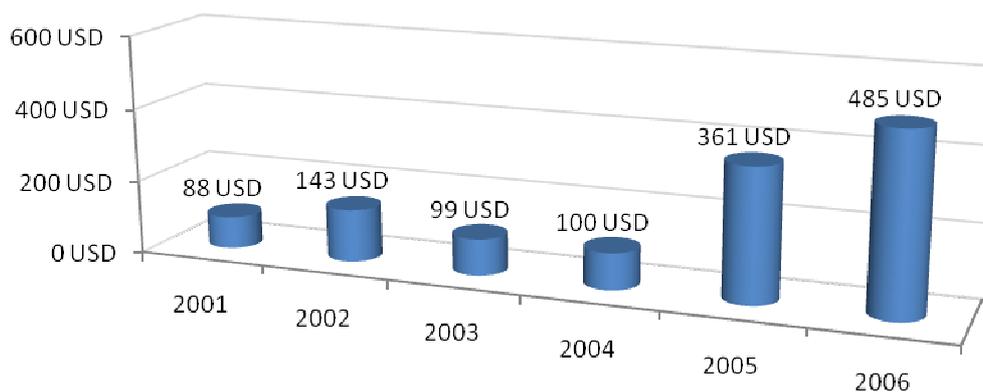


Source: Annual reports of Seilanithih

The importance of the individual loans increases only very slowly in the first years after its introduction. Nevertheless, the unshaken position of group loans in the portfolio of the microfinance institution starts to fall apart in 2004, when the representation of this type of lending rises by 10 percentage points to almost 30 percent. This tendency continues also in the next year, in which the individual loans gain another 20 percentage points. This makes the relative position of both lending schemes within the loan portfolio almost equal (see Figure 12). Finally, in 2006 the individual lending represents 54 percent of all loans disbursed during the year. The properties of individual loans evolve in time as well. While the maximum loan size in the piloting phase, in 1998, is set by Seilanithih at 500 USD, in 2006 clients meeting all necessary conditions are allowed to borrow even ten times more, up to 5,000 USD.

This turnover in lending mechanism is naturally reflected also by a considerable change in the average loan balance per borrower³⁸ (see Figure 13). The size of an average loan represents about 100 USD until 2004, however in 2005 this indicator more than triples and ends on 361 USD. The next year, the average loan balance per borrower considerably increases again and reaches almost 500 USD. This fundamental change of basic properties of Seilanithih's loan portfolio reveals significant transformation of the structure of served clientele. If the size of an average disbursed loan as a percentage of gross national income *per capita* is about 25 percent in 2004, at the end of the studied period, in 2006, the same ratio increases to 100 percent.

Figure 13: Average loan balance per borrower of Seilanithih (2001-2006)



Source: Annual reports of Seilanithih and author's calculations

Seilanithih also uses another particular mechanism of microfinance institution, which is the requirement of compulsory savings. A client needs to deposit from 3 to 5 per cent (depending upon the currency) of the loan amount before the institution disburses the loan. The amount collected on forced savings is then locked on a special account of the MFI and the borrower is able to withdraw it only after he repays the entire loan amount. This obligation is tied up with both individual and group loans.

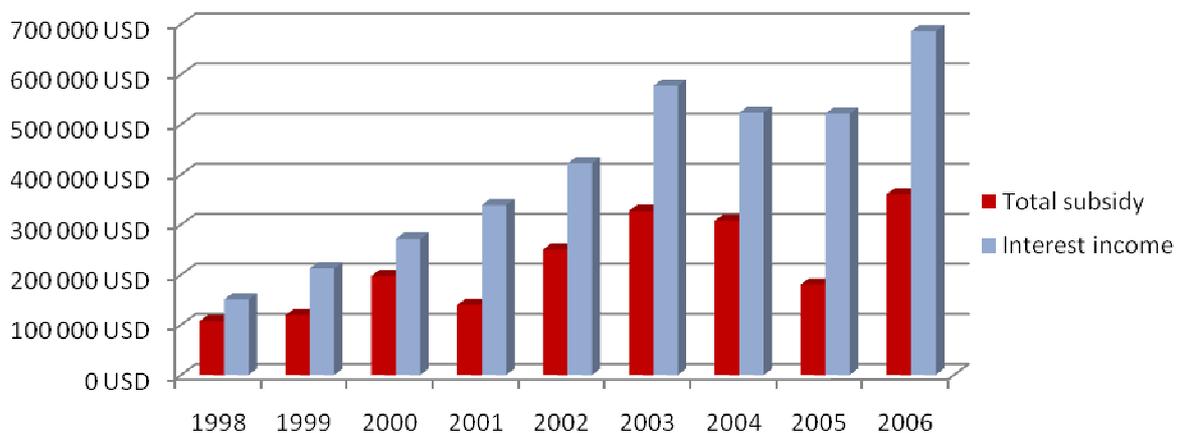
³⁸ Necessary data about the number of active borrowers are available only since 2001.

As far as voluntary savings are concerned, Seilanithih offers 3 percent *per annum* on deposits denominated in dollar and 6 percent *per annum* on deposits denominated in national currency. However, the mobilization of savings is rather limited. During the years the total amount of collected deposits averages to about 20 percent of the gross loan portfolio. This leaves the institution heavily dependent on outside funding for subsequent relending.

Analysis of the dependence on subsidized funds during the years 1998-2006 is recapitulated by the Table 5 and summed up by the Subsidy Dependence Index. The evolution of the SDI does not show a significantly positive pattern. At first, there is a tendency of the subsidy dependence to decrease, however in an oscillating way. Since 2002 there is rather a stagnation of the SDI the level of about 0.6 that lasts on until 2005, when the index falls down but it increases back to 0.53 in 2006 again. There is much irregularity in evolution of this aggregate indicator of financial sustainability, which calls for a deeper analysis of the individual constituents separately.

The development of the interest income exhibits almost linear growth in the period 1998-2003 (see Figure 14), which is broadly in line with the evolution of the gross loan portfolio in these years (see Figure 12). The opposite is true for the amount of total subsidy, which shows signs of high irregularity. The annual inflows of subsidies seem to be negotiated only for short term, which makes the continuity of services for the clients quite uncertain. Again, there are dramatic changes in the available subsidies between 2004 and 2005.

Figure 14: Evolution of subsidies and interest income of Seilanithih



Source: Annual reports of Seilanithih

Table 5: Subsidy dependence analysis of Seilanithih (1998-2006)

		1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>End year exchange rate (KHR/USD)</i>		3869.969	3746.722	3834.356	3642.987	3669.725	3855.05	3843.493	4000.592	4044.506
Direct subsidy via grants	RG	11 595	26 783	11 326	20 966	0	1 147	13 632	0	66 179
Discount on expenses	DX	0	0	54 672	0	24 131	19 342	0	17 777	6 874
Public debt	A	0	0	25 955	112 776	62 158	265 183	206 893	592 682	728 439
Implicit subsidy via loans	A(m-c)	0	0	2 554	10 150	5 426	29 091	21 703	58 890	40 573
Equity grant	EG	29 706	54 020	50 158	0	259 488	240 132	0	83 646	179 619
Subsidized equity	E	367 218	409 949	453 235	509 014	505 306	728 027	692 536	629 527	895 127
Implicit subsidy on equity	m*E	67 311	71 987	78 591	83 987	82 011	134 467	122 025	109 097	146 801
Net reported profit	P	1 037	33 597	-130	-24 596	120 656	96 709	-150 787	88 883	79 339
True net profit	TP	-77 869	-65 173	-147 272	-139 700	9 088	-87 337	-308 146	-96 880	-181 089
Total subsidy	S	107 574	119 193	197 430	139 700	250 400	327 469	308 146	180 526	360 708
Interest income	LP.i	150 628	212 734	271 774	338 951	422 321	577 377	523 665	521 538	686 309
Subsidy Dependence Index	SDI	0.71	0.56	0.73	0.41	0.59	0.57	0.59	0.35	0.53
Interest on borrowings		0	0	1 947	8 458	4 662	19 889	14 751	43 822	78 891
Rate paid	c	0.00%	0.00%	7.50%	7.50%	7.50%	7.50%	7.13%	7.39%	10.83%
Market rate	m	18.33%	17.56%	17.34%	16.50%	16.23%	18.47%	17.62%	17.33%	16.40%
Savings		117 628	138 354	155 658	173 167	203 884	217 125	200 998	147 833	182 966
<i>y/y change in savings</i>			17.62%	12.51%	11.25%	17.74%	6.49%	-7.43%	-26.45%	23.77%
Gross loan portfolio		455 929	561 617	775 955	836 309	1 172 287	1 389 856	1 109 476	1 375 298	1 749 796
<i>y/y change in loan portfolio</i>			23.18%	38.16%	7.78%	40.17%	18.56%	-20.17%	23.96%	27.23%
Average lending interest rate		33.04%	37.88%	35.02%	40.53%	36.03%	41.54%	47.20%	37.92%	39.22%
Zero subsidy interest rate (based on SDI)		56.63%	59.10%	60.47%	57.23%	57.39%	65.10%	74.97%	51.05%	59.84%

Note: All data are expressed in USD, if not noted otherwise, or without any units in case of the SDI

Source: Annual reports of Seilanithih and author's calculations

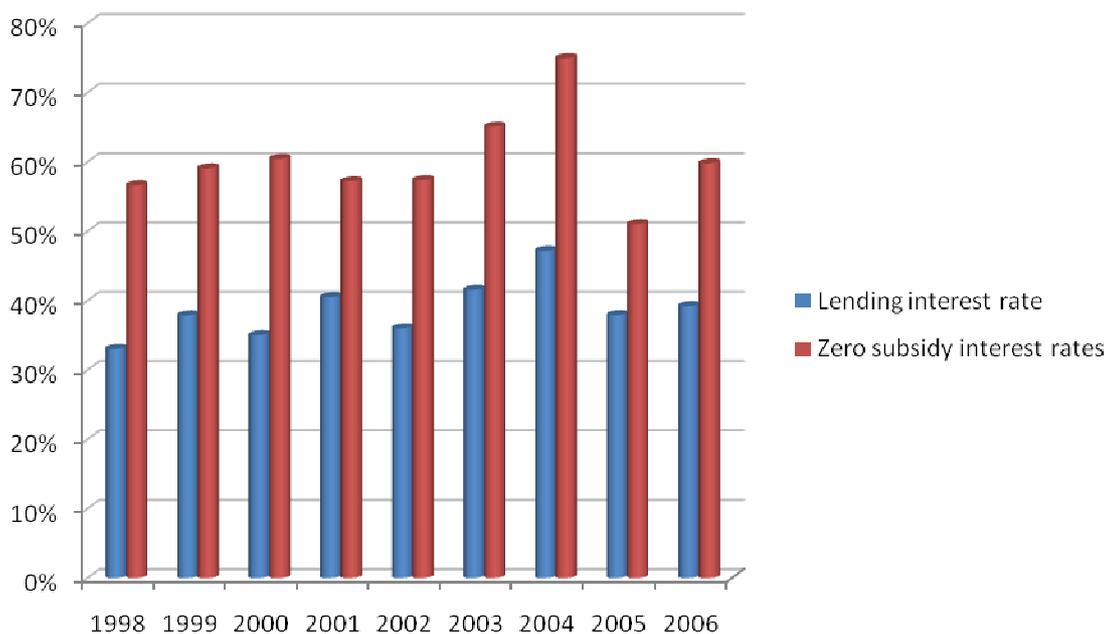
A key to the understanding of the shifts in different characteristics of Seilanithih between the financial years 2004 and 2005 may be hidden in specific events of these years. A major “ghost loans scheme” was discovered in June 2004 in one of Seilanithih’s branches. A total amount of 221,893 USD has been written-off (30 percent of the branch portfolio or 20 percent of the total portfolio of the MFI) because of the fraudulent activities of four staff members who were found to be directly involved in the tunneling activities. Similar issue, with lower implied loses, was discovered even earlier. In 2003, another case of ghost loans covered by a loan officer occurred in the same branch and ended by an agreement obliging the fraudulent to repay the misused capital.

These two cases together show the limitation of the governance structure and internal control mechanisms of the institution. As a consequence of these findings, Seilanithih was left with little external support in 2005, which is visible on the massive outflow of subsidies in this year. As noted before, the mobilization of savings is low, which makes the company highly dependent on donated or borrowed capital. This fact explains the switch to clients with more than tree times higher standard in 2005 comparer to the clientele in the previous year, as discussed earlier while analyzing the average loan balance per borrower (Figure 13). Such strategy is understandable from the point of view of the increase of scarcity of capital for relending. It happened when disillusioned donors diverted their resources toward institutions with clear record. By the swing to higher size of loans Seilanithih lowers the transaction costs in per dollar terms and makes the lending more profitable. However, such for-profit behavior goes against the main mission of the microfinance institutions - the reduction of poverty.

In 2006, Seilanithih designs a new organizational chart with the aim of reinforcement and acceleration of company’s operations and strengthens the internal control mechanisms in order to avoid the repetition of any future fraud. In addition, Seilanithih further increases the share of individual loans, which for the first time outperforms the group lending, and as a consequence the average loan size increases almost to 500 USD. This restructuration brings Seilanithih closer to commercial banking sector, which is reflected also by the increase of interest rate charged for the public debt in 2006 that increases from about 7 percent to almost 11 percent and approaches the market lending rate.

The interest rates collected by Seilanithih for disbursed loans are much higher than in case of the previously analyzed MFIs. It averages 40 percent *per annum* throughout the whole observed period (see Figure 15). It is worth mentioning that the average interest rate of the loan portfolio with a majority of group loans reporting average loan balance of about 100 USD at the beginning of the period is not considerably different from the last two years, in which the major focus of the institution moved toward wealthier clientele. This finding raises an interesting question about the height of interest rate that the very poor people are willing to pay in order to get access to microcredit. The knowledge of the dimension of interest rate that is high but still helping the poor to ameliorate their conditions can help other MFIs to operate a more sustainable banking without the necessity to avoid the very poor.

Figure 15: Lending interest rates of Seilanithih (1998-2006)



Source: Author's calculations

4.5. Nirdhan Utthan Bank Limited – Nepal

The story behind the establishment of Nirdhan starts in 1986 when Dr. Harihar Dev Pant – the current Chief Executive Officer of Nirdhan Utthan Bank Limited - visits Grameen Bank in Bangladesh. The visit inspired him to launch microfinance program in Nepal which led in the creation of “Nirdhan” or “people without money” in January 1991. The non-governmental organization carrying the name Nirdhan however began its microfinance operation only in March 1993.

Nirdhan, as an NGO, had limited recourses and capacity to satisfy the unmet demand of poor people in different parts of the country. This situation resulted in the establishment of Nirdhan Utthan Bank Limited (NUBL) in July 1999, when the microfinance operations of Nirdhan are all transferred to NUBL. According to local regulation, this transformation to a development bank has enabled the institution to lend to a wider range of clients, including microentrepreneurs graduated out of the bank's regular clientele. Furthermore, such bank can accept collateral for potentially larger and more diverse loan products. And last but not least, a development bank is granted by an access to a larger variety of sources of funding enabling it to satisfy the demand of more clients in financial need.

The vision of Nirdhan Utthan Bank is to be a bank with a social conscience that enables the poor to contribute equally to a prosperous, self-reliant rural society through self-employment and social awareness and help to reduce poverty in Nepal³⁹.

In 2006, Nirdhan Utthan Bank Limited has outreach to about 60,000 active borrowers across 10 of 17 districts of Nepal supplied by 43 branches. The clients are mainly women and exclusively the poorest of the poor, i.e. the poorest 20 percent of the population (MIX). NUBL uses a very specific targeting strategy to ensure that all first-time clients are very poor: One of the targeting criteria is the absence of cement walls or ceiling in the client's house. The inspiration in the practices of the Grameen Bank of Bangladesh is visible on the applied methodology. NUBL exerts the delivery of microfinance service through groups (usually 5 women) and centers (8-10 groups form a center). There is compulsory

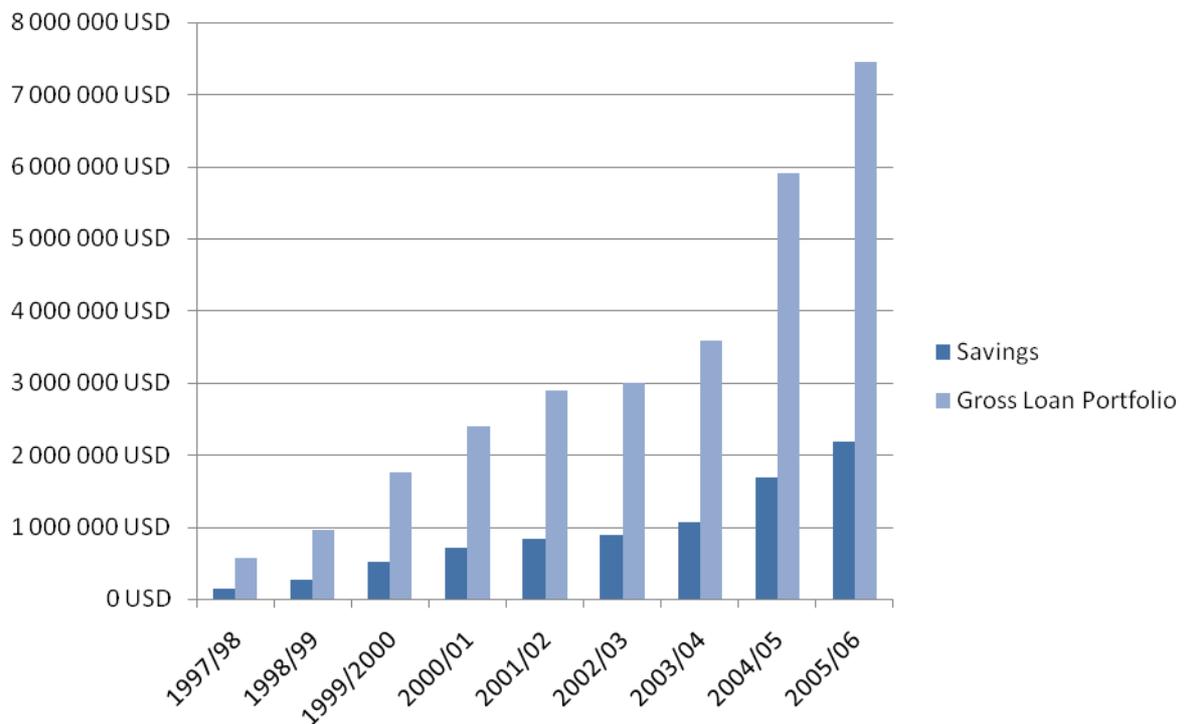
³⁹ <http://www.nirdhan.com>

saving in a group fund as well as voluntary savings. No personal collateral is required as it is replaced by group guarantees.

The analyzed period starts in the second half of 1997 and ends by the first half of 2006, which means that it includes the transformation of Nirdhan NGO to a development bank. It should be noted that the reason why this important operation took place in July (1999) is that the beginning of the financial year is generally set to be in July.

The development of the Nirdhan's loan portfolio is firmly linked with the evolution of savings mobilization (see Figure 16). The reason of this interrelationship is the rule obliging the borrowers to save into the group fund in order to be eligible for a loan. These compulsory savings are the vast majority of the whole savings portfolio of Nirdhan, which naturally implies that the growth of the loan portfolio is accompanied by a very similar growth of mobilized savings. Personal savings are in all years in marginal position compared to the size of group fund savings. Even at the end of the analyzed period, in 2006, the share of these voluntary savings in total savings amounts only to about 10 percent (Annual report of NUBL, 2006). Such representation proves that the mobilization of client's deposits actually works in the case of NUBL only as an integral part of the lending process. As forced savings in form of group fund are held by the bank and confiscated in case of serious repayment issues, it also works partially as complementary collateral to the proclaimed group guarantees.

Over the whole time, the savings portfolio of Nirdhan in average sum up to 25 percent of the gross loans portfolio. This implies that the rest of the capital that is disbursed to the borrowers must be provided from other sources. Therefore, the eventual increased mobilization of client's deposits should be seen as a potential way of decreasing the dependence on external sources of money for consequent relending.

Figure 16: Evolution of savings and loan portfolio of Nirdhan (1997-2005)

Source: Annual reports of Nirdhan

The general pattern of the loan portfolio shows a clear trend of growth. Nevertheless the pace of the growth does not exhibit the same dynamic over the entire period. In the first two analyzed financial years, when Nirdhan operated still as an NGO and the coverage was relatively low, the year-on-year growth of the loan portfolio is about 70 percent (see Table 6). After the transformation to a development bank, in the second half of 1999, the growth of loan portfolio slows down gradually to find its bottom at about 3 percent on annual basis in 2002/2003. However this growth near stagnation is valid only for this single financial year and the next year expansion of the loan portfolio accelerates over again to over 20 percent, with an important jump of about 65 percent in 2004/2005. For the reasons discussed before, a very similar evolution can be observed by the savings portfolio of Nirdhan.

Table 6: Subsidy dependence analysis of Nirdhan Utthan Bank Limited (1997-2006)

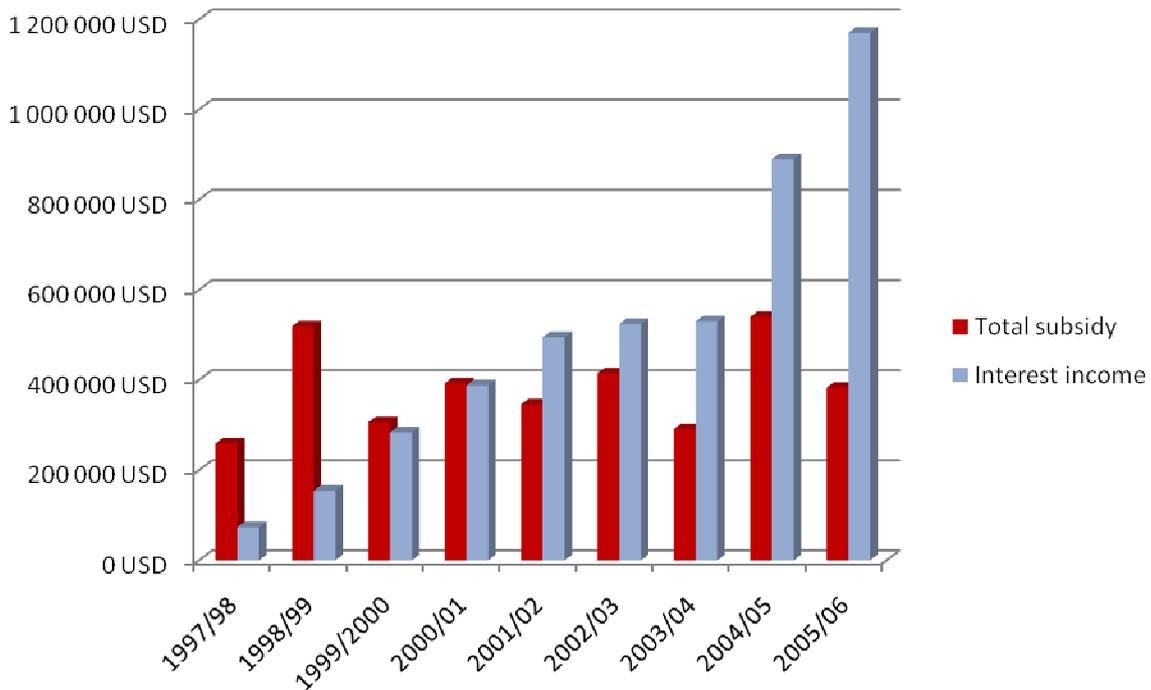
		1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
<i>End year exchange rate (NPR/USD)</i>		65.976	68.353	70.771	74.85	74.405	72.098	74.945	69.577	74.226
Direct subsidy via grants	RG	77 336	209 513	113 832	109 324	43 556	73 244	66 780	139 195	107 907
Discount on expenses	DX	20 932	29 670	0	0	0	0	0	0	0
Public debt	A	1 316 839	4 158 866	2 835 996	3 033 698	3 369 935	4 743 828	4 278 330	6 117 961	7 012 860
Implicit subsidy via loans	A(m-c)	116 242	355 177	174 314	90 128	104 158	107 389	162 251	268 531	304 219
Equity grant	EG	16 937	19 276	11 469	184 970	198 890	219 997	69 524	212 626	93 812
Subsidized equity	E	26 794	52 535	111 995	128 416	314 678	522 340	757 579	1 137 557	558 575
Implicit subsidy on equity	m*E	3 751	5 952	10 595	9 850	25 174	41 787	64 394	92 483	44 686
Net reported profit	P	-23 516	100 958	4 473	2 244	26 363	27 967	72 229	173 325	167 838
True net profit	TP	-241 776	-499 354	-294 268	-207 057	-146 526	-194 453	-221 196	-326 883	-288 974
Total subsidy	S	258 713	518 631	305 737	392 027	345 415	414 451	290 720	539 509	382 786
Interest income	LP.i	73 660	154 350	283 676	387 753	494 622	524 328	529 782	890 185	1 169 663
Subsidy dependence index	SDI	3.51	3.36	1.08	1.01	0.70	0.79	0.55	0.61	0.33
Interest on borrowings		68 115	116 022	93 971	142 557	165 437	272 117	201 407	228 860	256 810
rate paid	c	5.17%	2.79%	3.31%	4.70%	4.91%	5.74%	4.71%	3.74%	3.66%
market rate	m	14.00%	11.33%	9.46%	7.67%	8.00%	8.00%	8.50%	8.13%	8.00%
Savings		142 203	272 545	521 294	707 081	828 306	891 622	1 070 273	1 688 045	2 173 362
<i>y/y change in savings</i>			91.66%	91.27%	35.64%	17.14%	7.64%	20.04%	57.72%	28.75%
Gross loan portfolio		571 443	965 214	1 748 954	2 399 329	2 899 723	2 992 438	3 587 302	5 909 954	7 442 059
<i>y/y change in loan portfolio</i>			68.91%	81.20%	37.19%	20.86%	3.20%	19.88%	64.75%	25.92%
Average lending interest rate		12.89%	15.99%	16.22%	16.16%	17.06%	17.52%	14.77%	15.06%	15.72%
Zero subsidy interest rate (based on SDI)		58.16%	69.72%	33.70%	32.50%	28.97%	31.37%	22.87%	24.19%	20.86%

Note: All data are expressed in USD, if not noted otherwise or without any units in case of the SDI

Source: Annual reports of Nirdhan and author's calculations

What is even more important for the assessment of the dependence on subsidies is the quantification of the interest income of the bank as well as the sum of subsidized financial inflow (see Table 6). On the beginning of the observed interval the dependence of Nirdhan NGO on subsidized fund is very high. In the first financial years the total amount of subsidies equals one half of the total size of the loan portfolio that. The same is of course true also for the interest income that directly stems from the dimension of disbursed loans. These two factors combined result in the first two financial years in a very high level of SDI reaching about 3.5. This is however mainly a consequence of the necessary start up costs linked to the early phase of the development the microfinance institution and a relatively narrow base of Nirdhan's clientele.

The situation changes significantly in the first financial year of existence of Nirdhan Utthan Bank Limited, 1999/2000, partly due to lower total subsidies received but mainly because of the near success of the interest income to catch up the size of the subsidies (see Figure 17). The growth of the interest income as result of increasing size of the gross loan portfolio keeps being the main driver of subsidy reduction also in the following years of operation of NUBL. That is how the bank succeeds in gradual reduction of dependence on subsidies; it maintains the inflow of subsidies on a similar level for the rest of time while the size of lending operations and the resulting proceeds grow. Therefore, between the years 2001 and 2006 the probability of an eventual financial self-sustainability in a near future increases as the dependence on subsidies progressively falls to end up on the SDI of circa 0.3.

Figure 17: Evolution of subsidies and interest income of Nirdhan (1997-2006)

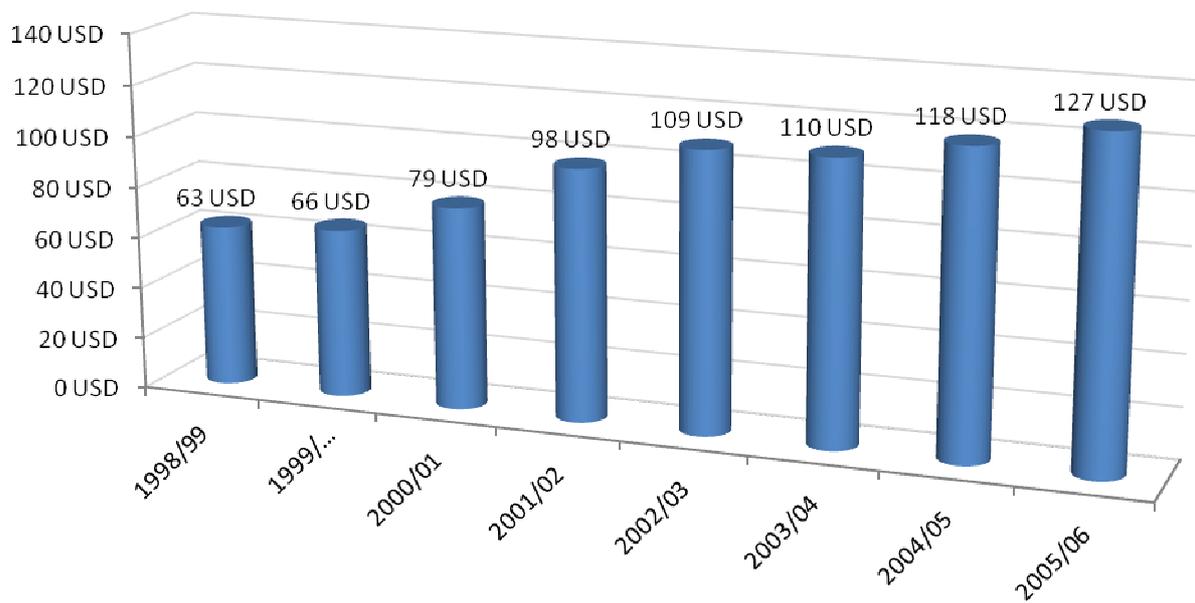
Source: Annual reports of Nirdhan and author's calculations

What is less temporary than the initial high level of the SDI is the accounting practice of counting substantial part of total received subsidies as a part of the income, mainly in case of revenue grants. This ongoing occurrence of profit grants in the financial statements inflates the reported profit in a considerable way. As in case of other analyzed MFIs, this practice allows the bank to show profit in each year even if the reality is in negative territory. However, year by year the importance of revenue grants in the total amount of subsidies sheds compared to the extent of implicit subsidies that occur as a result of growing weight of soft loans in Nirdhan's liabilities.

As the dependence on subsidies of the development bank decreases during the analyzed time, the attention should turn to the evolution of the average balance per borrower in order to check whether this development is not on expense of the outreach of Nirdhan. The pattern of the changes of the average balance per borrower (see Figure 18) exhibit an increasing trend, as it starts on 63 USD in 1997 and doubles over the analyzed

decade to 127 USD in 2006. However, an average loan size slightly above 100 dollars is still not against the proclaimed mission of the MFI to help the very poor to improve their life conditions while granting them an access to financial services.

Figure 18: Average Loan Balance per Borrower of Nirdhan (1997-2006)



Source: Annual reports of Nirdhan and author's calculations

4.6. Bangladesh Unemployed Rehabilitation Organization - Bangladesh

Bangladesh Unemployed Rehabilitation Organization (BURO) in Tangail, which is a district located in central region of Bangladesh, has been a pioneer in offering deposit services (besides the common credit line) among the microfinance institutions since its foundation in 1991. Since 1995, BURO has grown significantly in size. Between 1995 and 1997 the number of branches of this microfinance institution doubled to 40 as BURO followed a horizontal growth strategy by moving into new areas to increase outreach.

However, face to face with the increasing competition in the microfinance sector in Bangladesh, BURO then resorted to deepening its coverage of existing districts. Another important factor leading to the slowdown of rapid expansion of the organization was the nationwide floods in 1998 that put operation of BURO in severe test. While several centers suffered from loan delinquencies, on the overall level the organization as a whole survived this disaster in a fairly good condition (Nagarajan, 2000).

The proclaimed mission of BURO is to create an independent, sustainable, cost-effective microfinance institution that provides diverse, appropriate and market responsive quality financial and business development services at competitive prices along with other social development programs to very poor, poor and vulnerable non-poor customers (MIX).

The organization follows the model of microfinance practiced by Grameen Bank . Lending is mainly through womens' groups that are then further regrouped to form a center called "Kendra" (up to 8 groups), which constitutes the management unit of the MFI. Members of such groups are then eligible for a loan that is guaranteed jointly by the entire group. This credit is repayable in fifty consecutive equal installments. The loan disbursed ranges from 20 USD to 1,200 USD.

In addition to these womens' groups, there are also other types of credit developed through the critical input from external advisors and extensive feedback from customer groups. As an example of such on-demand innovational product can be cited the sanitation loan, which is an on-off credit with a ceiling set to 50 USD that is provided for construction of latrines. Or also disaster loan with a cap of 40 USD repayable in two years that is a special

loan facility available during disasters for members who have lost their businesses and are unable to repay loan installments. Such variety of special financial products set up with focus on the specificity and particular needs of the target costumers discloses that this organization is truly designed for very poor clientele.

This idea is supported also by the existence of complementary services. In addition to the core savings and credit activities, BURO Tangail undertakes human resources development training for its members - primary health care, water and sanitation, education, motivation to family planning, tree plantation, skill development and mass education program – as an integral part of the organization's approach to rural development.

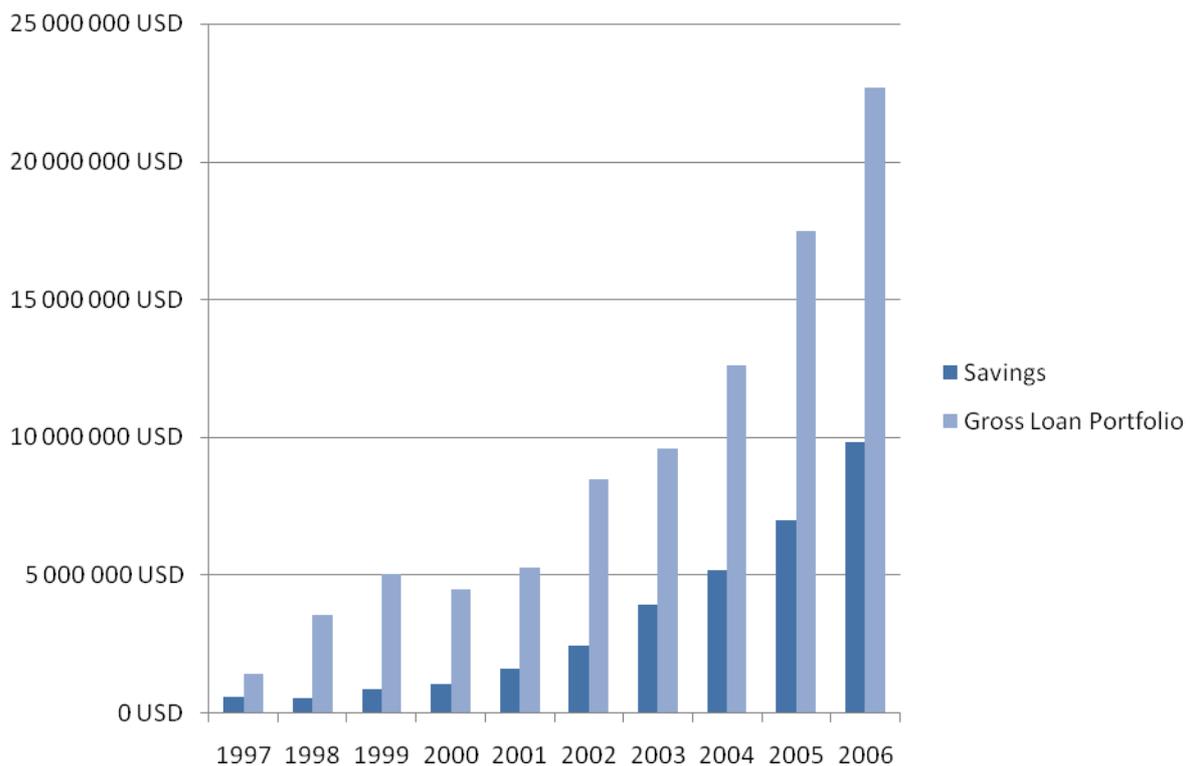
During the analyzed period 1997-2006⁴⁰ the most important growth of loan portfolio of BURO takes place at the very beginning (see Figure 19). In the year 1998 the gross loan portfolio rises by more almost 150 percent on an annual basis. However, such dynamics may partially be a consequence of damages made by the floods that ravaged the country during this year and created an urgent lack of capital necessary for the restoration. In the next two years, there is a gradual slowdown of the growth of the gross loan portfolio culminating in 2000 by a year-on-year 10 percent decreases. The trend changes and since 2001 the total amount of loans disbursed increases year by year again until the end of the period in 2006, when the loan portfolio reaches 22.7 million USD. To allow the comparison between the start and the end of the studied decade and for the comprehension of the extent of BURO's expansion, it should be noted that in 1997 all loans summed up to about 1.5 million USD.

As stated before, an important part of BURO's operations is dedicated to the mobilization of deposits. BURO play an important role of the pioneer of savings in microfinance sector. In 1998, the total amount of deposits amounts 40 percent of the gross loan portfolio (see Figure 19), which is way ahead of other MFIs in their first years of operation. However, BURO shows the difference not only by the degree of the mobilization of deposits, but also by the innovation it brings in savings products for the poor. If the majority of MFIs uses mainly compulsory savings linked with microcredit or eventually

⁴⁰ The annual report of BURO for the year 2001 is not available; therefore all data for this year have been extrapolated as an average of the data from the years 2000 and 2002.

voluntary savings with fixed possibilities of withdrawal, BURO offers much more flexibility in saving. Since 1998, it comes with an open access savings facility that allows members to deposit at least 10 taka (20 cents) every week and gives them a full access to their savings any number of times without penalty only subject to maintaining 15 percent of the value of any loan outstanding. There is no ceiling on the amount of deposits or withdrawals and this general saving account provides an annual interest rate of 7.5 percent. Contractual savings agreement is designed to meet the expressed demand of clients for a disciplined savings mechanism that would allow them to save up for predictable life-events – particularly marriages. Other clients use the product to save up to buy small parcels of land or to add to/renovate housing (Wright; Hossain, 2001).

Figure 19: Evolution of savings and loan portfolio of BURO (1997-2006)



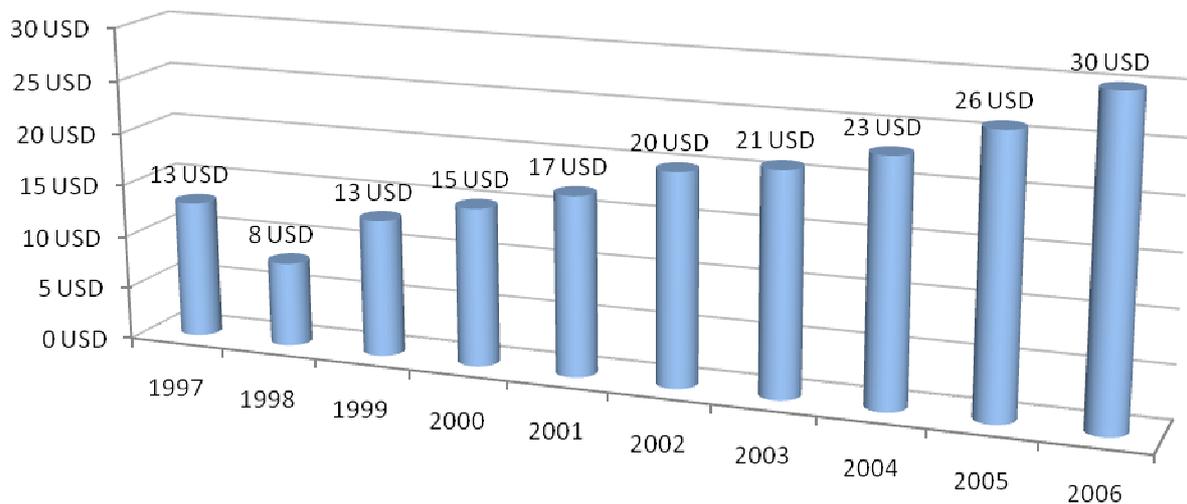
Source: Annual reports of BURO

By offering the flexibility of deposits to their costumers, BURO has increased average savings balances, although not since the beginning. When the organization transitioned the former savings products with fixed possibilities of withdrawal to completely liquid accounts

in 1998, it experienced a massive withdrawal of savings as customers tested whether they really could access their money. In addition, the floods increased the outflow of deposits. Together these two factors lead in 1998 to a 5 percent decrease of mobilized deposits compared to 1997 and the size of savings portfolio dropped to 15 percent of the loan portfolio in this year.

After the initial frenzy of withdrawals, the balances soon begin to increase thanks to increased volume of deposits and reduced volume of withdrawals. The net growth in yearly deposits between 1998 and 1999 is 60 percent and the average savings balance per saver increases also by 60 percent (see Figure 20). This successful startup of flexible saving scheme points to the demand of poor clients for such product and also expresses depositor confidence in the savings instruments offered by BURO. The subsequent ongoing growth of both the savings portfolio and the average savings balance further confirms these theses. In 2005 the amount of all deposits equals 40 percent of the loan portfolio as in 1997 and this ratio hits a new record level of 43 % in 2006 or 9.8 million USD (see Table 7).

Figure 20: Average savings balance per saver of BURO (1997-2006)



Source: Annual reports of BURO and author's calculations

Table 7: Subsidy dependence analysis of BURO (1997-2006)

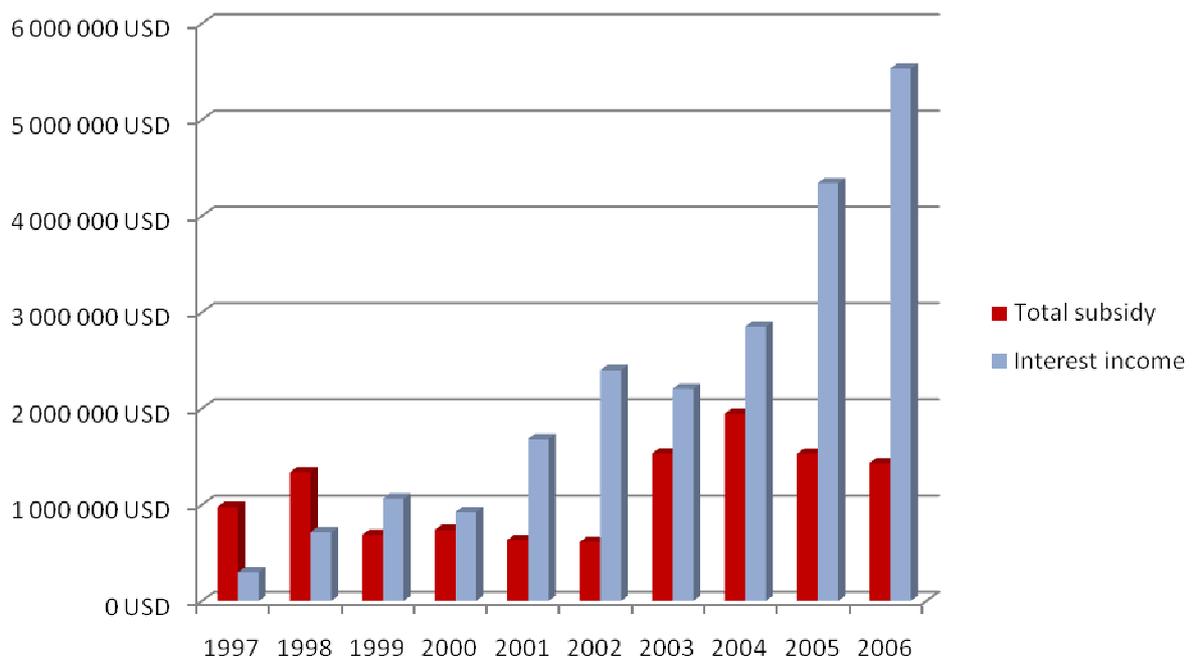
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>End year exchange rate (Tk/USD)</i>		45.29	48.356	50.839	53.85	54.675	55.928	57.013	59.6	66.225	68.987
Direct subsidy via grants	RG	312 321	88 014	57 594	0	0	0	0	0	0	0
Discount on expenses	DX	94 140	41 277	39 366	0	28 239	143 058	39 118	133 447	377 948	421 757
Public debt	A	0	281 826	588 879	846 165	1 218 162	1 567 015	1 896 006	2 784 782	4 865 791	6 105 121
Implicit subsidy via loans	A(m-c)	0	26 779	59 064	74 535	104 467	132 463	151 150	210 453	322 300	242 266
Equity grant	EG	625 237	1 031 123	277 838	0	236 278	461 969	913 809	1 475 621	1 550 985	1 390 117
Subsidized equity	E	39 032	962 052	1 825 911	2 026 704	2 352 071	2 647 350	3 629 067	4 322 936	5 207 822	6 482 758
Implicit subsidy on equity	m*E	5 465	134 687	257 910	314 139	372 333	423 576	580 651	637 633	729 095	993 807
Net reported profit	P	59 947	-15 510	3 718	-349 564	108 194	548 115	149 878	511 292	1 448 079	1 615 928
True net profit	TP	-351 978	-306 267	-410 216	-738 238	-396 845	-150 982	-621 041	-470 242	18 735	-41 902
Total subsidy	S	977 216	1 337 391	688 054	738 238	633 123	612 951	1 534 850	1 945 862	1 532 250	1 432 019
Interest income	LP.i	299 757	713 789	1 064 911	924 940	1 682 487	2 399 013	2 205 164	2 850 705	4 342 424	5 530 694
Subsidy Dependence Index	SDI	3.26	1.87	0.65	0.80	0.38	0.26	0.70	0.68	0.35	0.26
Interest on borrowings		0	12 677	24 115	56 620	88 368	118 259	152 211	200 302	358 911	693 650
Rate paid	c	0.00%	4.50%	4.10%	6.69%	7.25%	7.55%	8.03%	7.19%	7.38%	11.36%
Market rate	m	14.00%	14.00%	14.13%	15.50%	15.83%	16.00%	16.00%	14.75%	14.00%	15.33%
Savings		589 037	558 658	888 298	1 083 895	1 633 652	2 472 579	3 922 311	5 172 742	7 014 664	9 842 663
<i>y/y change in savings</i>			-5.16%	59.01%	22.02%	50.72%	51.35%	58.63%	31.88%	35.61%	40.32%
Gross loan portfolio		1 456 392	3 592 088	5 051 319	4 490 084	5 300 270	8 479 366	9 608 181	12 593 912	17 501 413	22 683 151
<i>y/y change in loan portfolio</i>			146.64%	40.62%	-11.11%	18.04%	59.98%	13.31%	31.07%	38.97%	29.61%
Average lending interest rate		20.58%	19.87%	21.08%	20.60%	31.74%	28.29%	22.95%	22.64%	24.81%	24.38%
Zero subsidy interest rates		87.68%	57.10%	34.70%	37.04%	43.69%	35.52%	38.93%	38.09%	33.57%	30.70%

Note: All data are expressed in USD, if not noted otherwise or without any units in case of the SDI

Source: Annual reports of BURO and author's calculations

The developments of the main microfinancial services of BURO constitute an important part of the integral picture of the financial sustainability of this microfinance institution (see Table 7). In the first two years of the analyzed period, the dependence on subsidies is very high, as the cost of expansion of the organization to new districts of Bangladesh can not be covered by the proceeds of from financial services. The year 1999 shows an essential turning point in the evolution of the dependence on donor financing as it is the first year, in which the interest income outperforms the total amount of subsidies received (see Figure 21). This twist results in the fall of the Subsidy Dependence Index below 1, where it stays until the end of the analyzed decade.

Figure 21: Evolution of subsidies and interest income of BURO (1997-2006)



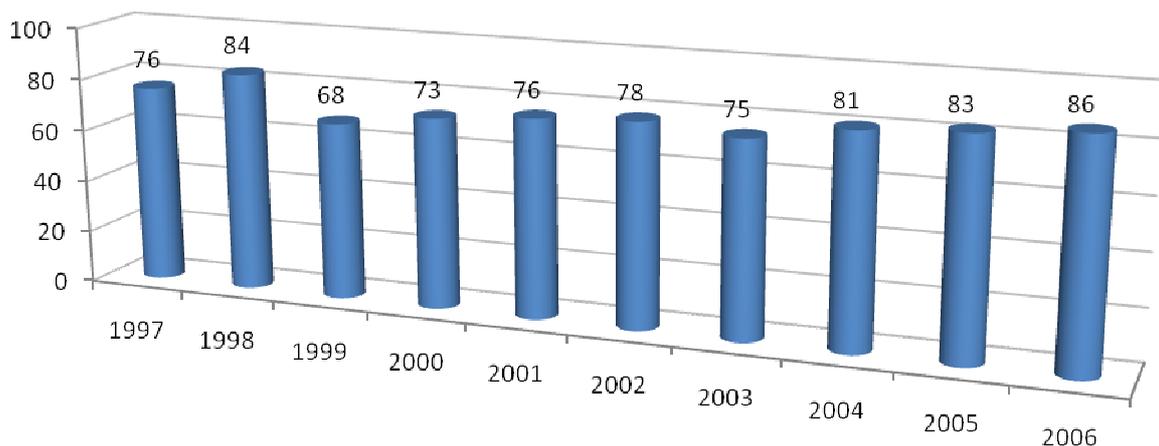
Source: Annual reports of BURO and author's calculations

Even if the interest income gradually increases in-line with the evolution of the gross loan portfolio, the decrease of the dependence on subsidized funds does not follow a linear pattern. That is because of the total amount of subsidy received which grows considerably in 2002 and 2003; by large portion due to the increasing reported profits that are not returned to the owner of capital (the donors) but become a part of BURO's equity as retained

earnings and thus has to be considered as an equity grant. In addition the amount of subsidized fund in the equity accumulated since the creation of the organization is gaining on weight and thus the implicit subsidy linked with this “zero-interest loan” erodes the financial self-sustainability of the institution.

Still, on an aggregate level the Subsidy Dependence Index draws a positive trend showing that the institution is capable to increase its financial self-sustainability. Even more interesting is that BURO achieves to cut relative importance of subsidies in its financial statements without renouncing to target the poor clients. The continuing focus on poor is visible on the average balance per borrower that is oscillating throughout the whole period within a very narrow range (see Figure 22) below 90 USD. To get a more relative view of the background of the clients of BURO during the analyzed period, the average size of the loan can be compared to the gross national income of Bangladesh. Such indicator show that BURO is in fact targeting relatively more poor borrowers at the end of the period than on the beginning; as the average loan balance per borrower divided by the GNI in 1997 equals 21 percent and the same ratio falls to 18 percent in 2006 (MIX).

Figure 22: Average loan balance per borrower of BURO (1997-2006)



Source: Annual reports of BURO and author's calculations

The achievement of BURO in the matter of reduction of dependence on subsidies is remarkable also from the point of view of the revolutionary approach to savings. As BURO does not limit its clients in withdrawing of their deposits it creates a considerable pressure on the level of institution's liquidity. The maintenance of liquid reserves to meet potential savings withdrawals creates an additional cost, since it reduces the funds available for relending that can generate income which might be utilized if the average savings balance grows above the current level of reserves. Therefore, it is possible that without such liberal approach of BURO to their savers, the MFI would theoretically get on without subsidies already during the studied period. On the other hand, the knowledge of the choice of the institution in this trade-off between the desire of its clients for flexible deposits and the low cost of saving product offers interesting information for the consideration of the integrity of BURO with its mission – helping the poor to become self-sufficient.

BURO has developed an impressive array of financial services and as a result remains popular amongst its clients despite its relatively high interest rate on loans (see Table 7). The reason is the commitment of the microfinance institution to deliver high quality, client-responsive financial services on a sustainable basis, which strengthens the relation MFI-client. The example of BURO also shows that even a relatively high interest on microcredit can be attractive for very poor borrowers, once they trust in the quality and continuity of services of the given institution. Such assertion is an important message for other MFIs that tend to minimize the variety and complexity of products and services in order to be able to hold the interest rate – the major internal source of capital - as low as possible. It also discloses an alternative way to the widely used horizontal expansion scheme, which is the intensification of coverage of current branches. Such strategy that is ultimately leading to higher profitability of the institution can be achieved by using careful market research and pilot testing leading to the introduction of highly demanded innovative services responding to the needs of poor clients.

4.7. Capital Aid Fund for Employment of the Poor - Vietnam

The Capital Aid Fund for Employment of the Poor (CEP) was founded by the Ho Chi Minh City (HCMC) Labor Confederation through a decision by the HCMC People's Committee in November 1991 to create employment and income-generating opportunities for poor families through the provision of credit. This non-profit fund has been successful in expanding its outreach in HCMC and currently operates in each of the city's 22 districts. As of June 2007 CEP had an outstanding portfolio of 10.7 million USD for 68,490 active borrowers, served through a network of 17 branches, and an outstanding savings balance of 3.7 million USD⁴¹.

The major episode of expansion dates back to July 2001, when CEP together with the support of the Australian Agency for International Development, embarked upon a 5-year expansion project aiming to add 7 more branches, 15,500 additional clients, and cover all 22 rural, semi-urban and urban districts of HCMC. The overall goal of this project was poverty reduction, through the expansion of the CEP microfinance program and the development of a demonstration model for a financially sustainable Vietnamese microfinance institution that reaches and provides benefits to the poor.

Further assistance was received from the Consultative Group to Assist the Poor (CGAP). In November 2002, CEP submitted an application for funding to CGAP. Based on an internal review, CGAP selected CEP with eight other institutions to recommend to donors as part of the Appraisal and Monitoring Service. This inclusion can be seen as positive for the MFI, because CGAP is very active within the donor community and thus can help to provide more important and regular funding from these sources.

Over time, the Capital Aid Fund for Employment of the Poor has adapted to changing client profiles and their corresponding needs. From a single loan, CEP now offers three loan products largely differentiated by the repayment schedule and fee structure. Monthly payment loans are targeted to salaried workers, the first client group and a natural focus given CEP's origin from the Labor Confederation. Weekly payment loans meet the needs of

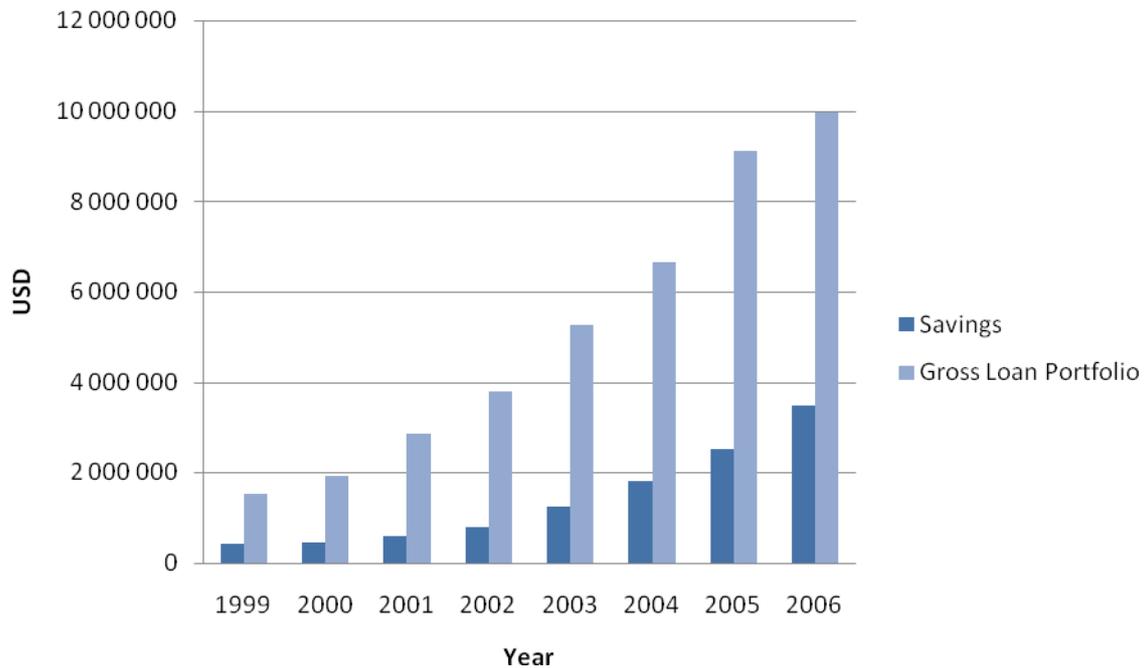
⁴¹ www.cep.org.vn

laborers, considered by CEP to be the poorest clients and currently their largest client group. The third client group is formed by market vendors who prefer the daily loan product. Such loan carries the highest risk because petty traders can move to another market and are very hard to track down. This differentiation of services has allowed the MFI to extend its clientele as it offers each individual a product that reflects the structure of person's specific cash flow and thus allows the most comfortable repayment schedule.

CEP follows the Grameen Bank's methodology, where loans are made to groups of five members. Each group is administrated by a group leader elected by the members of each particular group. Five groups form a center that has a center leader. The group leader is responsible for collecting repayments from group members and submitting them to the center leader, who is responsible for submitting them to the organization's credit officer. These collaborators earn a commission from this activity of 0.2%-1.0% per month based on the total loans granted. Depending on the type of loan, these collaborators help to screen clients, collect loan payments, and follow up late payments. This network of collaborators represents a considerable help in solution of operational problems as they arise.

As far as savings are concerned, CEP has developed two savings products: the compulsory savings and the voluntary savings. The compulsory savings product is tied to CEP's loan products. Except for the loans with daily repayment, there is a given percentage⁴² of the loan disbursed that has to be saved. Voluntary savings product is designed to enable the poor to put away small sums of money into a group fund. Interest rate paid by CEP on all savings, irrespective of client or loan type, is 4.8% pa. The policy of unique interest rate on savings shows the will of the institution to treat the clients in the same way regardless of their income situation, which is an encouraging message for the more costly groups of the poorest clients.

⁴² Weekly clients are required to save 0.25%, weekly, of the loan amount as of the clients in the monthly program are required to save 1% of the amount of the total loan disbursed every month.

Figure 23: Evolution of savings and loan portfolio of CEP (1999-2006)

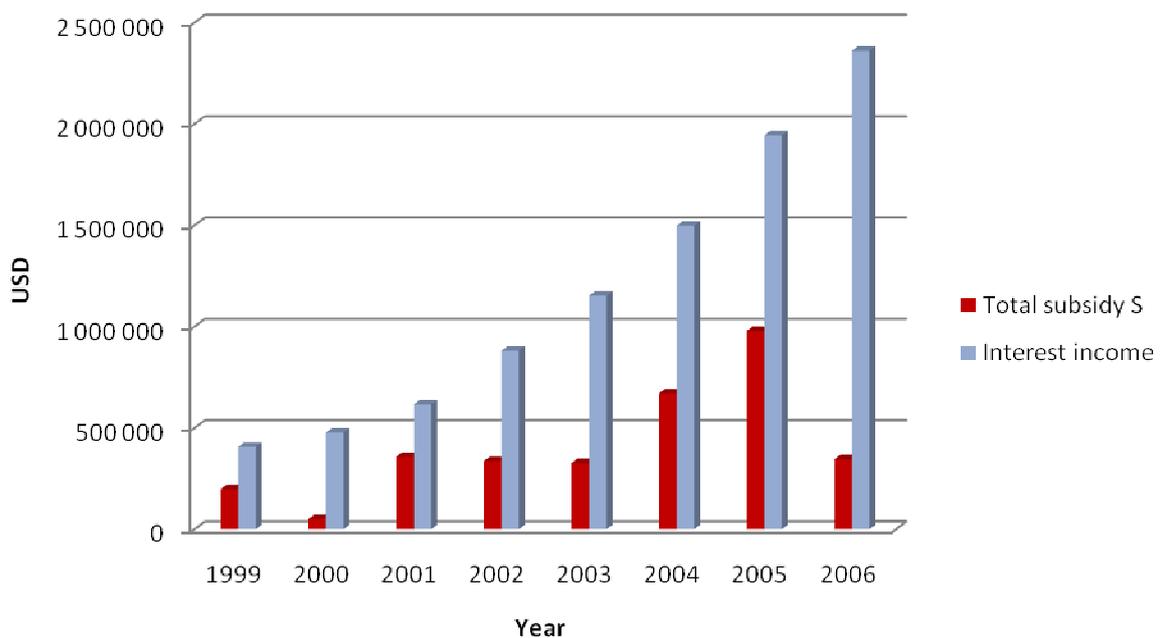
Source: Annual reports of CEP

From the beginning of the observed period the growth of the loan portfolio exhibits an almost linear trend (see Figure 23) with an average annual increase of the amount of the total loans disbursed of about 35% (see Table 8). However in the last year of the time frame, in 2006, this steady growth drops to only to *circa* 10%, which may be a sign of reaching the limits of the expansion of client base.

The evolution of the savings portfolio shows somewhat different trajectory. The increasing trend is visible here as well, but the pace displays another dynamic (see Figure 23). The rate of growth gradually increases from some 10% in 1999 up to its peak in 2003, where the year-on-year growth exceeds 50% (see Table 8). However, from 2004 until the end of the observed period the tempo of growth progressively decreases, which may again signal that CEP's expansion of outreach is gradually slowing down and eventually can also reach its frontier. Generally, savings mobilization is on a very good level and thus grants CEP with cheap funds for relending as the interest rate of 4.8% lags significantly behind the

market lending rate of about 10% (see Table 8). It should be noted that approximately 80% of the total amount of mobilized deposits comes from the compulsory savings products. Nevertheless even forced savings can help to teach borrowers more rational management of their finances and on the other side provides the MFI with a supplement of collateral that can increase the repayment rate.

Figure 24: Evolution of subsidies and interest income of CEP (1999-2006)



Source: Annual reports of CEP and author's calculations

The interest income that, as in case of the majority of other MFIs, is the major source of income goes through a nearly linear growth since 2001 (see Figure 24). This is primarily the consequence of the development of the loan portfolio of CEP and secondary also stems from the nearly unchanging interest rate policy of the institution throughout the whole period (see Table 8). What changes more dramatically and less orderly is the total inflow of subsidized funds of various sources that can be analyzed in more details from the data incorporated in Table 8.

Table 8: Subsidy dependence analysis of CEP (1999-2006)

		1999	2000	2001	2002	2003	2004	2005	2006
<i>Exchange rate (VND/USD)</i>		14027.213	14511.682	14369.881	14786.337	15146.925	15764.491	15913.988	16033.992
Direct subsidy via grants	RG	63 992	4 135	469 486	480 346	479 831	541 274	1 057 245	217 624
Discount on expenses	DX	46 125	50 674	195 950	226 942	265 630	339 055	523 290	370 865
Public debt	A	551 086	725 414	874 320	1 089 027	1 235 637	1 030 285	1 383 533	1 313 452
Implicit subsidy via loans	A(m-c)	53 934	49 291	40 440	40 779	59 035	44 476	80 736	69 876
Equity grant	EG	137 162	45 684	263 229	243 616	257 530	588 639	767 625	342 741
Subsidized equity	E	486 309	779 281	940 687	1 719 440	2 254 629	3 168 038	3 597 886	5 795 732
Implicit subsidy on equity	m*E	61 761	82 214	88 613	155 781	213 739	324 882	396 847	647 963
Net reported profit	P	164 731	180 980	699 823	810 506	948 680	1 167 110	1 847 348	1 303 133
True net profit	TP	-61 080	-5 334	-94 667	-93 341	-69 556	-82 578	-210 770	-3 194
Total subsidy	S	198 243	51 019	357 895	336 957	327 086	671 217	978 395	345 935
Interest income	LP.i	407 089	477 692	615 742	881 169	1 153 312	1 498 006	1 943 379	2 361 762
Subsidy dependence index	SDI	0.49	0.11	0.58	0.38	0.28	0.45	0.50	0.15
Interest on borrowings		16 054	27 240	41 921	57 887	58 103	61 179	71 868	76 968
Rate paid	c	2.91%	3.76%	4.79%	5.32%	4.70%	5.94%	5.19%	5.86%
Market rate	m	12.70%	10.55%	9.42%	9.06%	9.48%	10.26%	11.03%	11.18%
Savings		411 946	462 058	599 120	795 529	1 242 270	1 809 565	2 519 741	3 474 913
<i>y/y change in savings</i>			12.16%	29.66%	32.78%	56.16%	45.67%	39.25%	37.91%
Gross loan portfolio		1 522 254	1 923 982	2 863 610	3 795 401	5 261 957	6 660 894	9 123 297	9 958 001
<i>y/y change in loan portfolio</i>			26.39%	48.84%	32.54%	38.64%	26.59%	36.97%	9.15%
Average lending interest rate		26.74%	24.83%	21.50%	23.22%	21.92%	22.49%	21.30%	23.72%
Zero subsidy interest rates		39.77%	36.92%	31.97%	34.52%	32.59%	33.44%	31.67%	35.27%

Note: All data are expressed in USD, if not noted otherwise, or without any units in case of the SDI

Source: Annual reports of CEP and author's calculations

The level of subsidies is relatively low at the beginning of the period, mainly in 2000, when this fact helps Capital Aid Fund for Employment of the Poor to achieve the lowest level of reliance on subsidized funds of the whole period with the SDI of 0.11. However, this is only a temporary result as already in the next year the Subsidy Dependence Index jumps to the maximum. This high volatility pointing at the low regularity of financial inflow continues throughout the rest of the analyzed years. Such high volatility of donor support is not a good signal for the poor clients that necessitate mainly continuity of assistance to overcome the difficulties of their situation. That is why the organization should thus focus elaboration and application on measures eventually leading to financial self-sufficiency.

5. Maximizing financial sustainability while reaching the poorest

Since the creation of the microfinance movement and the start of operation of the first microfinance institutions the “Holy Grail” of microfinance has been clearly defined: to combat poverty in a profitable way. Delivering benefits of financial services to underserved population in distant rural areas of the developing countries proved to be much more costly than is the case of financial services for the wealthier clients in the developed world. Therefore the challenge of solving the double maximization problem – maximum outreach along with maximum profit – needs deep examination. Is there an inevitable trade-off between these two goals or can they be achieved at the same time? What are the best possible internal and external conditions for an MFI to succeed in this uneasy task?

The preceding analysis of the dependence on donors’ support of microfinance institutions in South Asia with different characteristics of their operating strategies generates important knowledge. This information can be exploited for the assessment of what factors can contribute to higher financial self-sufficiency and whether the provision services to very poor clients are by their nature doomed to loss-making.

5.1. Econometric analysis of the subsidy dependence of the MFIs

The data that were gathered from different financial statements of 6 concerned microfinance institutions from South Asia covering one decade of their existence, went through the process of conversion using end-year exchange rate and adjustment with the aim to be in-line with accounting standards and allow cross-unit comparison are a valuable material also for econometric research. The task of this subchapter is to assess the impact of different characteristics of microfinance organizations on their dependence on external financing with a zero or sub-market interest rate.

The dependent variable of the consequent analysis is the Subsidy Dependence Index calculated from the detailed information about the financial flows within the sample MFIs. From the discussion of each MFI separately in the previous chapter the choice of explanatory variables is restraint to the average loan balance per borrower (ls), average lending interest rate (ir) and the ratio of the savings portfolio to the gross loan portfolio (s) as explanatory variables because the necessary data covering these characteristic are available for all of the observed institutions.

The gathered data have the space dimension as well as the time dimension, thus it can be seen as an example of panel data.⁴³ These pooled data can be employed for a standard regression using the Ordinary Least Squares (OLS). Equation 8 summarizes the simplest model with intercept that controls only for the impact of the changes in average loan size (ls) - the only explanatory variable of the functional form of this model - on the value of the Subsidy Dependence Index - the dependent variable of the model.

$$\begin{aligned}
 SDI_{it} &= \alpha + ls_{it}\beta + \varepsilon_{it} \\
 i &= 1, 2, \dots, 6 \\
 t &= 1, 2, \dots, 10
 \end{aligned}
 \tag{8}$$

⁴³ In panel data the same cross-section unit (here MFI) is surveyed over time (Gujarati, 2004)

where α stands for the intercept, β is the common slope coefficient of the loan size for all 6 cross-sectional units i and observed years t , ε_{it} is the vector of residuals.

As the sample covers microfinance institutions from different countries, with specific population, diverse regulation framework and other market conditions, it can be assumed that there might be some heterogeneity within the model that is not captured by the observed variables. Under this assumption, the basic model should be transformed into a fixed effects model (Equation 9), which offers the possibility to control for fixed individual differences⁴⁴ (δ_i). As the number of analyzed MFIs is low, the fixed effects model can be constructed simply by fitting a specific dummy for each institution, such model is also known as the least-square dummy variable (LSDV) model.

$$SDI_{it} = \delta_i \alpha + \mathbf{1}_{s_{it}} \beta + \varepsilon_{it}$$

$$i = 1, 2, \dots, 6 \quad (9)$$

$$t = 1, 2, \dots, 10$$

The presence of an unmodeled heterogeneity, which would eventually argument for the use of the fixed effects model, can be tested by performing F-test based on the residual sum of squares (RSS) of two differently specified models. The first model is the simplest model of panel data (Equation 8), where all of the cross-sectional units (MFIs) share the same intercept. As the individuals in this model are not expected to exhibit any individual difference in unobserved characteristic, this specification will be referred to as the restricted model. The second specification permits different intercept for each MFI by enabling the cross-sectional fixed effects (Equation 9) and thus it will be called unrestricted model. The null hypothesis of the F-test is that all of the units share the same intercept and the restricted model is therefore the appropriate tool for the regression. If the null hypothesis stands, the restricted model with a single intercept provides an advantage of higher number

⁴⁴ The analysis focuses only on the verification of the existence of cross-sectional fixed effect, while search for the period fixed effects does not make any sense in our sample because the MFIs do not share the geographical nor historical backgrounds.

of degrees of freedom as there is no penalty for any additional coefficient. The alternative hypothesis, adopted when the null hypothesis is rejected, says that the cross-sectional fixed effects are carriers of significant information for the estimation of the subsidy dependence each of the MFIs and thus must be included in the regression. If the null hypothesis is rejected, the least squares estimator of β in the restricted model is biased and inconsistent as a consequence of an omitted variable (Greene, 2003). The way to test the null hypothesis is to perform OLS regression of both models and then apply their respective sums of squares in a joint F-test⁴⁵ (Equation 10).

$$F(m, (n - k)) = \frac{(RSS_R - RSS_{UR})/m}{RSS_{UR}/(n-k)}, \quad (10)$$

where RSS stands for the residual sum of squares of the restricted (*R*) or unrestricted (*UR*) models, *m* is the number of linear restrictions, *k* the number of parameters in the unrestricted model and *n* the number of observations, *F* follows Chi-squared distribution with $(m, (n - k))$ degrees of freedom.

The result of the test of joint significance of the fixed effects estimates in the least squares regression can also be calculated using the statistical package EViews. The set of proposed tools that evaluate the joint significance of the cross-section effects consists not only of the described F-test but also of the Chi-square test based on the likelihood function. The two statistic values, 3.73 and 18.02 (see Output 1 in Appendix), and the associated p values, 0.0067 and 0.0029, strongly reject the null hypothesis that the individual fixed effects are redundant. The results thus suggest that the use of the unrestricted model with a specific dummy for each MFI, which moves the intercepts according to its particular characteristics that influence the SDI, is more appropriate for the regression of the data than is the basic restricted model.

The OLS regression of the resulting fixed effects model gives a different set of results than the basic restricted model (Table 9, Model specification 1 and 2). Estimated coefficient of *LS* is more significant, as the p value of the t-statistic is smaller than in the restricted model. The values of newly estimated individual fixed effects are relatively low and vary in size and sign over the MFIs. The LSDV model possesses also a better capacity to explain the

⁴⁵ See (Gujarati, 2004), p. 268

level of the SDI because the coefficient of determination (R^2) and, what is even more important, the value of adjusted R^2 , which penalizes for the increased number of coefficients in the fixed effects model, they both have increased substantially. The Durbin-Watson statistic is higher, however still showing a strong autocorrelation. As the number of observation is relatively low, due to high costs of gathering, calculation and adjustment of the financial data of the microfinance institutions, the autocorrelation is a natural response that can be remedied only by increasing the size of the dataset, which is behind the possibilities of the present thesis⁴⁶. Therefore the Durbin-Watson statistic is observed but should be neglected in order to be able to continue in the econometric research. Also the Akaike information criterion decreased considerably, which indicated an improvement of the specification of the model.

Table 9: SDI regression summary

Model specification	1	2 ^Δ	3 ^Δ	4 ^Δ
LS	0.000 [0.197]	-0.001 [-1.341]	-0.001 [-1.744]*	-0.002 [-2.007]*
IR			-7.265 [-2.883]***	-6.974 [-2.814]***
S				-0.622 [-1.638]
Constant	0.576 [4.640]***	0.760 [5.459]***	2.503 [4.049]***	2.661 [4.333]***
Total pool (unbalanced) observations	51	51	51	51
R-squared	0.001	0.298	0.412	0.447
Adjusted R-squared	-0.020	0.203	0.316	0.342
F-statistic	0.039	3.116**	4.302***	4.247***
Akaike info criterion	1.595	1.438	1.300	1.278
Schwarz criterion	1.671	1.703	1.603	1.619
Durbin-Watson stat	0.406	0.583	0.759	0.862

All regressions estimated via Panel (Pooled) Least Squares in EViews
Dependent Variable: Subsidy Dependence Index

^Δ fixed effects model (detailed cross-sectional fixed effects in Appendix)

t-statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Source: Author's calculations

⁴⁶ The same argumentation should lead to waiving from the verification of the assumption of the OLS estimator. The limited size of the sample does not allow a complete answer to the question whether the disturbances are normally and independently distributed. Results thus should be verified on broader sample.

These facts together point out that the fixed effects model provides a more suitable specification for the explanation of the SDI than the restricted model, and thus they support the idea that every MFI poses highly specific characteristic constant over time that affects the dependence on subsidies but is not captured by any of the variables that can be drawn from the financial statements. Technically, every cross-sectional unit has a specific dummy (α_i in Equation 9), which moves its intercept to its individually correct level.

Once the choice of the appropriate model is made the attention should be turned toward the functional form of this model. Although the OLS regression of the LSDV model showed better fit than the standard pooled regression there is still much to be done. The average loan size per borrower ls is not significant in the explanation of the SDI on 10% level of significance as its p value equals 0.187. And even if it were significant, the impact of a change in the loan size on the SDI appears to be very limited, as shown by its regression coefficient, $\beta = -0.001$ (see Table 9, Model specification 2). The adjusted R^2 of the fixed effects model with one explanatory variable says that the model may explain about 20 % of the variance of the SDI. In search for higher explanatory power of the model, the addition of other explanatory variables may be worthwhile.

As the interest rate that is charged for lending services may influence the profitability of the institution, its inclusion into the model can eventually improve its performance. The second explanatory variable is, therefore, created using the calculated data on the average lending interest rate charged each year of the analyzed decade by the MFI and denoted ir . Once this extension of the specification of the fixed effects model is executed, the subsequent OLS regression exhibits considerable improvements in different characteristics (see Table 9, Model specification 3). First of all, the overall significance of the fixed effects model has increased, the p value decreased, so that the null hypothesis of the joint significance of all regression coefficients being zero can be rejected even on 1% level of significance. The Akaike and Schwarz information criteria that are to be minimized for the best specification of the model are both lower than in the fixed effects model only with one explanatory variable (see Table 9, Model specification 2 and 3). The Durbin-Watson statistic is higher but still pointing at strong autocorrelation, which, as discussed before, may be the consequence of the limited size of the rare data. The regression coefficient of ls stays very low; pointing out that the impact of the average loan size on the Subsidy Dependence index

is negligible, however in this model it is already significant on 10% level of significance – p value 0.088. The newly added *ir* reaches even the 1% level of significance and its regression coefficient implies interestingly high negative response of increase of the charged interest rate on the level SDI.

From the preceding individual analysis of each institution in the sample the last natural adept for the inclusion into the functional form of the model is the mobilization of savings. The ratio of the savings portfolio to the gross loan portfolio calculated for each MFI and every year provides a valuable source of data for the creation of the third explanatory variable that can be estimated. The addition of the explanatory variable representing the mobilization of savings (*s*), Equation 11, furnishes another increase of the explanatory power of the fixed effects model.

$$SDI_{it} = \delta_i \alpha + \mathbf{ls}_{it} \beta_1 + \mathbf{ir}_{it} \beta_2 + \mathbf{s}_{it} \beta_3 + \varepsilon_{it}$$

$$i = 1, 2, \dots, 6$$

$$t = 1, 2, \dots, 10$$
(11)

The R^2 together with the adjusted R^2 rise and the percentage of explained variance of the SDI reaches 44% (resp. 34% after adjustment for the number of parameters), which is already a good result. Another positive consequence of this change in the specification is the increased overall significance of the model perceptible on the very low p value of the F-statistic. The Akaike information criterion decreases while the Schwarz information criterion records minor change in the opposite direction; this combination does not mean deterioration in the specification of the model. As far as regression coefficients of the first two explanatory variables are concerned, there is not a major alteration in their senses, compared to the previous functional form, while their significance, captured by the p values of their t-statistics, improves. The newly added variable reflecting the relative extent of the mobilization of savings exhibits small negative link to the variation of the subsidy dependence. It seems to take out part of the effect attributed in the previous model to the interest rate that stays in the position of the main driver of the SDI. However, the

significance of the new regression coefficient is relatively lower than in the case of the other variables, p value equals 0.109, which leaves the variable slightly below the 10% level of significance.

The results gained from the regression of the gathered data generate remarkable conclusions that are studied in more details in the next subchapters. However, all the following deduction should be considered with respect to the necessity of validation on a larger dataset that is, as already mentioned, difficult to create because of the scarcity of the relevant and reliable data. A sample that would consist of dozens of MFI from different countries and continents would enable validation of all the assumptions of the least squares estimator as well as global confirmation of discussed trends.

Firstly, it seems that there is virtually no dependence between the depth of outreach, measured by the average loan balance per borrower and the financial self-sufficiency, expressed by the Subsidy Dependence Index. This interesting independence suggests that microfinance institutions do not have to leave out the poor from the provision of financial services in order to increase the financial sustainability of their operation. Such outcome is an important argument for the decision-making of the donors as it shows that MFI that focuses on the very poor clientele may be as efficient in the cost-effectiveness of operation as their peers with lower “value-added” in terms of alleviation of poverty.

Secondly, the regression of the collected panel data suggests that the most influential determinant of the subsidy dependence might be the price that is charged for the delivered services, the level of interest rate. This result appears to be logically stemming from the common global business practice; however, as this sector exhibits many specific characteristics, it should not be underestimated and ought to be kept in mind when evaluating the financial sustainability of the exerted operational strategy and during the search for measures that lower dependence on donor support.

Thirdly, the extent of mobilization of savings, compared to the gross loan portfolio, might be negatively linked to value of the SDI. In other words, the estimated regression coefficient suggests that higher amount of deposits, relative to the sum of credits disbursed, helps the microfinance institution to become less dependent on the subsidized funds. However, the result does not exhibit high statistical significance and should be verified on

broader dataset. Such finding may than be used as a recommendation for higher priority assigned to the mobilization of savings within the operating scheme because this service is still marginal and its potential is not fully exploited by many MFIs.

5.2. Characteristics of MFIs as determinants of financial self-sustainability

5.2.1. Depth of outreach

The reduction of poverty is one of the most important promises of microfinance and is employed by the microfinance institutions to attract the attention of donors. It is commonly thought that the higher is the exposure of the program toward very poor people the lower must be its financial self-sufficiency. That is why the primary goal of this thesis was set to examine the relationship between the depth of outreach of a microfinance institution and its dependence on subsidies.

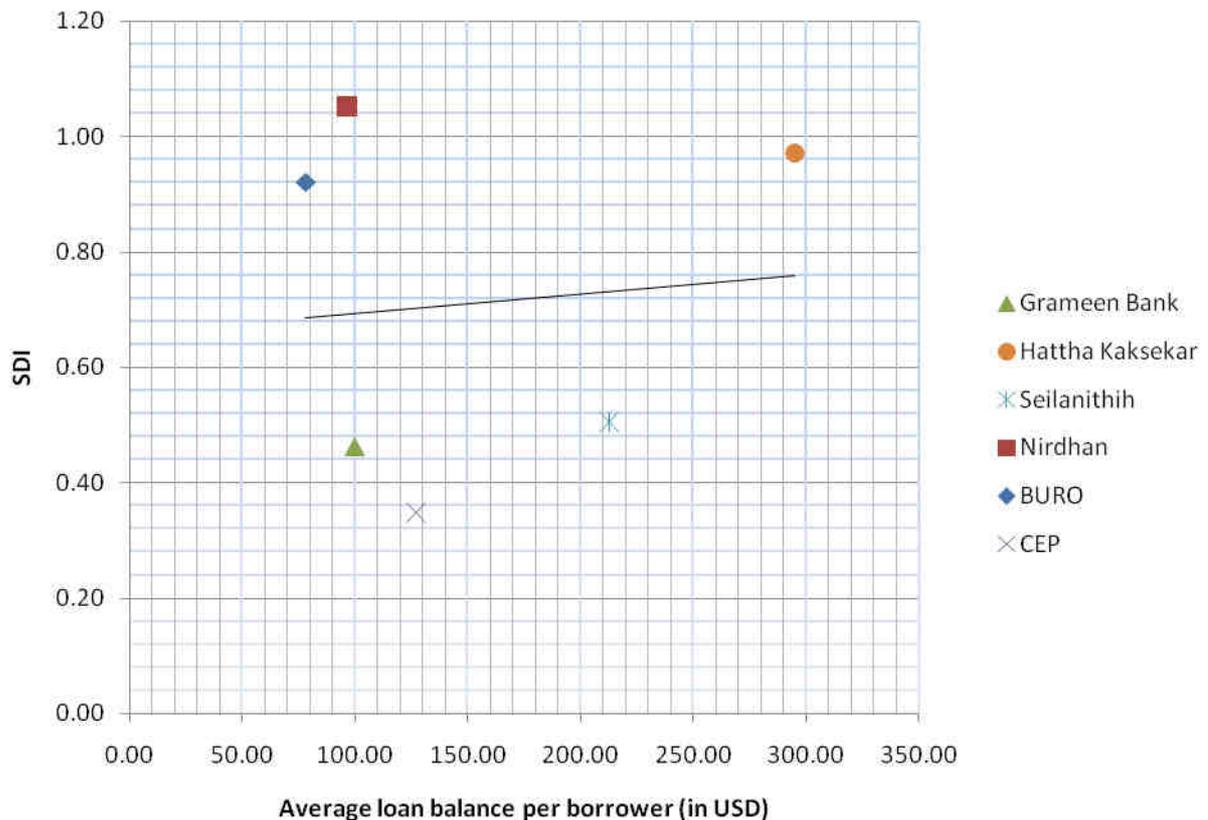
The exploration of the importance of the link between the outreach and the financial sustainability can be transformed to the problem of correlation of their respective proxies - the average loan balance per borrower and the Subsidy Dependence Index. For better comparability of different institutions within one chart the averages of both proxies for the whole analyzed period⁴⁷ is calculated first. The final picture presented in Figure 25 discloses the position of each of the MFIs from the sample in the two-dimensional system that demonstrates the relative achievements in the targeting of poor borrowers and the financial self-sufficiency. The general pattern of the points does not significantly prove the widespread hypothesis of the inevitable relationship between the depth of outreach and the financial viability of the microfinance institution, which would be visible on highly negative slope of the trend line that is almost flat. The non significance of the impact of the average credit disbursed by the institution on its subsidy dependence has also been concluded by the preceding econometric analysis of the panel data (see Table 9).

The unordered position of the representative points on the chart shows that within the observed sample limited by the availability of quality data, there is no clear linear relationship between the two variables at all (see Figure 25). This finding implies that the institutions that decide to serve the most underprivileged clients are not automatically predetermined to endless complete dependence on donors' generosity. Such results give

⁴⁷ For the consistency of results, the average of both variables for each MFI was made for the same period. The length of the period is thus determined by the MFI with the shortest availability of the data.

donors powerful means that can be used for the persuasion of the management of microfinance institutions showing high dependence on subsidies to undergo fundamental changes in their operating strategy toward better outcome and lower reliance on subsidies.

Figure 25: Relation of the average loan balance per borrower with the SDI



Source: Author's calculations

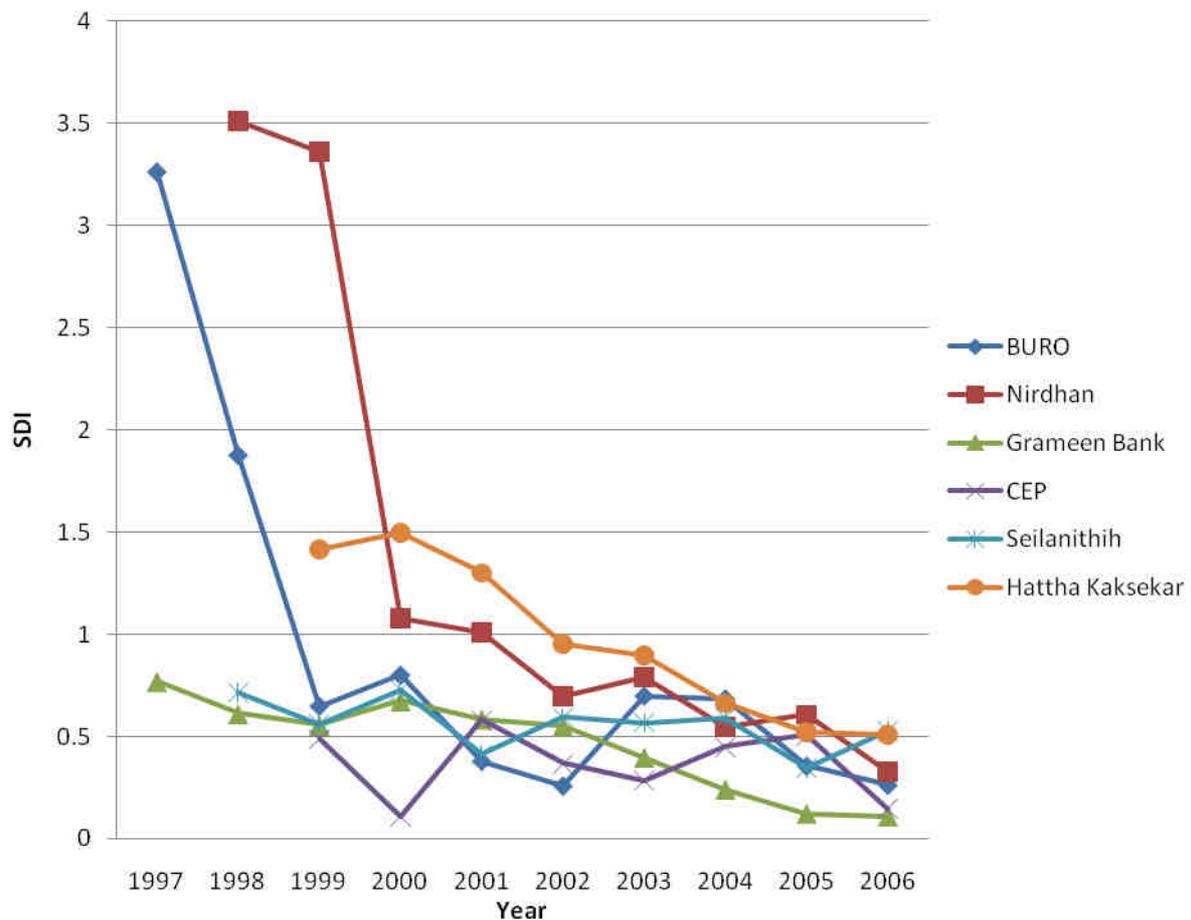
Furthermore, closer examination of the relative position of MFIs in the chart reveals that some institutions, which show high performance in the test of subsidy dependence, display also very considerable depth of outreach to the poorest clients. CEP of Vietnam posts the lowest average dependence on external financial support of donors among all the studied MFIs (the SDI of 0.35) while it also reaches an important extent of outreach as its average loan balance per borrower for the whole observed period reaches 127 USD. Similarly, Grameen Bank of Bangladesh can also be used as an example of symbiosis

between relatively low level of subsidy dependence and relatively high level of outreach of microfinancial services.

On the other side of the spectrum lies the Cambodian Hattha Kaksekar that indicates the lowest depth of its outreach with average loan balance amounting to almost the triple of that of the two preceding exemplary MFIs combined with the second highest level of the SDI (see Figure 25). Such position is also in contrary to the generalization stating that lower outreach should allow higher profitability of the institution through lower cost of lending in per dollar terms.

In fact the only evidence which could support the hypothesis of negative correlation between depth of outreach and MFI's profitability according to the preceding analysis would be Nirdhan and BURO. Each of these MFIs exhibits relatively high average dependence on subsidies accompanied by (one of) the lowest average loan balances per borrower (see Figure 25).

However, the aggregate picture putting together the evolution of the dependence on subsidies of all the observed MFIs during the entire periods (see Figure 26) undermines this possible evidence of a simple relation between the exposure to the very poor and the financial self sustainability. The summarizing plots point out the presence of an important leverage by BURO and Nirdhan. The extremely high SDI (above 3) in the early years of the studied decade has major influence on the average performance in the subsidy dependence test and thus worsens the relative position of these two institutions in the cross-institutional comparison (see Figure 25). In these years, both these MFIs in question had only very limited loan portfolio. That is why the low interest income is easily outweighed by the subsidies (see Figure 17 and Figure 21) that were necessary for the institution, in order to undergo the important development that allowed them to considerably increase their financial self-sufficiency. Since this development phase that usually necessitates high capital injections the both institutions succeed to lower their SDI to much more sustainable levels (see Table 6 and Table 7). This means that potential exclusion of these two outliers would shift the position of these institutions downward, out of the range that is verifying the hypothesis of non-profitability of provision of microfinancial services to the very poor borrowers.

Figure 26: Aggregate evolution of the Subsidy Dependence Index

Source: Author's calculations

The existence of the trade-off between the financial viability and the outreach has also been examined by other researchers. Peck, Rhyne, Vogel and McKean in 1995 have carried out an analysis of the performance of 11 leading microfinance institutions⁴⁸. This study has shown that for well-performing MFIs, there is no correlation between the poverty of clients (measured by the average loan size) and the financial sustainability of the institution. Such conclusion is in compliance with the results of this thesis as it supports the expressed opposition to the traditional theoretical view that only institutions with larger loans are predetermined to higher financial viability.

⁴⁸ Among the international programs examined were the Grameen Bank of Bangladesh, Banco Solidário S.A. (BancoSol) of Bolivia, CorpoSol of Colombia, Fundación Integral Campesina (FINCA) of Costa Rica or the Unit Desa System of the Bank Rakyat Indonesia (BRI).

However, in the case of the study by Peck et al. (1995) the unimportance of loan size for predicting financial performance can also be biased by the fact that the examined programs were selected on the basis of their success. Therefore, these MFIs have usually already passed the costly start up phase and went through a key set of adjustments of their methodologies.

Another non-trivial result arising from the set of preceding measurements is the visible tendency of the dependence on subsidies to decrease in time. Although the plots depicting the evolution of the Subsidy Dependence Index of each of the observed institutions are not always straight (see Figure 26), there is a visible trend referring to the decline of this index within the observed decade. Worth underlining is that this tendency is observable across the whole spectrum of the microfinance institutions, regardless of their characteristics of operation. This universality shows again that the depth of outreach is not a barrier on the way towards the financial self-sustainability.

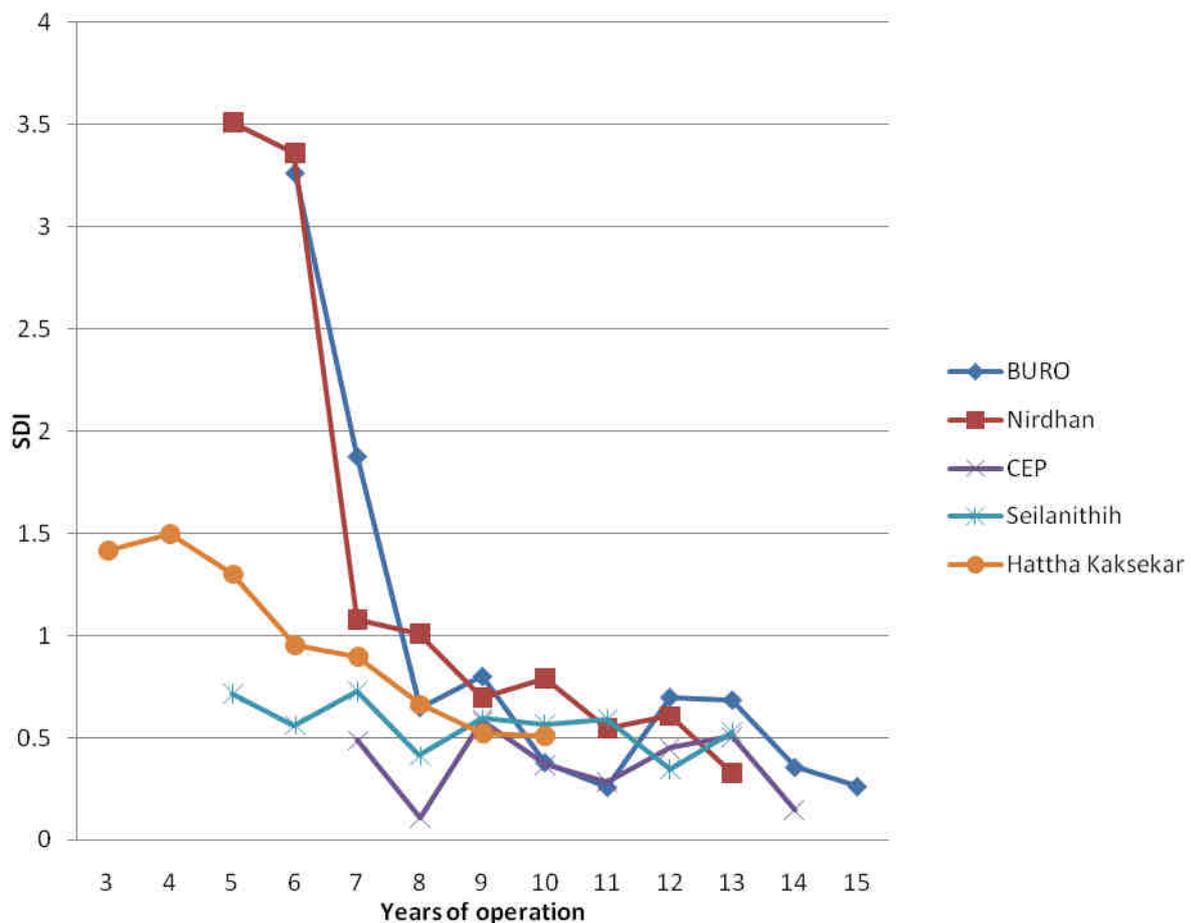
In addition, the decreasing trend of the dependence on subsidies gives donors the reason to maintain their support to MFIs for longer time because only long-run assessment may be a source of correct indications. Even more precise guideline for the decision-making of the donors can be extracted from the analysis of the evolution of MFI's reliance on subsidies when comparing the relative performance of MFIs of the same duration. In other words, in order to get a better comparability of institutions within the sample, not historical time but the years of operation should be taken as an appropriate measure of time (see Figure 27)⁴⁹. Such analysis discloses the possible length of the start-up phase, at which all MFIs exhibit high dependence on subsidies as the loan portfolio is usually relatively low and the cost of expansion and creation of new branches and products are substantial.

For the five analyzed microfinance institutions (excluding Grameen Bank) this period of extensive need of subsidized funds seems to last at least seven years and then it gradually decreases (see Figure 27). If in the seventh year the SDI of all the institutions from the sample falls in the range 0.5 – 1.9, since the ninth year of operation the width of this range becomes 5 times lower and all MFI exhibit a trend of further slow decrease of their reliance

⁴⁹ Analysis that observes the financial self-sustainability of MFIs from the point of view of their years of operation naturally excludes Grameen Bank from the sample as this MFI started to operate more than a decade before the rest of these institutions.

on subsidies. Even if the territory is narrower there are still considerable differences. The best performer in the tenth year after its creation (last year with data for the five MFIs), which is the Vietnamese CEP, has the SDI value of 0.35 while for the most dependent Cambodian Nirdhan the SDI equals 0.8. Such differences can be taken as an argument against the vision of the Subsidy Dependence Index as an indicator that improves itself in time no matter the operation strategy of the microfinance institution.

Figure 27: Evolution of the Subsidy Dependence Index and age of MFIs



Source: Author's calculations

This empirical evidence of similarities of development and needs of MFIs in the first years of their existence provide the donors and other interested parties with important information. It shows that the financial performance of microfinance institutions, although very poor at the beginning of their way of life, may gradually improve. As a consequence, attempts to a realistic assessment of their profitability can not be performed during the first

years after their establishment but should rather be postponed to the second decade of their operation.

On the other hand, this should not be understood as a recommendation to a passive approach of managers and donors in the first years of existence of their institutions. On the contrary, the supporters should encourage the management of the target organization to undergo key transformation in their operation to increase the speed of the raise of their profitability and fall of their reliance on external support. Finally, this can also be a motivation for donors to invest into microfinance as this sector can one day turn to be a gainful business with high “social value added”.

5.2.2. Level of interest rate

Every company that wants to become self-sustainable has to cover its cost by the price of their products or services in order to be able to achieve profitability. Therefore, the analysis of determinants of financial self-sustainability can not pass by the vital instrument of MFI's income - the interest rates - without a deeper study. In addition, the case by case analysis of microfinance institutions in the preceding chapter along with the econometric results suggests that an adequate interest rate policy can generate funds that can replace the subsidized financial inflows (see Table 9).

The conclusion from the regression of the gathered panel data indicates that there might be an important link between the price that is charged for lending service, which is the main source of funding for all MFIs, and the value of Subsidy Dependence Index. A natural response of an MFI that wants to fund its growth primarily with commercial funds at some point in the future thus would be to increase its interest rate so that the organization can generate profit.

The examination of the subsidy dependence of BURO can serve as an example of feasibility of higher interest rates. BURO has always charged interest rates that are significantly higher than those of its main competitors: Grameen Bank, BRAC, ASA and the Society for Social Service (Wright; Hossain, 2001). However, there is no trace of significant impact of the interest rate on the favor of its clients. Even if in 2001 BURO increased its average interest rate on lending by 50% the clients did not change the provider of the microfinance services, on the contrary the size of the loan portfolio increased (see Table 7). The example of BURO that while paying a continuous attention to the development of high value added financial products succeeded to lower its SDI more than 10 times within a decade is more valuable as this organization operates in a highly competitive environment with initially more developed peers within the microfinance sector of Bangladesh.

As partly mentioned in the case of BURO, the key to the feasibility of higher interest rates may be the development of services tailored to their clientele. These products offer the customers so efficient tool in their struggle for better standard of living that they are willing to pay higher prices. In such case the increase of interest rate may not have a

negative impact on the growth of the loan portfolio and will necessarily increase the interest income and finally also decrease the relative dependence on subsidies.

This strategy delivers a possible guideline for other MFIs that market research and extensive and lengthy pilot-testing, carried out by BURO, should be taken as necessary and costly phases of a successful product development and may eventually be worthwhile. Well designed product matching the demand of target population can bring considerable help on the path to gainful microfinance. The reason is that high quality services can bear their full costs and thus help the MFI to achieve higher degree of financial viability without necessarily harming its outreach to the poor.

More generally, it seems that poor clients of microfinance institutions actually can pay high interest rates. As noted before, the empirical evidence shows that lower-income borrowers are taking and repaying repeated informal loans at interest rates much higher than any formal MFI would charge (see Figure 2). Similarly, MFIs charging very high interest rates almost always find that demand far outstrips their ability to supply it (Rosenberg, 1996). In addition, most of their customers repay their loans and come back for new ones. As the individuals are assumed to behave rational, at least in long term, this pattern demonstrates the poor clientele's conviction that the loans allow them to earn more than the interest that they have to pay.

Another useful perspective on this issue emerges when comparing poor borrower's interest costs to their overall income and expense. Castello, Stearns, and Christen performed such an analysis in 1991 on a sample of MFI borrowers in Chile, Colombia and the Dominican Republic. These borrowers were paying relatively high interest rates, on average 6.3% per month. Nevertheless, the cost of a microcredit loan represented only a small proportion of total business costs ranging from 0.4% to 3.4%.

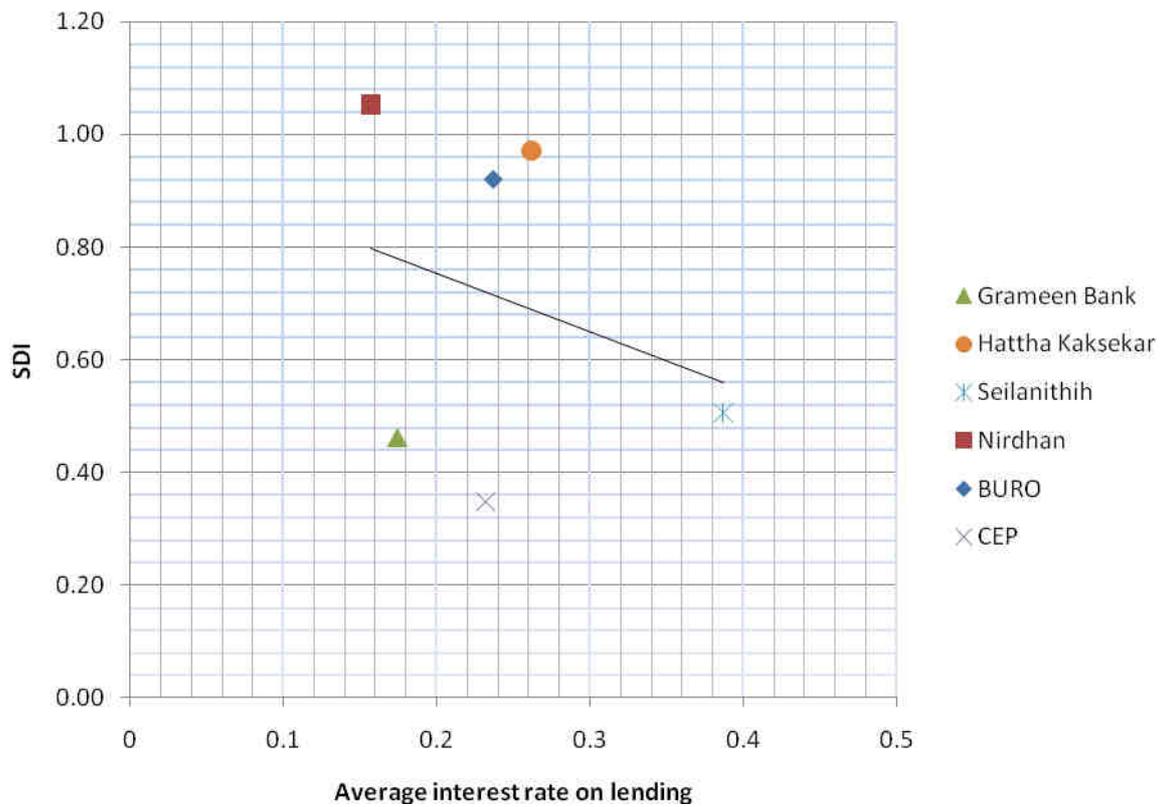
These numbers suggest that the interest rate that microcredit customer can bear is probably considerably higher than what even the more aggressive MFIs are presently charging. The theoretical explanation of this idea can take source in the law of diminishing returns to capital (discussed in subchapter 2.2.) saying that first investment into their microenterprise generates higher profit than all consecutive investments. That is why the

small businesses run by poor people can often pay interest rates that would devastate a larger business.

The increase of interest rate may thus be feasible and the more financially viable programs can actually differ from their less viable peers mainly in their willingness to set the interest rates levels that would guarantee the full recovery of costs. The results of individual studies of the sample of MFIs from South Asia are not rejecting the hypothesis of negative correlation between the level of interest rate and the subsidy dependence (see Figure 28⁵⁰). Although the trend line is not passing exactly through points representing some MFIs, which calls for further research, it suggests that the level of interest rate has its importance in determination of financial self-sufficiency. Worth underlining is the case of Grameen Bank that exhibits the second lowest interest rate level while having relatively low level of dependence on subsidies. Another organization operating in the microfinance sector of Bangladesh is the Hattha Kaksekar that, in contrary to its more famous peer, charges much higher interest and still exhibits higher level of dependence on donor financial support. These two example institutions operating under the same national conditions show that the level of interest rate itself is not a key to sustainable microfinance. On the other hand, the comparison shows the important potential of reduction of subsidy dependence that resides in the currently low level of interest charged by Grameen Bank.

Findings of this thesis in the matter of impact of level interest rates on financial self-sustainability is in-line with the research conducted by Cull, Demirguc-Kunt and Morduch (2006) on a broad sample of over 120 MFIs. The authors conclude that for individual-based lenders raising interest rates are associated with an improvement in profitability. However, this positive impact of interest rate hike is estimated to be limited up to 60 percent *per annum*, which still shows an immense unexploited potential for all of the analyzed MFIs in South Asia. The study also finds that rise of interest rates can be undertaken without undermining repayment rates. Achieving both profit and substantial outreach to poorer population could thus be possible while aggressively pursuing commercial goals.

⁵⁰ Figures for each MFI are averages from the annual results during the studied decade that were discussed in more details in Chapter 4.

Figure 28: Relation between the average interest rate on lending and the SDI

Source: Author's calculations

Realization of the important direct effect of pricing on the determination of financial sustainability of MFI shifts also the matter of the poverty/sustainability debate. The interest rate set to level lower than is the full cost of provided service is possible only when the institution has access to credit with sub-market interest rate. In other words, the dilemma of a potential donor becomes the decision whether to subsidize the interest rates of MFIs or not.

However, eventual recommendation to increase interest rate to level that covers the full cost of provision of services is not a value judgment giving priority to profit before the alleviation of poverty. On the contrary, if the only objective of the operation of microfinance is to maximize the benefit brought to the poor people, the argument for high interest rates is straightforward. As the donor funding is limited in most countries, MFI will never be capable of reaching more than a little fraction of the poor who could see their situation improving

while having access to quality financial services. This vicious circle can not be broken, unless MFIs increase the price they charge for these services and gradually become financially viable, which can grant them access to mobilization of relatively large amounts of commercial finance at market rates. At the end the total benefit to the destitute population increases as the institution can meet much larger part or even the entire demand for their financial products.

5.2.3. Mobilization of savings

Collection of small deposits has long been in the shadow of microcredit as there was a prevalent and strong perception that the poor cannot save. MFIs thus typically used savings only as an internal part of lending products. They extracted savings from clients through compulsory saving mechanisms that required members to deposit small amounts each week and levied more substantial amounts, usually expressed as a percentage of the loan taken before the actual disbursement of a new loan. These compulsory savings were then often "locked-in" until – or, in the case of Grameen Bank until 1995, even if - members left the organization. Therefore, this mechanism is not really a saving product because the depositors do not have access to their own money but is rather a levy increasing the real cost of lending to the borrower and decreasing the risk of the provider of microcredit. Until recently compulsory savings, in one form or the other, were well established model throughout Asia (Wright, 1999).

However, for more than a decade, there is an intensifying debate about the ability of the poor to save on one side and the profitability of voluntary savings for the microfinance institutions on the other side. The promoted idea is that the poor people can save and want to save, and when they do not save it is because of a lack of opportunity rather than lack of their capacity (Rutherford, 1998). The rationale for the search of the poor for savings services lies in the ability of savings to store income as assets for future use. Without access to this type of service, individuals face more limited options.

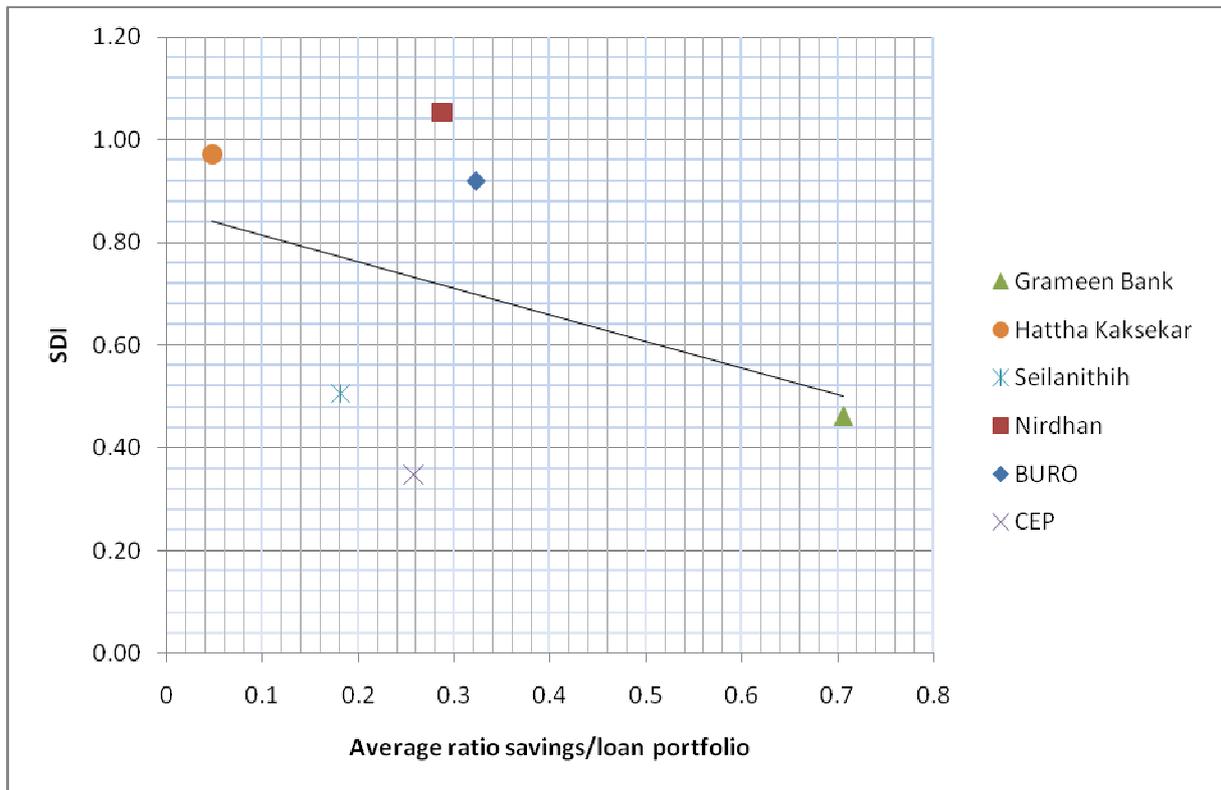
In recent years there has been an increasing recognition of the fact that the most of the poor families do save, and that this saving is usually in a non-financial form because they often lack access to good formal savings facilities. The importance of savings for the poor was confirmed also by a survey of alternative financial institutions⁵¹ around the world performed in 2004 by Christen, Rosenberg and Jayadeva. This research of 750 million accounts revealed that surprisingly over 573 million accounts in the reporting institutions are savings accounts. Clients (many of them poor) thus seem to be "voting with their feet" as they open up savings accounts in droves.

⁵¹ The study surveyed the global outreach of a broader set of institutions, all of which focus to some degree on extending financial services downward from the economic level of the traditional clients of commercial banks.

These numbers and experiences point out that there may be an important unmet demand waiting for an adequate response of the MFIs. The challenge for the microfinance programs consists of creation and expansion of provision of savings services that grant the saver with security, convenience, liquidity and returns at the same time. This task is definitely worth solving as there is also a reward for achievements in this field. Savings instruments that meet a given characteristic demanded by costumers, if priced correctly, can contribute to institutional self-sufficiency and wide market coverage (Robinson, 2001).

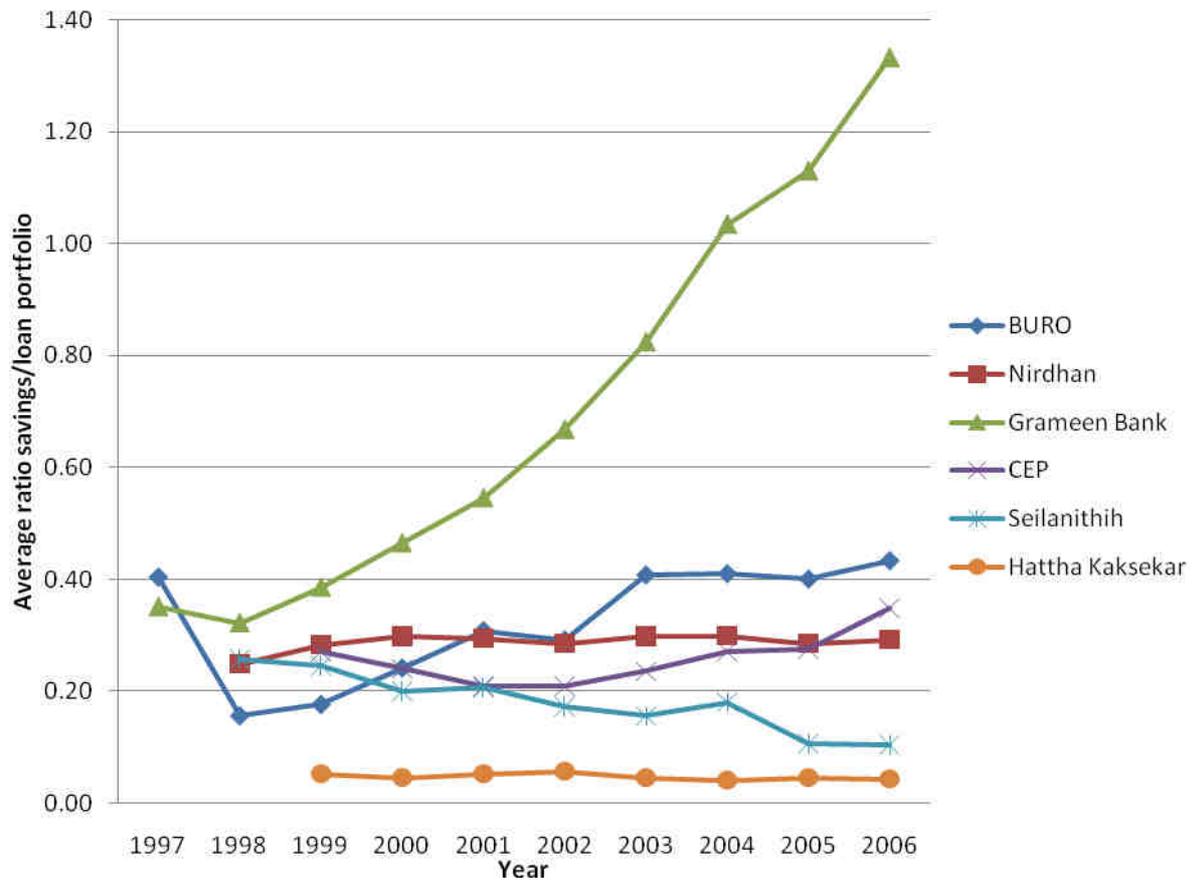
More precisely, by offering savings services, MFI gains several important advantages. Firstly, deposits are an attractive source of funds, as their financial costs are normally lower than in the case of funds borrowed on the market. Secondly, the liquidity risk stemming from a small number of withdrawals given by small amounts on savings accounts is necessarily lower than in the developed world, where financial institutions are exposed to larger withdrawals made from larger deposit. However, the most important benefit of the mobilization of voluntary savings, from the point of view of the financial self-sustainability, is the resulting availability of a more stable source of funds than donor funds or a credit line on financial market.

Positive impact of mobilization of savings on the level of subsidy dependence has been confirmed by the case-by-case analysis in the Chapter 4 as well as by the econometric analysis (with low significance) performed at the beginning of this chapter. Mutual relation between the average Subsidy Dependence Index and the relative extent of mobilization of savings, approximated by the average ratio of savings portfolio to gross loan portfolio, for the sample MFIs from South Asia (see Figure 29) does not reject the hypothesis of negative link between these two indicators. There can easily be drawn a trend line approximately linking the area of high SDI and low mobilization of savings, represented by Hattha Kaksekar, and Grameen Bank that exhibits lower SDI along with higher mobilization of savings. A slight but statistically significant negative correlation was also found by the more profound econometric research of the collected panel data (see Table 9). However, the low number of observations calls for an empirical verification on a broader sample.

Figure 29: Relation between the relative mobilization of savings and the SDI

Source: Author's calculations

The evaluation of the dynamics of mobilization of clients' deposits during the observed decade (see Figure 30) shows, that there is still much to be done in a majority of the studied microfinance institutions. Healthy changes in provision of savings are visible mainly in the case of Grameen Bank and BURO, both from Bangladesh, and recently also in CEP from Vietnam. The rest of the spectrum resides mostly in stagnation or even the relative position of savings in the overall portfolio of offered services slightly declines as in the case of Seilanithih.

Figure 30: Evolution of savings mobilization (1997-2006)

Source: Author's calculations

It should be noted, that the managers of microfinance institutions are not the only persons to be blamed for the presence of insufficient mobilization of clients' deposits. Attention needs to be turned also toward the national regulation of savings. Each country solves the potential problem of moral hazard of companies collecting deposits of their clients in a different way. The specificity of national regulation consequently sets differently complicated barriers that have to be overcome by domestic MFIs in order to legally offer voluntary savings products. For example in Cambodia the lag in savings services can partly be explained by the fact that microfinance organizations are entitled to accept voluntary savings from their members only after they became licensed by the National Bank of Cambodia, which is a complicated and costly process (HKL licensed in October 2001, Seilanithih in December 2003).

More generally, most developing countries lack their own regulatory framework for MFIs and do not allow them as unregulated institutions to mobilize savings from the general public (Staschen, 1999). In other words, the same legal regulatory rules apply for MFIs as for all other financial institutions. So the only choice open to MFIs is either to continue as microcredit-only institutions or to meet the requirements of banking legislation, which requires costly transformation measures.

From the point of view of the poor depositors, who would suffer more than savers of commercial banks if a fraud or bankruptcy takes place, creation and enforcement of prudential regulation is crucial. Prudential regulation must effectively limit the danger of opportunistic behavior and it must ensure that there is no unwarranted run on a MFI that could result in a panic within the whole microfinance sector (Chavez; Gonzalez-Vega, 1992). It might be a good idea to set up a deposit guarantee fund to cover deposits up to a certain sum, which would protect microsavers who would be most hardly hit by deposit loss. Although the creation and maintenance of appropriate cash reserves may be costly for the microfinance institution, deposit insurance can substantially raise confidence in the safety of deposits, and thus help to widen the savings portfolio of the institution.

This is the point where influential donors should lobby through national governments for the development and application of a special legal framework that would account for MFI's specific features and necessities. Given the lack of experience in the matter of the legislation of microfinance sector, the adoption of this special MFI law should be preceded by a prolonged process of mutual consultation and learning between the MFIs and the regulator. Only a cautious approach based on understanding of key differences in risk between traditional banks and microfinance institutions can improve the situation of all the interested parties.

The support of donors in persuading local authorities of the importance of reforms of regulatory framework can in a long term be even more helpful to microfinance organizations than a simple financial subsidization of a single MFI. Successfully transformed regulation provides the MFIs with important fundament for construction of a more sustainable and self-relying microfinance operation with higher degree of mobilization of savings, which

eventually helps also the clientele by the ability of a credible commitment to the safety of deposits and continuity of provision of other vital financial services.

6. Conclusion

The main question of the thesis and of an ongoing debate about microfinance is, whether there is an evidence of a trade-off between the depth of outreach to the poor and the pursuit of profitable and self-sustainable banking for the poor. After disclosing the particularities that have to be kept on mind when analyzing microfinance institutions (e.g. very small loan amounts, absence of legally-enforceable collateral, low level of client's income, remote location, unstable occupation, high mobility, incomplete information to evaluate its risk profile, difficulties in monitoring the efforts of the borrower), the evaluation of individual dependence on subsidies of selected MFIs from South Asia shows that organizations disbursing smaller loans to poorer borrowers are not automatically less profitable. The consequent econometric analysis does not found any significant simple relationship between the level of reliance on subsidized funds and the average loan (proxy for the depth of outreach). This finding is a powerful argument against the denounced "creaming" phenomenon manifested by some MFIs by the provision of their services only to the people with the least difficult problems, while the poorest are abandoned because of low profitability. Although provision of microfinancial services may not be an appropriate help for people on the margin of survival, orientation of MFIs towards very poor clients is still of immense meaning for the alleviation of poverty and yet the profitability of the institutions may not necessarily suffer.

Controlling for other relevant factors determining the financial self-sufficiency reveals the importance of an appropriate interest rate policy. Even if the clientele of the microfinance sector does not dispose valuable collateral it is bankable and is willing to pay an adequate price for the provision of financial products tailored to their needs. The regression of gathered panel data underlines the major impact of pricing on the value of Subsidy Dependence Index. Increase of interest rate can improve the profitability that boosts the availability of additional resources for relending or the expansion of service portfolio and eventually makes the organization sustainable even on pure market basis. Such microfinance programs would be able to get a bank loan on market lending rate and still generate a profit,

which may attract investors and further decrease the excess of demand omnipresent in microfinance.

Another interesting finding provides the similar general pattern of the dependence on subsidies found at the analyzed institutions from South Asia when viewed by the optic of the length of their operation. For the MFIs of comparable length of operation it seems that the initial period of extensive need of subsidized funds lasts at least for 7 years and then it gradually falls down. This is valuable information for the donors as it shows that their support may be necessary in the first years as an impulse for creation, development and expansion of the clientele. However, after less than one decade they can gradually decrease the amount of subsidies and push the MFI to a more profitable and self-sustainable mode of operation.

In addition, the financial support of donors, which may not be constantly available, can also be replaced by other funds at disposal even at lower costs than on the market. Such potential for further development of microfinance institutions resides in mobilization of savings. Poor people are interested in storing present income as assets for future use in the same way as population of developed countries and thus savings have their place also in microfinance. Even if mobilization of savings is beneficial for both sides of the microfinance sector, the current provision of savings products is limited. Although there might be some regulatory barriers complicating the collection of deposits for the institutions out of the traditional banking sector the reason of low mobilization of savings may be in the underestimation of demand for these products. As the econometric analysis confirms, mobilization of savings may have some positive impact on the overall financial sustainability of MFI. This finding should serve as a recommendation for MFIs that want to become independent on donors' support and get access to more continuous funding on market.

These findings together reveal supportive message for microfinance institutions that for each organization in the microfinance industry, there may be a set of specific measures, which, when applied correctly, would lead to lower dependence on subsidies without an need of changing the current constitution of the clientele. Consequently, microfinance institutions with the correct model for self-sufficient financing and effective outreach can grow to the point at which they accomplish the ultimate mission of their existence i.e to

address the unmet demand for financial services in poor communities around the world and thus help to alleviate poverty without compromising their own profitability.

Only an extension of the existing limited and hardly accessible empirical data with relevant information from the field of microfinance operation that would dig deeper in the statistics of the served population (e.g., percentage of women borrowers, detailed income status) and further differentiate the loan portfolio according to the lending technique (group/individual lending, with/without collateral) would enable to control for the impact of other factors on the dependence on subsidies and formulate more particular recommendations. Staff productivity of and cost structure of institution might also be of crucial importance for the determination of MFI's profitability but also this domain is only vaguely covered by available annual reports. MFIs still do not provide complete and accurate information not only on the depth of their outreach but also on their financial performance so that more could be known about the sustainability of programs aimed at the poorest. This is the point where the international organizations regrouping microfinance institutions along with the donors that can exert some decisive power should push the management of these institutions toward better reporting.

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Appendix – Regression estimates

Output 1:

Redundant Fixed Effects Tests
Pool: MFIS
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.729418	(5,44)	0.0067
Cross-section Chi-square	18.019706	5	0.0029

Cross-section fixed effects test equation:

Dependent Variable: SDI

Method: Panel Least Squares

Date: 04/27/08 Time: 22:52

Sample: 1997 2006

Included observations: 10

Cross-sections included: 6

Total pool (unbalanced) observations: 51

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.575683	0.124049	4.640774	0.0000
LS	0.000137	0.000694	0.197496	0.8443
R-squared	0.000795	Mean dependent var		0.595376
Adjusted R-squared	-0.019597	S.D. dependent var		0.521913
S.E. of regression	0.527002	Akaike info criterion		1.595203
Sum squared resid	13.60885	Schwarz criterion		1.670961
Log likelihood	-38.67767	Hannan-Quinn criter.		1.624152
F-statistic	0.039005	Durbin-Watson stat		0.406364
Prob(F-statistic)	0.844256			

Output 2:

Dependent Variable: SDI

Method: Pooled Least Squares

Date: 04/25/08 Time: 17:09

Sample: 1997 2006

Included observations: 10

Cross-sections included: 6

Total pool (unbalanced) observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.760493	0.139305	5.459189	0.0000
LS	-0.001150	0.000857	-1.341643	0.1866
Fixed Effects (Cross)				
_BURO--C	0.249206			
_NIRDHAN--C	-0.354228			
_GRAMEEN--C	-0.184204			
_CEP--C	-0.266571			
_SEILANITHIH--C	0.000871			
_HKL--C	0.549741			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.298212	Mean dependent var	0.595376
Adjusted R-squared	0.202513	S.D. dependent var	0.521913
S.E. of regression	0.466080	Akaike info criterion	1.437954
Sum squared resid	9.558134	Schwarz criterion	1.703106
Log likelihood	-29.66782	Hannan-Quinn criter.	1.539276
F-statistic	3.116159	Durbin-Watson stat	0.582658
Prob(F-statistic)	0.012432		

Output 3:

Dependent Variable: SDI
 Method: Pooled Least Squares
 Date: 04/25/08 Time: 17:35
 Sample: 1997 2006
 Included observations: 10
 Cross-sections included: 6
 Total pool (unbalanced) observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.503487	0.618233	4.049423	0.0002
LS	-0.001393	0.000798	-1.744928	0.0881
IR	-7.264830	2.520087	-2.882770	0.0061
Fixed Effects (Cross)				
_BURO--C	0.246560			
_NIRDHAN--C	-0.930756			
_GRAMEEN--C	-0.634065			
_CEP--C	-0.328854			
_SEILANITHIH--C	1.184875			
_HKL--C	0.782465			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.411875	Mean dependent var	0.595376
Adjusted R-squared	0.316134	S.D. dependent var	0.521913
S.E. of regression	0.431603	Akaike info criterion	1.300477
Sum squared resid	8.010074	Schwarz criterion	1.603508
Log likelihood	-25.16216	Hannan-Quinn criter.	1.416274
F-statistic	4.301959	Durbin-Watson stat	0.759549
Prob(F-statistic)	0.001107		

Output 4:

Dependent Variable: SDI

Method: Pooled Least Squares

Date: 04/25/08 Time: 17:39

Sample: 1997 2006

Included observations: 10

Cross-sections included: 6

Total pool (unbalanced) observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.661001	0.614053	4.333503	0.0001
LS	-0.001590	0.000792	-2.006874	0.0512
IR	-6.974646	2.478505	-2.814054	0.0074
S	-0.622327	0.379920	-1.638047	0.1089
Fixed Effects (Cross)				
_BURO--C	0.236713			
_NIRDHAN--C	-0.934782			
_GRAMEEN--C	-0.383190			
_CEP--C	-0.367941			
_SEILANITHIH--C	1.051342			
_HKL--C	0.636749			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.447192	Mean dependent var	0.595376
Adjusted R-squared	0.341895	S.D. dependent var	0.521913
S.E. of regression	0.423395	Akaike info criterion	1.277765
Sum squared resid	7.529074	Schwarz criterion	1.618675
Log likelihood	-23.58300	Hannan-Quinn criter.	1.408037
F-statistic	4.246961	Durbin-Watson stat	0.862190
Prob(F-statistic)	0.000844		