

Chapter 2

Microcredit Revisited: Towards More Flexible Loan Contracts

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Abstract Group liability and a fixed repayment schedule with frequent installments are prominent features of microcredit loan contracts. These rules make it possible for lenders to reduce lending costs and provide borrowers with appropriate incentives to repay. Sometimes they facilitate mutual insurance among members and improve the welfare of borrowers by providing a commitment device that induces saving-like behaviors. However, they also impose considerable burdens on borrowers. This chapter reviews selected literature on the rigidity and flexibility of microcredit contracts and provides an overview of the microfinance revolution and its current presence in various parts of the world.

Keywords Group liability · Repayment mechanism · Commitment device · Microcredit

2.1 Introduction

Many economists believe that the absence of well-functioning credit markets has been one of the major obstacles to the alleviation of global poverty. Expanding credit access can help those who receive credit allocate resources efficiently over time and effectively cope with risk; in this way, credit access can improve economic opportunities for the poor. However, despite the apparent benefits, the poor often find it difficult to obtain credit. In a traditional loan contract, a lender usually requires collateral to secure the loan, should the borrower be unable to make the loan repayments. However, the poor rarely have sufficient assets for use as collateral. In the absence of collateral, the lender incurs all the loss associated with

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a loan default. To mitigate the risk of repayment failure, therefore, substantial efforts need to be made in screening, monitoring, and enforcing loan terms. In general, these efforts are too costly for the uninformed lender to be adequately compensated by interest revenue from the very small loans that the poor typically need.

In the last several decades, microcredit institutions have introduced a series of small and uncollateralized loan products for the poor. Microcredit now flourishes worldwide. In discussing the remarkable success of microcredit—which was widely acknowledged when Muhammad Yunus and the Grameen Bank were awarded the 2006 Nobel Peace Prize—a number of possible mechanisms have been suggested by which microcredit could address the problems that traditional lending programs face. Although the debate is ongoing, two notable features of microcredit—namely, group liability lending and a fixed repayment schedule with frequent installments—have attracted considerable attention (Armendariz and Morduch 2010). Both features are thought to be important mechanisms through which a lender could maintain high repayment rates. However, it is also necessary to note that these two features impose considerable costs on borrowers. Under group liability lending, any costs associated with the failure to repay must be incurred by the group borrowers, and this may create tension among them. Frequent repayments also increase the direct costs of attending the meetings where repayments take place either weekly, bi-weekly, or monthly. Furthermore, a fixed schedule eliminates any possibility of a borrower being able to adjust the amount of an installment in line with his or her economic conditions; the borrower must repay a fixed amount, even in times of hardship. Being aware of the costs related to rigidity, MFIs are currently trying to convert their portfolios into more flexible loan products. A central problem now is how to balance flexibility and repayment discipline without incurring a higher rate of defaults.

In this chapter, we review selected literature on the rigidity and flexibility of microcredit contracts. We focus, in particular, on issues regarding group liability and repayment rules, as they supposedly play significant roles in making microfinance contracts more successful and, at the same time, more rigid. It is important to examine the potential benefits of more flexible loan contracts. By offering financial services that are tailored to client demands, flexible loan contracts may increase the total number of beneficiaries and improve client welfare. According to previous studies, microcredit goals have not yet been achieved in terms of outreach and overall impact (Armendariz and Morduch 2010; Kono and Takahashi 2010).

This chapter is organized as follows. [Section 2.2](#) discusses the costs and benefits of group liability lending. It also reviews the recent literature comparing group and individual liability lending. [Section 2.3](#) examines the role of a fixed repayment schedule that features frequent installments. Based on the literature, we show that repayment frequency has its merits in offering a commitment device for the poor. Nonetheless, some costs dovetail from rigidity, especially when a client's income fluctuates over time. The final section provides concluding remarks.

2.2 From Group to Individual Liability Lending

2.2.1 Economics of Group Liability Lending

Many early studies on microfinance focused on the economics of group liability. Under group liability lending, members of a voluntarily formed group are jointly liable, either implicitly or explicitly, for one another's repayments. When one borrower cannot repay his or her loan, the other group members are required to repay on his or her behalf. All the group members are denied future loans until the entire group loan has been repaid in full. This innovative style of lending was pioneered by the Grameen Bank in Bangladesh (the classic Grameen model) and has subsequently been employed by many imitators worldwide. Group liability was so prominent in initial microfinance activities that it was considered a distinguishing aspect of contract design that worked in successful lending to the poor while establishing high repayment rates. To date, a number of theoretical models have identified various mechanisms—including peer screening (Ghatak 1999), peer monitoring (Stiglitz 1990; Varian 1990), and peer enforcement (Besley and Coate 1995)—through which group liability enables a lender to make uncollateralized loans to the poor. Ghatak and Guinnane (1999) provide a review of the early theoretical literature. A basic and rather simple idea that is found within theoretical approaches is shared by almost all existing models: shifting the burden of default from a lender to a group provides borrowers with appropriate incentives to use their local information and social ties, and to ensure repayments by peers within the same group.

One such mechanism, peer screening, works at the group formation stage. When a group is formed, potential borrowers wish to be paired with safe borrowers; this is because risky borrowers have a high probability of default, and the burden of their missed payments must be borne by the other group members. Hence, group liability effectively increases the interest rate for borrowers who are paired with risky partners. If agents know each other's level of reliability, risky borrowers will be avoided by safe borrowers and assortative matching will emerge as an equilibrium structure. Peer screening can thus differentiate effective interest rates between safe and risky groups. Lower effective interest rates can be imposed on safe groups, while risky groups face higher effective interest rates. This implicit differentiation of effective interest rates can mitigate the adverse selection problem. In the absence of group liability, an uninformed lender should offer a uniform interest rate to all borrowers, based on the average risk level; however, in such a case, the interest rate might be too high to attract safe borrowers. An advantage of peer screening is that a lender need not elicit local information (and thus incur investigation costs) in order to offer interest rates that differ by risk level.

Other important mechanisms suggested by theoretical studies are peer monitoring and peer enforcement. Once a group is formed, each borrower individually decides how to use his or her loan. Although some MFIs restrict the purpose of their loans to income-generating activities—such as productive investments—the

loan can be diverted for any use, due to its fungibility. Regardless of the ultimate purpose of a loan, the borrower must exert efforts to keep his or her business performing in order to be able to make repayments successfully. If his or her inappropriate behavior in terms of the loan's purpose and effort levels leads to repayment failure, the burden of default should be borne by the other group members. Therefore, borrowers have an incentive to monitor each other and to pressure their peers into appropriate behaviors, as long as they can observe one another's actions. Peer monitoring mitigates an *ex ante* moral hazard problem—in the absence of the ability to observe borrowers' actions, a lender should use financial rewards and punishments, depending solely on the repayment results, to preclude an *ex ante* moral hazard. However, peer based group liability severely restricts the possibility of financial punishment. In this respect, the presence of non-financial social sanctions on which borrowers can rely is critical to punishing misbehavior. A similar scenario applies to the prevention of an *ex post* moral hazard problem. After income is realized, a borrower might have the opportunity to pocket his or her earnings and default on the loan, even though those earnings are sufficient to make a repayment. A lender cannot force such defaulting borrowers to repay, because the cost of verifying the income concerned is prohibitively high. Again, using local information and social pressure, group borrowers have an incentive to discourage peers from engaging in strategic defaults.

A basic presumption underlying the aforementioned peer mechanisms is the existence of social interaction among the group members, which makes it easier to observe one another's personalities and actions. In addition, borrowers are thought to be endowed with capabilities of enforcing social sanctions in cases of default by their fellow members. It is, therefore, interesting to ask whether strong social interaction among group members affects repayment performance under group liability lending. A handful of empirical studies examine this question (Wydick 1999; Ahlin and Townsend 2007; Karlan 2007). Using non-experimental data from Guatemala, Wydick (1999) concludes that previously existing social ties per se have little impact on repayment rates.¹ Ahlin and Townsend (2007) show that in Thailand, strong social ties have adverse impacts on repayment probability. This contradicts theoretical predictions. On the other hand, based on data from FINCA-Peru, Karlan (2007) finds evidence that social connections, measured in terms of geographical proximity and cultural similarity, increase peer monitoring and have a positive impact on high repayment rates. Because his study uses a quasi-experimental environment in which borrowers are randomly sorted into groups, any endogeneity problems arising from the possibility that social connections affect both the group-formation process and the economic opportunities should have been avoided. Cassar et al. (2007) also finds a positive relationship between social connections and repayment performance in South Africa and Armenia.

¹ Wydick finds that intensive monitoring and the willingness to punish misbehaviors are associated with high repayment rates. However, previously existing social ties are not necessarily prerequisites for the intensity of monitoring or strict enforcement.

Feigenberg et al. (2011) shed light on a different aspect of social interactions by comparing two types of randomly assigned groups. One is a group with weekly meetings, and the other has monthly meetings.² They found that more frequent meetings facilitate informal risk-sharing among the members. Clients who met on a weekly basis achieved higher repayment rates than clients who met on a monthly basis, even after all the groups were converted to the same frequency of group meetings. Overall, the empirical results suggest that the intensity of monitoring and the potential for social sanctions are positively related to lower rates of default. However, too-strong social ties can have adverse impacts on repayment rates, because close relationships among borrowers make them reluctant to inflict severe sanctions on their fellow members, even if doing so is optimal from the *ex ante* point of view. As a result, social interactions have both negative and positive effects on repayment performance. Positive effects may arise not just from improved monitoring and/or enforcement, but also from enhanced informal risk-sharing among borrowers.

As discussed, theoretical models of peer monitoring and peer enforcement have some empirical support. With regard to peer screening, Ahlin (2009) finds evidence for homogenous sorting, by risk level, in group liability lending in Thailand. Assortative matching and appropriate risk-pricing, as predicted by a peer-screening model, are empirically supported by the data. However, he also reveals the tendency for there to be a lack of diversification, vis-à-vis risk, within groups. This result indicates that a borrower tries to lower the chances of facing liability for fellow group members by choosing a similar type of business as the others. Therefore, peer screening may limit the scope of efficient risk-sharing among borrowers. Bryan et al. (2012) assessed whether peers have superior information on the creditworthiness of their friends and can use social pressure to enforce loan repayments. Instead of group liability, borrowers who are individually liable are given monetary incentives to screen their friends and enforce repayment. Experimental evidence from microcredit borrowers in South Africa shows that peers are effective in enforcing repayment, even when they have no more information on their friends than the lender does. The results of Bryan et al. indicate that the peer-screening mechanism is less effective in their study location. Finally, using observational data from Thailand, Ahlin and Townsend (2007) assess the relative importance of all the existing models. This unique challenge reveals that the peer enforcement model performs well in poor, low-infrastructure regions, and that the peer-screening model effectively explains the data in the more affluent region close to the capital city. Taken together, while each mechanism suggested by theory works in some specific contexts, there is no mechanism that works well universally. Furthermore, the relative importance of such mechanisms in practice depends on many location-specific factors, such as economic, cultural, and historical conditions.

² The clients in their experiment are on individual liability lending contracts, while groups are formed only for cost-saving reasons. The endogenous self-selection problem, therefore, is not a serious issue in their study.

2.2.2 *Group Versus Individual Liability Lending*

In 2002, the Grameen Bank introduced the so-called Grameen II system. Among other features, the Grameen II system formally eliminates group liability and allows for flexible repayment (Dowla and Barua 2006; Collins et al. 2009).³ Individual liability lending is now increasingly popular among MFIs. For example, BancoSol, a large Bolivian MFI, has moved a large share of its portfolio to individual liability, and both Bank Rakyat Indonesia (BRI), a flagship MFI of Indonesia, and the ASA in Bangladesh have increased the number of loan clients who do not make use of group liability. Today, there are three major types of lending methodology available in the microcredit industry: group liability lending, individual liability lending, and FINCA-style village banking (Karlan and Mullainathan 2009). According to the Microfinance Information Exchange (2010) database, 37 % of the 972 MFIs worldwide exclusively adopt individual liability lending, while 44 % adopt both group and individual lending. Hence, group liability is not the sole lending methodology used today. On the contrary, group liability lending is becoming a smaller part of the overall portfolio of this growing industry.

Although individual liability lending can release borrowers from social pressure and attract a greater number of potential clients, an apparent concern is how a lender can enforce loan repayment in the absence of any peer mechanisms. What is important in this regard is that most MFIs retain other aspects of the classic Grameen model, even under individual lending. The classic features include regular group meetings, the contingent renewal of loans, forced savings and public and frequent repayment. Regular group repayment (without group liability) reduces administrative costs. The contingent renewal of loans should create dynamic incentives for borrowers to maintain good repayment records.⁴ Forced savings works like an insurance mechanism to adjust the weekly repayment in case of income difficulties. Making repayment public imposes additional costs that defaulting borrowers incur due to a loss of reputation. Finally, frequent installments are believed to maintain repayment discipline and make it possible for credit officers to notice early evidence of problematic borrowers. Although these features have been combined with group liability in the classic model since the early days of microfinance, their roles have been overlooked by economists until recently.

In addition to an awareness of the potential benefits arising from several features other than group liability, economists also tend to pay greater attention to the potential costs of group liability lending. Fischer (2012) argues that group liability can cause distortions vis-à-vis the borrowers' investment choices. If information is imperfect and informal risk-sharing contract is incomplete, borrowers can

³ At the same time, the Grameen Bank introduced new saving products to the market. I discuss the roles of savings and flexible repayment schedules in subsequent sections.

⁴ In general, the amount of the renewed loan is greater than that of the previous cycle. This feature of progressive lending strengthens the effects of dynamic incentives.

“free ride” on their partners by taking risky but high-expected-return investments, without compensating their partners when risky investments generate very high returns. On the other hand, if information is perfect, peer approval of the project type will discourage borrowers from making excessively risky investments, thus also reducing expected returns. Group liability, therefore, leads to either an over- or under-investment in risky projects. Making too-safe investments under group liability lending is consistent with the empirical fact that the typical microfinance-funded business experiences only sluggish growth. Fischer conducted several lab experiments with actual microfinance borrowers in India and confirmed theoretical predictions that group liability discourages risky but high-expected-return investments.

Despite the increasing trend towards individual liability lending, direct, empirical comparisons between group and individual liability lending are surprisingly rare. The study of Giné and Karlan (2011) is a notable exception. They report on a field experiment in the Philippines in which some pre-existing groups were randomly converted from group to individual liability lending. They found there to be no change in repayment rates under individual liability lending. (Note that their experiment could not identify the effect of peer screening, because the converted groups were originally formed under group liability lending.) The findings of Carpena et al. (2013), vis-à-vis changes in liability structure, run completely counter to those of Giné and Karlan. Based on data from a natural experiment in India, they assessed the repayment impact of the conversion from individual to group liability lending, and they found there to be an *increase* in repayment rates under group liability lending. The results of these two studies seem to suggest that both group and individual liability lending perform equally well, as long as the screening of potential clients is successfully done under individual liability lending. In this respect, it seems that the role of investigations by credit officers is more important under individual liability lending than under group liability lending.

Group liability lending has played a considerable role in extending loan markets to the poor in developing countries. However, it is still unclear as to which theoretical mechanism truly works in practice, in various conditions. In addition, group liability and resulting social pressures impose an excessive burden on group borrowers within the system. Increasing attention is now being paid to other aspects of microcredit loans, including repayment frequency, dynamic incentives, and the issue of people’s public reputation. Individual liability lending that features these elements is thought to be sustainable when the screening of potential clients does not become a serious issue. In the next section, I discuss further the role of repayment frequency, since it is a central factor that imposes excessive rigidity on microcredit loans.

2.3 Rigid and Flexible Repayment Rules

2.3.1 *Repayment Frequency as a Commitment Device*

Most microcredit loans require frequent repayment installments, either weekly or monthly, and repayment starts immediately following the disbursement of the loan. In addition, the amount of each repayment is fixed and usually non-negotiable during the repayment period. This rigid repayment schedule has been advocated by many microfinance professionals. Their argument is that it helps borrowers build their financial discipline and ability to save. Unless borrowers are obliged to make small installments regularly, they need to accumulate a certain amount of money to make a repayment at the end of the loan cycle. However, savings accumulation is sometimes difficult for the poor, because of savings constraints, sudden need expenditures, and the consumption of tempting goods.

Several pieces of empirical evidence point to the difficulties borrowers experience in saving (Ashraf et al. 2006; Gugerty 2007; Collins et al. 2009). This evidence has been interpreted along the lines of behavioral weakness and present-biased preferences (Laibson 1997). People are sometimes unable to resist immediate temptation, even if they value future consumption, and they end up with a smaller amount of savings than originally planned. In such cases, a rigid microfinance schedule with frequent repayments provides borrowers with opportunities to commit to savings-like behavior. Hence, if a potential borrower needs a loan and also desires not to default, rigid repayment rules have been found to be helpful for this borrower. Based on this sort of argument, Bauer et al. (2012) examined the relationship in India between behavioral weakness and participation in microfinance. Using data obtained from lab experiments in the field, they found that present-biased women are more likely to borrow from a local MFI to meet their loan demands. This result suggests that, when taking into account the behavioral aspects of clients, a rigid schedule with frequent repayments should be supported as a useful commitment device. Fischer and Ghatak (2010) provide another justification for the “frequent repayment” rule. They construct a theoretical model in which borrowers have present-biased preferences, and they show that under some conditions, frequent repayment both relaxes the constraints that come with repayment enforcement and increases the maximum incentive to take an appropriate size of loan.

Overall, the “frequent repayment” rule of MFIs can work as a commitment device: in practice, “frequent repayment” has almost the same meaning as “frequent savings.” It can also improve the welfare of present-biased borrowers by enabling optimal consumption allocation from an *ex ante* viewpoint.

2.3.2 Need for a Flexible Repayment Rule

While a schedule that features frequent repayments can help borrowers commit to repaying and lead to better allocations for consumption, how frequently should repayments be made? This is an important empirical question. Field and Pande (2008) compare randomly assigned weekly repayment groups to monthly repayment groups. They found there to be no significant difference in the repayment rates between the two groups. Hence, weekly repayments may not be essential in providing an effective commitment device. These results indicate that it may be possible to reduce the costs related to weekly meetings, for both the MFIs and the borrowers, by adopting a more infrequent repayment schedule without worsening repayment performance.

A serious drawback of a rigid repayment schedule lies, however, in the fact that it is not state-contingent. It is often observed that seasonal variations in income in rural areas also cause seasonal variations in consumption (Khandker 2012). In addition, a borrower usually faces income uncertainty at times. Whether it happens predictably or unpredictably, income fluctuation is a pervasive phenomenon that makes it difficult to smooth consumption over time. MFIs have recently tried to introduce state-contingent repayment rules to mitigate problems that are associated with a mismatch between the pattern of repayment and borrowers' cash flows. Shoji (2010) found that allowing borrowers to reschedule their repayments during times of natural disaster in Bangladesh significantly reduced their reliance on informal money-lenders and enabled consumption-smoothing. The Bank for Agriculture and Agricultural Cooperation (BAAC) in Thailand also allows *ex post* loan renegotiation if borrowers face repayment difficulties due to flooding, a drought, or the like (CGAP/IFAD 2006). Loan repayments can be safely rescheduled if the shocks are readily observed by the lenders. A flexible repayment schedule will attract more clients who are facing income uncertainty but are afraid of a possible default when they encounter negative shocks.

As for seasonality, a direct solution would be to provide better opportunities for commitment savings. Clients should be offered an account of their commitment savings when the periodic income level is high, such as after a harvest season, and withdrawals should be allowed only during severe periods, such as in lean seasons. These arrangements would help the poor with present-biased preferences to mitigate seasonal variations in income to some extent. Another possible solution for microcredit loans is to allow the suspension of repayment during the low-income season. Confianza in Peru and Banco Los Andes ProCredit in Bolivia both offer loan products where repayments are set according to revenue flows (CGAP/IFAD 2006). Field et al. (2011) assessed the effect of two-month grace periods before repayments start on the investment choices of business enterprises. They found that postponing repayment enhances the long-term development of a business by allowing a larger investment during the initial periods. However, their findings also revealed that grace periods increase the variance of investment returns and, therefore, lead to high default rates. Although their study is not directly related to

income fluctuation, it provides further evidence of the existence of costs stemming from repayment moratoria. A flexible repayment schedule enhances the potential of clients who suffer from income fluctuations. However, there exists a concern about the erosion of financial discipline. Which effect is stronger depends on location-specific factors and on details pertaining to contract design. Clearly, further research needs to be undertaken in order to attain a better understanding of the mechanisms by which a flexible repayment schedule would improve client welfare, which will be aimed in the research of this book.

2.4 Conclusion

Group liability and a fixed repayment schedule with frequent installments are prominent features of microcredit loan contracts. They make it possible for lenders to reduce lending costs and provide borrowers with appropriate incentives to repay. Sometimes they facilitate mutual insurance among members and improve the welfare of borrowers by providing a commitment device that induces saving-like behaviors. However, they also impose considerable burdens on borrowers.

MFIs have recently introduced more flexible loan products, such as individual liability loans and *ex post* negotiable loans with flexible repayment rules. Both empirical and theoretical studies indicate that flexibility within the terms of a lending contract has its costs and benefits; overall effects depend on location-specific factors and the actual design of flexible contracts. Seeking a better design for flexible loan contracts is beneficial to potential borrowers. The accumulation of empirical evidence also contributes to a better understanding of the conditions under which flexibility helps the poor while still preserving high repayment rates. Challenges with respect to the development of more flexible lending contracts persist, and further research efforts should be made in this fruitful area of exploration.

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