Discipline and Flexibility: A Behavioral Perspective on Product Design in Microfinance

Marc Labie, Carolina Laureti and Ariane Szafarz

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Keywords: Microfinance, discipline, flexibility, commitment, incentive

JEL Classifications: D03, D82, D91, G21, O12

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Abstract

The success of both microcredit and micro-savings products rests upon simplicity and standardization in order to stimulate client discipline. Meanwhile, these products lack flexibility. This paper attempts to make sense of behavioral product design in microfinance. We focus on the potential trade-offs between discipline and flexibility. While discipline devices encourage clients make payments duly on time, flexibility improves clients’ day-to-day money management and helps them cope with shocks. Our contribution is twofold. First, we highlight the evidence-based advantages and disadvantages of flexible products in microfinance. Second, we present best-practice examples of flexible products offered by microfinance institutions worldwide.
1. Introduction

The success of microfinance products, such as microcredit and micro-savings, rests upon simplicity and standardization in order to instill client discipline and overcome agency problems (Armendariz and Morduch, 2010). Over the years, these features have proven to stimulate clients’ repayment conduct (D’Espallier et al., 2011). However, they have also resulted in a lack of flexibility (Meyer, 2002). Recently, scholars and practitioners have observed that poor people need not only discipline but also flexibility. The poor are more subject to behavioral—i.e. psychological—biases in money management than the wealthier (Banerjee and Mullainathan, 2010). They are also more vulnerable to adverse shocks (Townsend, 1995). As a result, the importance of paying attention to the discipline/flexibility trade-off in product design has emerged in the microfinance literature (Datta and Mullainathan, 2014). However, the papers on this topic are still fairly dispersed. On the one hand, most theoretical papers take as granted the trade-off between discipline and flexibility (e.g. Amador et al., 2006). On the other, empirical work indicates that microfinance products designed with so-called behavioral incentives might to some extent mitigate this theoretical trade-off. In particular, field-based evidence shows that flexible contracts with psychological nudges can enhance discipline (Dupas and Robinson, 2013a). By critically reviewing and illustrating this new body of literature, this paper attempts to make sense of behavioral product design in microfinance.

Both borrowing and saving require discipline. In borrowing, repayment discipline is typically enforced by the lender. Agency problems then result from asymmetric information, and the lender faces both ex ante and ex post moral hazard problems (Stiglitz, 2000). In ex-ante moral hazard, the borrower puts too little effort into realizing her business project and so compromises the subsequent reimbursement of the loan. In ex-post moral hazard (or strategic default), the borrower defaults on her loan even though she can afford to repay it. In microcredit targeting poor people in developing
countries, these agency problems are exacerbated by the absence of seizable collateral and by deficient legal enforcement mechanisms.

In contrast, discipline in saving boils down to self-control. By diverting loans from investment to consumption, difficulty to save is directed toward the agent’s future self (Zeballos et al., 2014). It manifests itself in behavioral-based moral hazard including procrastination and low resistance to temptation.¹ Difficulty to save is exacerbated by several factors. First, pressure can be exerted by family members, friends, and neighbors, whose claims for money are hard to refuse (Anderson and Baland, 2002). Second, individuals might be inattentive or unable to plan (Karlan et al., 2016). Last, low interest in future self’s comfort can be inherent part of people’s attitude. This behavioral bias is rationalized by the concepts of time-inconsistency and quasi-hyperbolic discounting (Laibson, 1997; O’Donoghue and Rabin, 1999),² as opposed to standard exponential discounting associated with the supposedly time-consistent (or rational) economic agents represented in mainstream economic models. In microfinance, field work showing that the poor value discipline provides arguments in favor of the relevance of the assumption of time-inconsistency (Ashraf et al., 2006b; Bauer et al., 2012).³

While discipline in microcredit products primarily addresses a supply-side concern, loan repayment flexibility is a more demand-sided concept. Rigid reimbursement schedules are particularly uneasy for borrowers who own very little. The poor are vulnerable to shocks, such as

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¹ In fact, difficulty to save affects both deposit making (saving-up) and loan reimbursement (saving-down) (Rutherford, 2000). In the saving-down situation, lack of self-control compromises the borrower’s business profits and hence the bank’s cash-flows. However, the moral-hazard problem is against the agent’s future self, and not against the bank.

² A growing body of literature delivers behavioral evidence inconsistent with quasi-hyperbolic discounting, especially when people choose between different monetary payments (Andreoni and Sprenger, 2012; Augenblick et al., 2015). Using data from Mali, Dean and Sautmann (2014) fail to detect any present bias. Accordingly, recent articles in development economics suggest departing from quasi-hyperbolic discounting in the modelling of time inconsistency (Haushofer, 2014; Laajaj, 2015). However, any model that generates time inconsistency implies that discipline can lead to welfare improvements, which in turn means that the discipline/flexibility trade-off we discuss is still relevant.

³ Evidence reported by Haushofer et al. (2013) and Carvalho et al. (2016) supports the idea that low-income households exhibit more present bias than high-income households.
drought, flood, asset loss, job loss, and health emergencies, and they lack proper consumption smoothing tools. The ideas behind financial flexibility is improving their day-to-day money management and helping them cope with shocks (Czura, 2015). Likewise, flexible savings products for the poor would provide them a way to save whenever feasible and without penalties for either insufficient cash-in flows or early withdrawal.

Theoretically speaking, discipline and flexibility act in opposite directions, and this creates a trade-off microfinance institutions (MFIs) are confronted to. According to Amador et al. (2006) and Rai and Sjöström (2013), efficient loan and savings contracts should offer a blend of discipline and flexibility, which would promote timely payments but authorize rescheduling in exceptional circumstances. The microfinance literature itself has little evidence on flexible products. Only few MFIs offer flexible products, and the impact of these real-life experiments is still poorly investigated. Besides, the theoretical literature on the trade-off between flexibility and discipline does not address the poor specifically. For this reason, we have extended our study to lessons on flexible financial products brought from both the behavioral economics literature and the banking literature. Our contribution is twofold. First, we speculate the advantages and disadvantages of flexible products in microfinance. Second, we present best-practice examples of flexible credit and savings products offered by microfinance institutions worldwide. The examples show how the conceptual trade-off between discipline and flexibility can be mitigated by smart product design based on knowledge from behavioral economics.

The rest of the paper is organized as follows. Section 2 focuses on client discipline. Section 3 discusses product flexibility. Section 4 elaborates on the trade-off between discipline and flexibility. Section 5 provides best-practice examples of flexible microfinance products. Section 6 concludes.
2. Discipline

Borrowing and saving create moral hazard problems toward the lender and the saver’s future self, respectively. Typical behavioral biases associated with borrowing and saving include lack of attention, lack of cognitive ability, and procrastination. These problems are more acute with the poor for whom financial deadlines are painful. Evidently, the poor face harsher budget constraints than the rich. In addition, poverty knowingly damages cognitive ability, attention, and self-control. The poor constantly face stressful expenditure decisions involving harmful trade-offs and conflicts since acts of volition draw on limited resources. The consequences of deviating from rational behavior are more severe for poor individuals than for wealthy ones (Banerjee and Mullainathan, 2010), but sticking to rational decision-making is arduous (Bertrand et al., 2004). Self-control implies mental fatigue, which depletes a person’s willpower stock (Ozdenoren et al., 2012). Experimental psychology shows that people exercising self-control on a first task are more likely to fail on a second one (Baumeister et al., 1998).

To address the problems associated with behavioral biases, MFIs often design financial products that are more rigid than those proposed by mainstream banks. Typical microcredit features are: short duration, small and frequent installments—weekly, biweekly, or monthly—starting right after loan disbursement, compulsory savings, progressive lending, and zero tolerance toward default (Armendariz and Morduch, 2010). In addition, some MFIs favor group lending, which consists of granting loans to groups of 5 to 20 members with joint liability. To further act on moral hazard, MFIs tend to complement product design with discipline devices, which include monitoring mechanisms and incentivization. This section reviews the literature on discipline devices used by the microfinance industry. It moves from theoretical considerations to empirical evidence. Given the specificities of loan contracts, most of the discussion concentrates on microcredit, but relevant information on micro-savings is also provided when available.
Monitoring mechanisms reduce information asymmetries. However, in microfinance they are particularly costly. Poor clients are difficult to monitor for several reasons. First, they often live far away from the branch that serves them, and therefore visit this branch rarely. Second, they conduct irregular transactions and often migrate. Third, while large and collective shocks, such as droughts or price drops, are easy to identify, small and idiosyncratic shocks affect the poor’s financial lives dramatically, and are difficult to objectivize by MFIs. Overall, the vast majority of MFIs favor incentives over monitoring.

The incentives used in microfinance can be material or psychological. Material incentives set contingent penalties and rewards, which can be financial (e.g. interest rate rebate, loss of collateral) or social (e.g. loss/gain of reputation and social capital). The microfinance industry offers two types of psychological incentives. Ex-ante incentives target behavioral biases in real time. For instance, the MFIs send reminders and support financial planning. Ex-post incentives are based on contingent penalties and rewards. They exploit the sense of shame for failure and the sense of pride for success. The incentives rely on both extrinsic and intrinsic motivations. Incentivized microfinance products are called commitment contracts, hard or soft depending on whether the incentive is material or psychological (Bryan et al., 2010). Typically, soft commitments are used to overcome self-control problems, temptation, procrastination, and lack of attention, while hard commitments are preferred to address moral-hazard problems (Brihaye et al., 2014).

Theoretical papers weigh the impacts of discipline devices used by MFIs to address moral hazard problems. Frequent payments and group meetings overcome the difficulty of monitoring and

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4 Bénabou and Tirole (2003, p. 490) define extrinsic motivation as “contingent rewards,” and intrinsic motivation as “the individual’s desire to perform the task for its own sake”. Bénabou and Tirole (2006) model intrinsic motivation by reputation. Kőszegi (2014, p. 1088) views intrinsic motivation as “actions that do not carry a financial reward.” Still, it is debatable whether actions that carry non-financial rewards—i.e. social or psychological—belong to extrinsic or intrinsic motivation.

5 Commitments are defined as “arrangement entered into by an agent which restricts his or her future choice set by making certain choices more expensive, perhaps infinitely expensive” (Bryan et al., 2010, p. 673).
help identifying financial problems at an early stage (Rai and Sjöström, 2013). The MFIs can thus react promptly before delinquency worsens. Regularly scheduled payment indirectly co-opts the better-informed informal lenders (Jain and Mansuri, 2003). They also mitigate inattention problems, help clients getting used to meeting deadlines, and embed incentives for active financial planning. The installment frequency matters because for individuals who lack self-control, large repayment is subject to significant temptation (Fischer and Ghatak, 2010). When payments are spread out across time, the instantaneous repayment burden at any time is small and thus less subject to temptation.

Discipline in group lending with joint liability works through peer monitoring that induces social pressure and psychological incentives. Recurrent “nudge” by other group members also reduce attention problems. Regarding individual lending, some MFIs impose compulsory savings as financial collateral. When agents are obliged to save as a requisite for borrowing, the MFI can assess their motivation before delivering loans and/or can help them build savings habits. More generally, progressive lending is the cornerstone of relationship banking (Conning and Udry, 2007). Starting from small loans, it allows assessing borrowers’ creditworthiness step by step. The opportunity of getting larger loans incites borrowers to repay on time.

Barring access to credit is common punishment for default. Such future credit denial is only effective if the MFI is established and borrowers believe that it will be able to make loans in the future (Bond and Rai, 2009). The threat of credit denial is strong for poor clients who are credit constrained and have much to gain from the lending relationship (Tedeschi, 2006). In contrast, the cost of default is low if the borrower can turn to other lenders, unless lenders share information about defaulting borrowers (Luoto et al., 2007).

Micro-savings contracts can embed hard and soft commitments. Hard commitment savings entail financial penalties for withdrawals before a certain date or until a target amount is reached; they sometimes impose strict schedules for deposits. Soft commitment savings use prevalently
psychological incentives (Bryan et al., 2010), such as labels, reminders, and non-binding deposit plans. Labeling savings accounts for a specific purpose discourage withdrawals when savers are subject to mental accounting and view money as non-fungible (Thaler, 1985). Likewise, they mitigate time-inconsistency by making savings objective more salient. Non-binding savings plans help clients organize resources. Last, deposit collection services enhance saving by making transactions more convenient. Face-to-face contacts with collectors exert pressure and act as reminders (Ashraf et al., 2006a).

Empirical papers test the impact of discipline devices on microcredit repayment. A field experiment in the Philippines led Gine and Karlan (2014) conclude that joint liability has little influence on the repayment rate provided that public meetings to collect repayments are preserved. As far as individual lending is concerned, authors have scrutinized the impacts on delinquency of the frequency of group meetings and various repayment schedules. From an experiment in India, Feigenberg et al. (2013) conclude that groups that meet weekly are less likely to default than groups that meet monthly. The evidence on repayment schedules is mixed. Field and Pande (2008) find that in India relaxing the frequency of repayment from weekly to monthly does not affect default. For the same country and holding the meeting frequency fixed, Feigenberg et al. (2013) obtain similar results, i.e. default is insensitive to repayment schedule. In contrast, McIntosh (2008) observes that borrowers in Uganda moving from a monthly to a bi-monthly schedule obtain a slight improvement in repayment. Last, Field et al., (2013) find that conceding a grace period increases default occurrences in India.

Regarding savings, three independent studies—Ashraf et al. (2006b) in the Philippines, Brune et al.’s (2016) in Malawi, and Dupas and Robinson (2003b) in Kenya—converge to show that poor
households with access to illiquid account\textsuperscript{6} save more than those with no access. Moreover, Ashraf \textit{et al.} (2010) show that households with illiquid accounts later experience an increase in female bargaining power. Experimental evidence from Bolivia, Peru, and the Philippines shows that reminders increase the likelihood of reaching savings goals (Karlan \textit{et al.}, 2016). In Chile, Kast \textit{et al.} (2012) find that group meetings and reminders drive similar effects on savings balance. This suggests that peer pressure provides effective discipline, but can be easily replaced by simpler and less time-consuming devices, such as text messages. The experiment organized by Atkinson \textit{et al.’s} (2013) in Guatemala opposes a control group that has access to liquid accounts to a treatment group that has access to liquid accounts \textit{plus} psychological incentives consisting in planning and reminders. In the treatment group, some participants set their own savings goals and other participants are offered a default savings contribution. The results show that the treatment group saves significantly more than the control group.\textsuperscript{7} They suggest that liquid savings accounts combined to soft commitment—such as planning, reminders and default option—are effective to encourage poor people to save.

The ongoing conversation in microfinance typically focuses on the impact of various devices on client discipline (Morduch, 1999). But what about welfare gains or losses associated with these devices? The evidence is mixed. On the one hand, a host of empirical work suggests that the poor value discipline and tend to prefer binding contracts, all else equal (Bauer \textit{et al.}, 2012; Ashraf \textit{et al.}, 2006b). In addition, John (2015) experiment in the Philippines shows that individuals, who are given the opportunity to set their own penalty on commitment savings plan, default more often. John (2015) finds that default is predicted by biased self-perception of one’s own self control problems, suggesting that partially sophisticated agents default because they choose a too low commitment level.\textsuperscript{8} On the

\textsuperscript{6} Commitment savings accounts disallow withdrawals until a set date or amount. Alternatively, withdrawals are restricted to health expenditures (Dupas and Robinson, 2003b).

\textsuperscript{7} Interestingly, among treated households, those with default options reached the highest savings records.

\textsuperscript{8} By the same token, Ariely and Wertenbroch (2002) provide evidence that MBA students who set their own deadlines tend to receive lower grades than those for whom the lecturer imposes the deadline.
other hand, rigidity in microcredit products may have perverse effects, such as reduced financial access and over-indebtedness. Convincing evidence on detrimental consequences of rigid microcredit conditions is provided by Guirkinger (2008), Guérin et al. (2011), Pearlman (2012), Mallick (2012), and Schicks (2013). To further analyze the design of microfinance products, the next section examines the advantages and drawbacks of flexible microfinance products.

3. Flexibility

According to Collins et al. (2009, p.181), financial product flexibility “refers to the ease with which transactions can be reconciled with cash-flows.” Flexible features include: grace periods in loan reimbursements, fee-free rescheduling options in case of shock, credit lines, liquid savings accounts with discretionary deposits and withdrawals, etc. Based on existing theoretical and empirical evidence, this section weights the advantages and drawbacks of flexible financial products in microfinance. We start by summarizing the theoretical contributions on the advantages and drawbacks of flexible financial products, for both the poor and the MFIs. Next, we review the few empirical studies on the impact of flexible products in microfinance. We address both microcredit and micro-savings.

From a theoretical standpoint, flexible products should help poor people for consumption smoothing. The poor are subject to variable income streams, collective shocks, such as floods or seasonal famines, as well as individual shocks, such as sickness, theft, and loss of assets. At low income levels, economic shocks can be devastating when resources fall below what is required to

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9 Guirkinger (2008) and Mallick (2012) show that households prefer informal loans over rigid microcredit. Guérin et al. (2011) argue that microfinance is only partial substitute to informal finance, because the latter is more flexible. Pearlman (2012) shows that vulnerable entrepreneurs in Peru are less likely to borrow from MFIs than their richer counterparts. According to Schicks (2013), over-indebtedness is caused by excess rigidity in microcredit.
cover basic needs (Townsend, 1995). Informal hedging arrangements with family members and friends contribute to partial risk-sharing (Conning and Udry, 2007), especially against idiosyncratic shocks, but they prove to be insufficient for consumption smoothing under adverse circumstances (Townsend, 1994). Flexible microcredit and micro-savings products also address a market failure.

While the idea behind flexible products is demand-driven, the real issue is whether they are financially sustainable for MFIs. The literature offers two opposite arguments. On the one hand, product flexibility may reconcile MFIs’ social and financial objectives, and so contain mission drift (Armendariz and Szafarz, 2011; Copestake, 2007). Cohen (2002) argues that flexible products should deliver a positive impact on MFIs’ social and financial performances. Client satisfaction is valued by socially-minded donors, who subsidize the microfinance sector (Hudon and Traça, 2011). Moreover, properly designed products enhance demand and subsequent financial performance (Woller, 2002).

On the other hand, MFIs supplying flexible products face three types of risks: liquidity risks, staff fraud risks, and moral hazard. Liquidity risks relates to clients exercising the option to delay payments and interrupt savings. The MFI then needs to hedge against cash shortages by means of low-yield liquid reserves (Karlan and Mullainathan, 2006). A major liquidity risk is the occurrence of aggregate shocks, leading to sudden increases in deposit withdrawals, loan renegotiations, and takedowns under revolving credit agreements (Acharya et al., 2013). The risk of staff fraud is linked to flexible repayment schedules. Credit officers in charge of collecting cash from clients may be tempted to under-report repayments and withhold cash (Jeon and Menicucci, 2011). Standard wage incentive schemes based on portfolio quality are insufficient to discipline credit officers and avoid shirking. Last, the moral hazard problems will be extensively discussed in the next section.

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10 Aggregate shocks, such as natural disasters, trigger liquidity problems even for rigid loans.
Empirical evidence shows that the poor barely hedge against shocks. They have limited access to formal insurance (Banerjee and Duflo, 2007; Giné and Yang, 2009), and rather turn to informal hedging mechanisms. According to Collins et al. (2009), poor households in India, Bangladesh, and South Africa, cope with shocks by relying on easy-to-access loans from family and friends, and by postponing repayments of existing loans. Informal risk-sharing arrangements within social networks are not only financially inefficient; they are often costly in terms of dependence (Baland et al., 2011; Di Falco and Bulte, 2011). Dercon and Krishnan (2000) and Robinson (2012) claim that even intra-household risk-sharing arrangements are financially inefficient.

A few empirical studies address the impact of product flexibility on consumption smoothing by means of cost/benefit analyses. Shoji (2010) shows that loan rescheduling after the 2004 nation-wide flood in Bangladesh reduced the likelihood that victims skip a meal. The impact on females was larger than that on males, suggesting that women suffer more than men from the burden of repayment following negative shocks. These findings illustrate how contingent repayments act as a safety net. In contrast, observing farmers from Northwest Bangladesh who were given temporary moratorium during the lean season (“monga”) that follows the transplantation of the Aman rice crop, Shonchoy and Kurosaki (2014) provide evidence that repayment flexibility does not affect consumption levels. Possibly, consumption smoothing is effective only under unpredictable or catastrophic events.

Evidently, flexible loans help the poor managing due repayments. Ravi (2012) shows that in India the available cash is purposefully used to repay the loan rather than diverted toward consumption. Micro-entrepreneurs in India take benefit of a two-month grace period before repayment to undertake high-risk high-return projects (Field et al., 2013). Likewise, in India repayment flexibility—in the form of monthly installments instead of weekly ones—increases business investment and income, reduces financial distress, and improves health condition (Field et al., 2012). Moreover, flexible loans enhance financial inclusion. Khandker et al. (2012) show that
flexible microcredit helps in reaching the ultra-poor in Bangladesh. Weber and Musshoff (2013) find that in Madagascar conceding grace periods and a crop-fitted repayment schedules improves access to capital for farmers.

Regarding deposits, empirical research shows that access to fully flexible savings accounts has various positive consequences such as an increase in overall savings balance, in business investment, and in private expenditures (Dupas and Robinson (2013a). Using data from Nepal, Prina (2015) finds an impact on both savings and investment in health and education. Kast and Pomeranz (2014) provide evidence that access to savings accounts leads to replacing short-term debt to family and friends by savings, and improves consumption smoothing.

Finally, there is only partial evidence concerning the impact of flexibility on MFIs’ performance. McIntosh (2008) shows that in Guatemala MFIs that offer flexible repayment schedules experience lower client turnover than their counterparts that stick to rigid products. Using data from a French social bank, Cornée and Szafarz (2014) conclude that fair treatment generates reciprocity in socially-minded clients and so reduces the occurrence of default. Yet, the final impact on MFIs performance is unknown. The next section examines whether product flexibility is costly in terms of loss of discipline. Put differently, it addresses the discipline/flexibility trade-off.

4. Discipline vs. Flexibility

The previous sections have stressed the strategic importance of both discipline devices and product flexibility for the microfinance industry. Noticeably, these characteristics matter for microcredit and for micro-savings; they are also meaningful for both sides of the market: the MFI and the client. This section raises the following questions. Is the discipline/flexibility trade-off inevitable? Or alternatively, is there a third way to design efficient and fruitful microfinance products that combine
discipline and flexibility? To address these questions extensively, we review scientific contributions in various fields: banking, behavioral economics, and microfinance. Like in Sections 2 and 3, we start by reporting theoretical work, and then review the empirical contributions.

Existing theory on the discipline/flexibility trade-off comes chiefly from banking and behavioral economics. Therefore, little is known about the impact of poverty on this trade-off. In contrast, empirical evidence is found for different groups of the population. Moreover, the evidence on savings is logically restricted to the demand side of the market.

From the financial institution’s perspective, efficient loan contracts should force clients to repay when they hold enough cash but permit rescheduling in case of sudden liquidity problem. From the client’s perspective, efficient savings contracts would force their future selves to save when possible but avoid penalizing skipped deposits when saving is unfeasible. In both cases, the efficient contracts are contingent on the state of world. They should also embed discipline devices to ensure enforcement in times where either repaying or saving is feasible. Such contingent contracts are always possible in a complete information environment, where the states of the world are observable and verifiable by a third party. However, in the more realistic context of incomplete information, the range of feasible contingent contracts shrinks (Arrow, 1974), and the trade-off between flexibility and discipline becomes unavoidable.

In particular, \textit{ex-post} loan rescheduling aggravates moral hazard problems by undermining the bank’s credibility to call the loan (Boot, 2000). The borrower may react by making little effort to avoid default (\textit{ex-ante} moral hazard) or by defaulting strategically (\textit{ex-post} moral hazard) (Bester, 1994). This limitation does however not affect contracts contingent on collective shocks, such as flooding or drought, which are easily verifiable. Behavioral economists use a similar argument to claim that in incomplete information settings, efficient savings contracts are not feasible, or infinitely costly to implement. Time-inconsistent clients need credible and binding commitments to manage
self-control problems; but they also need flexibility to cope with shocks (Laureti and Szafarz, 2016). Importantly, financial contracts can offer a mix of discipline and flexibility, but under asymmetric information this combination is inefficient. Amador et al. (2006) show that the optimal—utility maximizing—but inefficient commitment savings contract imposes a minimum-savings rule, which restricts individuals to save above a given amount, but with complete flexibility.

The discipline/flexibility trade-off is difficult to measure empirically because researchers are unable to identify strategic default better than financial institutions do. Scholars in microfinance manage to get around this problem through randomized control trials (RCTs), but only a few studies examine the interplay between product flexibility and client discipline.

Concerning microcredit, McIntosh (2008), Field et al. (2013), and Field and Pande (2008) find mixed evidence on the impact of switching from rigid to flexible contracts. McIntosh (2008) finds an improvement in reimbursement discipline, while Field et al. (2013) obtain the opposite results, and Field and Pande (2008) detect no impact on loan repayment. The studies are different in many aspects (location, methodology, flexible features analyzed, etc.),¹¹ which make it difficult to speculate on the sources of the discrepancies in the results found. Possibly, the variety of reactions to the introduction of flexibility in loan contracts stem from the double effect of flexibility. On the one hand, it reduces the clients’ willingness to pay (i.e. strategic default increases). On the other, it increases the clients’ ability to pay (i.e. non-strategic default decreases). Empirically, the two effects are hard to disentangle.

Liquid savings accounts associated with soft commitments, such as labeling and reminders, could represent a good balance of flexibility and discipline. A few empirical papers test this

¹¹ McIntosh (2008) examines the default rate of microfinance clients in Uganda when loans switch from a monthly to a bi-monthly repayment schedule. In a RCT in India, Field and Pande (2008) find no impact on repayment of shifting from a weekly to a monthly repayment schedule. In another RCT in India, Field et al. (2013) show that clients who are given a two-month grace period repay less swiftly than those who are not.
hypothesis. RCTs are used to determine which type of savings accounts is more effective to encourage savings (Karlan and Linden, 2014; and Burke et al., 2014). In a field experiment, Karlan and Linden (2014) compare the liquid and illiquid savings deposits of poor students in Uganda. Illiquid accounts are devoted to educational expenses, while the liquid accounts are unrestricted. The authors observe that students deposit more savings in the liquid account, suggesting that hard commitment induces low take up. From an experiment with U.S. households, Burke et al. (2014) reach the similar conclusion that liquid accounts attract more savings at take-up, but illiquid account associated with hard commitments have higher savings balance after six months, suggesting that the latter discourage withdrawals more efficiently.

Ultimately, the welfare implication of hard vs. soft commitment on clients is unclear. Although hard commitments reduce moral hazard toward one’s future self and increase savings, they may be more costly than soft commitments because they are inflexible and thus unable to smooth consumption sufficiently. As put by Dupas and Robinson (2013a, p. 165), “Savings accounts only improve welfare if they make it more likely that money is spent where it has the highest returns or if it reduces money spent on consumption that people later regret.” So far, the literature provides no evidence of such an outcome.

In sum, theoretical models show that incomplete information makes the efficient credit and savings contracts unfeasible, but empirical papers deliver a more nuanced picture. Meanwhile, the academic literature—both theoretical and empirical—on the issue of flexibility versus discipline is still in its infancy and many questions remain unanswered. To fill the gap, the next section builds on the experience of field practitioners, and examines best practice examples.

5. Flexible Microfinance Products
Practitioners agree on the fact that designing flexible financial products requires a subtle blend of discipline devices and flexible contract features. Flexibility typically deteriorates the moral-hazard problem. To compensate for this disadvantage, MFIs can use specific discipline devices provided that they are compatible with the features of the flexible product. Borrowing from Laureti and Hamp (2011), this section presents five best practice examples of such combinations. Our objective is to cover both microcredit and micro-savings. Importantly, the contracts we present are the exception to the rule of rigid contracts, which prevail in the microfinance industry. Flexible products promise significant welfare enhancements, particularly for individuals who are borrowing and/or saving.

We structure the approach by classifying flexible products in three categories depending on the type of options they leave to the clients. First, with *ex-ante* flexibility, financial transactions are adapted to clients' expected cash-flows before uncertainty is resolved. Second, with *ex-post* flexibility, deviations from a pre-established transaction plan are allowed after an unfavorable outcome. Last, full flexibility excludes any predetermined transaction plan and authorizes any transaction at any time.

Table 1 reports the five products under consideration: for *ex-ante* flexibility, we review the loans offered by Confianza (Peru) and the savings accounts supplied by Vivekananda Sevakendra Sishu Uddyong (India); for *ex-post* flexibility, we introduce products proposed by Bank of Agriculture and Agricultural Cooperatives (Thailand) and Barclays Bank (Ghana); for full flexibility, we scrutinize the savings-and-loan accounts introduced by SafeSave (Bangladesh). For each product, Table 1 highlights the flexibility features (column (1)) and the discipline devices (column (2)). The remaining of this section describes these features in details.

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12 We, however, do not evaluate the products.
**Ex-ante** flexibility adapts transactions to each client’s expected future cash-flows.\(^{13}\) For credit contracts, *ex-ante* flexibility includes loans with a grace period and, generally, a repayment schedule customized to each client. Confianza in Peru offer seasonal loans to farmers. These loans pre-set a series of disbursements and payments matching the (expected) crop cycle of each borrower. In times of expected peak income, such as the harvest season, payments are high. When expected income is low, such as during the planting season, payments too are low. To encourage client discipline, Confianza selects less vulnerable households, which hold collateral and/or have diversified income sources, and monitors borrowers closely during the loan cycle. In addition, the MFI adopts a severe policy on default. Skipping repayments is not allowed and harsh penalties apply, such as imposing penalizing interest rates and capturing valuable collateral, i.e. assets pledged by the borrowers for their inherent value, not their market value.

*Ex-ante* flexibility also characterizes savings plans in which the frequency of the deposit schedule and its duration are customized to the client. The Indian MFI Vivekananda Sevakendra Sishu Uddyon (VSSU) offers savings plans with fixed deposits that can be made daily, weekly, or monthly. The MFI also offers one-time savings scheme (i.e. term deposits). The maturity varies from one to six years. The savings products offered by VSSU exhibit *ex-ante* flexibility because the client may choose the savings plan that best suits her in the first place. Savings plans are hard commitments, since the timing and amounts of deposits are fixed in advance and withdrawals are restricted until the date of maturity is reached. To give flexibility to the plan, early withdrawals are possible under payment of a fee. The regular deposit schedule helps in planning and mitigate inattention problem (Karlan *et al.*, 2016). VSSU use deposit collectors who make transactions convenient, act as reminders and inflict some sort of moral imperative to save (Rutherford, 2000; Ashraf *et al.*, 2006a). Generally, any deviation from the plan generates sanctions that encourage clients’ discipline: fees for

\(^{13}\) Karlan and Mullainathan (2006) talk of “rigid” or “structured” flexibility.
early withdrawal, social sanctions for loss of reputation, and/or psychological sanctions for loss of self-esteem.

Contracts with *ex-ante* flexibility determine transactions to be executed in the future. These contracts are not contingent on the future states of the world. The transactions do not adapt to unexpected income losses or health emergencies. Whichever state of the world occurs, clients should stick to a single transaction path. *Ex-ante* flexibility does not help borrower to hedge against negative shocks. *Ex-ante* flexibility may help borrowers to manage repayment (Ravi, 2012); it may increase business profits, reduce financial stress (Field *et al.*, 2012; 2013), and improve access to capital to farmers (Weber and Musshoff, 2013), among other things.

Implementing *ex-ante* flexibility raises the issue of who should decide on the clients’ savings plans. Leaving the *ex-ante* choice to the savers can be harmful because most people find it difficult to accurately predict their future behavior and set their optimal deadlines (Ariely and Wertenbroch, 2002; John, 2015). Alternatively, to mitigate this behavioral issue, MFIs could make the decision. For instance, offering seasonal repayment schemes to rural clients would make perfect sense provided that the lender knows the seasonality of their cash-flows. The problem is that, in practice, MFIs deal with a very large number of small loans and have little information on their clients' business activities and cash-flows. As a result, there is no clear-cut way of implementing *ex-ante* flexibility in practical contexts.

The designs presented up to now have additional limitations. In loans, collateral requirements and costly default can trigger credit rationing and over-indebtedness. Poor people who lack collateral may be banned from flexible loans; others could refrain from applying for flexible microcredit because the loss in case of default is too high (Boucher and Guirkinger, 2007). For borrowers whose project fails, strong punishment can lead to over-indebtedness. To avoid incurring in too costly default, borrowers take a loan from moneylenders, pay exorbitant interest rate and increase their debt
burden (Arnold and Booker, 2013). In savings, accounts with restricted withdrawals can discourage take up if clients have a biased perception of their time-inconsistency or want to access funds cheaply if a shock occurs.

In *ex-post* flexible contracts, reducing information asymmetries is an alternative to sanctions and rewards. Contracts with *ex-post* flexibility include the possibility of transactions contingent on the state of the world. Future transactions can be adapted to actual cash-flows, in case of unexpected events such as shocks and emergencies. For credit contracts, for example, the Bank for Agriculture and Agricultural Cooperative (BAAC) in Thailand offers agricultural loans with various maturities. The payment schedule is predetermined, which encourages discipline. However, in case of *force majeure*, BAAC accepts to reschedule existing loans according to the farmers' new repayment capabilities (Townsend and Yaron, 2002). To assess the cause of delinquency, BAAC sends staff into the field to verify the actual situation of each client.

Such information-intensive designs generate high operational costs for MFIs.\(^{14}\) Informal financial channels have an information advantage with respect to formal institutions (Udry, 1990; Guirkinger, 2008). In Ghana Barclays Bank cooperates with Susu (payment) collectors. Through this formal-informal linkage, the bank manages to obtain local information from informal financial circuit at reasonable costs. Susu collectors are a traditional form of finance practiced in Western Africa. Susu collectors act as mobile mini-bankers, collecting a predetermined amount of money from each client on a daily or weekly basis over an agreed period, typically one month. At the end of this period, the accumulated savings are returned to the depositor, less a small commission for services. The service provided by Susu collectors is flexible in that it allows changes in the informal contract terms to meet

\(^{14}\) An equivalent mechanism is relationship banking. In the banking literature, Boot (2000) argues that relationship lending favors special contractual features, including flexibility and discretion. Relationship banking addresses information asymmetries in two ways. First, banks can obtain client-specific information through multiple interactions. Second, reputational incentive embedded in long-term lending relationships also reduces the credit risk associated with provision of flexible loans (Cornée and Masclet, 2013).
clients’ circumstances. Susu collectors know the local economy and can easily verify if shirking is justified or not. In addition, Susu collectors promote financial discipline through the regular visits to the clients’ homes.

Both ex-ante and ex-post flexible contracts predetermine transactions either as fixed in advance, or contingent on the future state of the world. In contrast, fully flexible contracts leave transactions open. Like ex-post flexibility, full flexibility allows clients to match transactions with their actual cash-flows, whereas this is impossible with ex-ante flexibility. SafeSave in Bangladesh offers fully flexible savings-and-loan accounts. Deposits and withdrawals can be made at any time for any amount. SafeSave active clients are also allowed to borrow. Loans are repaid freely, with no maturity or fixed installment. SafeSave uses three disciplining devices: financial collateral, progressive lending and payment collectors. Financial collateral and progressive lending are typically adopted in standard microcredit contracts. Financial collateral gives more flexibility than physical collateral because, in case of need, clients can withdraw their savings (Collins et al., 2009). The disciplining device is a loan-size ceiling based on the savings balance. In case of delinquency, savings are seized. In addition, good credit history increases loan size ceiling, which is progressive lending.

SafeSave uses payment collectors as disciplining device. Payment collectors pay frequent visits to clients at home or in the workplace. These frequent visits by MFI staff create various incentives. First, SafeSave hires payment collectors living close to the clients they visit. Proximity facilitates monitoring mitigating moral hazard problems. Second, collectors make transactions convenient, which enhance loan repayment and saving deposits. Third, face-to-face interaction with payment collectors can create a sense of guilt in case of failure. Fourth, deposits collectors act as a reminder for those with attention problems. This psychological nudge is similar to the one created by regular fixed repayments or by SMS reminders.
Despite the multiple possibilities for designing flexible contracts, few MFIs offer such products worldwide. Standard microcredit contracts remain rigid. Typically, the client has no say on the features of her contract (no ex-ante flexibility). Repayments of micro-loans start right after loan disbursement and are made in equal and regular installments. The non-refinancing threat excludes contingent contract renegotiation (i.e. there is no ex-post flexibility). Loan refinancing happens only at the end of each round. Savings services in microfinance—when they exist—are often linked to loans. Deposits are then compulsory and clients cannot withdraw money in case of liquidity needs (no ex-post flexibility).

6. Conclusion

Mainstream microfinance products are standardized and rigid. The main reasons invoked by the industry are operational costs and client discipline. However, poor people need flexibility to cope with shocks and improve their day-to-day money management. Based on a literature survey, this paper highlights that the design of flexible products could allay the concerns of MFIs. Our contribution is twofold. First, we report advantages and drawbacks of flexible microfinance products. We critically review the existing literature and highlight experimental evidence on flexible microfinance products. The results suggest that contracts mixing flexibility and discipline can be designed. Unfortunately, the literature still lacks rigorous evaluations of the feasibility and efficiency of such contracts.

Second we illustrate that flexible microfinance products exist in real life. We review a collection of best-practice examples of micro-loans and micro-savings accounts, which harmoniously combine flexibility and discipline device. Discipline devices can be based on incentive systems or on
monitoring mechanisms. To face agents’ moral hazard, we argue that these devices are a necessary complement to flexible features.

Poorer individuals are both more vulnerable to shocks and more susceptible to biases. For MFIs, however, introducing flexible microfinance products is a major challenge because they may have a negative impact on profits, at least in the short run. This concern is especially relevant in countries such as Bangladesh, where various rigid microfinance products are already available. The costs exacerbated by flexibility in microcredit relate to three issues: liquidity needs, credit risk, and staff fraud. While *ex-ante* flexibility is relatively unaffected by these costs—which mostly concern the consequences of *ex-post* flexibility—it does not help clients to cope with unexpected shocks. There is little chance that *ex-post* (or fully) flexible products will reach the microfinance industry unless there is a political will that they should. For instance, policymakers and donors could subsidize pilot MFIs that agree to supply *ex-post* flexible credit products. In addition, regulatory innovations can stimulate the supply of *ex-ante* flexible savings products by relaxing reserve requirements. Since sophisticated time-inconsistent agents typically seek the commitment features embedded in *ex-ante* flexible—but *ex-post* rigid—savings products, the higher prevalence of time-inconsistent agents in poor populations provides a spontaneous hedge against liquidity risks incurred by the financial institution (Laureti and Szafarz, 2014 and 2016). Consequently, the regulatory framework for micro-savings does not have to be as stringent as the one for mainstream banks.

Future research could pay more attention to the direct impacts of flexible products on both the client and the MFI. On the demand side, we know very little on the welfare-improving capacities of flexible microfinance products. Moreover, are flexible products preferable to alternative hedging techniques against shocks, such as informal risk sharing and formal micro-insurance contracts? The interaction between informal and formal financial products, and the extent to which they are complement or substitute, represents an interesting open question. When evaluating product design
and examining the discipline/flexibility trade-off, economists who use quasi-hyperbolic discounting for policy analysis employ welfare criteria based on either the multi-self Pareto criterion, which associates each moment in time with a different self, or the exponential-discounting “long-run criterion” (Bernheim, 2009). Bernheim and Rangel (2009) extend the welfare analysis to settings where individuals have behavioral biases. Plausibly, the authors' approach offers a promising avenue to evaluate the merits of flexible microfinance products, especially those that target sophisticated time-inconsistent individuals.

On the supply-side, the cost-benefit analysis of flexible contracts remains to be performed. Investigating the costs resulting from product flexibility is needed to determine whether flexible contracts are compatible with MFI’s financial sustainability in the long run. To address this issue requires investigating whether the innovations in product design presented in this paper are context-specific or whether they can be confidently introduced on a larger scale in the microfinance industry. This is a fruitful avenue for further research.

Nowadays, there are hardly any studies evaluating the impact of real-life flexible products. This paper shows that flexible microfinance products not only represent a promising field of development for the industry, but also already exist under various forms. Its primary goal is to raise awareness on this little known reality and encourage scholars to analyze it further.
References


Table 1. Best-Practice Examples of Flexible Microfinance Products

<table>
<thead>
<tr>
<th>Products</th>
<th>Flexibility (1)</th>
<th>Discipline (2)</th>
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<tbody>
<tr>
<td>Seasonal loans (Confianza, Peru)</td>
<td>• Loan schedule and maturity are adapted to the crop-cycle (<em>ex-ante</em> flexibility)</td>
<td>• Selection of less vulnerable household (e.g. collateral, diversified cash-flow)</td>
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<td></td>
<td>• Rigorous loan monitoring</td>
<td>• Rigid policy of non-tolerance with defaulters</td>
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<td></td>
<td>• Rigid policy of non-tolerance with defaulters</td>
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<tr>
<td>Customized savings plans (VSSU, India)</td>
<td>• Different frequency of deposits: daily, weekly, or monthly deposits (recurrent deposits) and one-time savings scheme (term deposits)</td>
<td>• Predetermined deposits plan, with regular deposits</td>
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<td></td>
<td>• Possibility to withdraw money before maturity</td>
<td>• Deposit collectors at the clients doorstep</td>
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<tr>
<td></td>
<td>• Predetermined deposits plan, with regular deposits</td>
<td>• Financial fees for withdrawing money before maturity</td>
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<tr>
<td>Ex-post loan rescheduling (BAAC, Thailand)</td>
<td>• Renegotiation of repayment schedule after an idiosyncratic shock (<em>ex-post</em> flexibility)</td>
<td>• Predetermined payment schedule</td>
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<td>• Field staff verify directly the cause of default</td>
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<tr>
<td>Local collectors linked to bank account (Susu collectors and Barclays Bank, Ghana)</td>
<td>• Predetermined deposit schedule customized to clients (<em>ex-ante</em> flexibility)</td>
<td>• Doorstep service</td>
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<td></td>
<td>• Allow adjustment of conditions to change circumstances, as in emergencies (*ex-post flexibility)</td>
<td>• Local collectors have good knowledge of the local economy, know the clients and their business</td>
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<tr>
<td>Savings-and-credit accounts (SafeSave, Bangladesh)</td>
<td>• No-maturity accounts</td>
<td>• Deposit collectors are hired in the slums where the clients live, and visit clients daily</td>
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<td>• Deposits and withdrawals are allowed at any time for any amount</td>
<td>• Progressive lending (loan amount increase with good repayment)</td>
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<td>• Amount and timing of loan repayment is decided freely by clients</td>
<td>• Financial collateral (compulsory savings balance equal to one-third of the loan outstanding)</td>
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<td></td>
<td>• No fixed maturity</td>
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Source: Laureti and Hamp (2011).