Flexible Financial Products in Microfinance to Address Risk

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1. Introduction: Permanence of Uninsured Risk and the Need for Flexible Financial Products

Microfinance has spread with the aim of easing access to financial services for poor people in developing countries because, like everyone, they need the means to smooth their consumption, build their assets, run their business, and manage risk. Microfinance institutions (MFIs) have developed a wide variety of financial products that are adapted to the needs of poor people, but generally not for the purpose of helping them to deal with uninsured risk. In particular, products are rigid and standardized in order to avoid client default, (Armendariz and Morduch, 2010) which prevents the poor from coping with risks and shocks.

Hence, the permanence of uninsured risks remains a matter of concern, since it restrains investment, income growth and welfare for poor households in developing countries. This is because uninsured risks force these households into self-insurance strategies for risk management (ex-ante relative to shocks) and risk coping (ex-post relative to shocks). Ex ante measures include crop diversification, farm fragmentation and share-cropping; ex post methods include using of informal credit, temporary employment, savings, sell of assets. Communities and network also play important roles in those strategies because people pool risks among households. In some developing countries, solidarity exists among villages, which help each other. People ask their relatives and their network for help in bad years and return the favor in good years. These networks are often rotating savings and credits associations (ROSCAs), which permit people to save and sometimes access credit in case of emergencies. These mechanisms help manage idiosyncratic or independent risk (affecting one person) and some covariate risks with low intensity (affecting everyone at the same period), but they do have limitations.

Risk avoidance strategies above are ineffective when severe covariate shocks like hurricane, drought and repeated shocks in quick succession as serious illness needing frequent medical visits occur. The most affected in those cases are poor people with low asset and few options to cope with risk. They have to reduce their consumption, take children out of school, use their savings, sell off productive assets used for daily survival and income and engage in risky activities. Consequently, shocks, which are transitory by definition, may affect them permanently (Dercon and Hoddinut, 2004); leaving them in a poverty trap (Barnett, Barrett and Skess, 2008). Dercon and Hoddinut (2004) demonstrated that in Zimbabwe and Ethiopia, the inability of poor household to cope with transitory shocks from droughts and other serious crises has long-term impacts especially for children with reductions in stature; schooling outcomes which tend to diminish future employment prospects and productivity. Basing on stylized facts that “taller (and better educated) women have, on average taller (and healthier) children,” they conclude that “the impact of these transitory shocks may well be felt for several generations” (p. 134).

Moreover, uninsured risk discourages investment on riskier projects with higher benefits mitigating the increase of welfare and income. We can consider the example of farmers on which most studies have focused. Theoretical evidences suggest that increase in risk reduce
the scale of risky crop production ((Sandmo (1971), Fafchamps (1992), Fafchamps and Kurosaki (2002)). Results from empirical investigations corroborate this predictions, poor households without insurance devote less land to high yielding but volatile rice varieties and castor in India (Morduch, 1990), more land to low risk with small return potatoes in Tanzania (Dercon, 1996) and less labor to price volatile coffee in Uganda (Hill, 2009). They are also less likely to take credit or adopt innovations. Dercon and Christiansen (2011) demonstrated that in Ethiopia, they do not apply for fertilizer available on credit. This results in high opportunity costs like the income forgone by not exploiting the most profitable land uses and technologies because of their higher risk (Alderman and Paxson 1992). Some studies estimated that in absence of risk, the average farm income could be 10 - 20 % higher (Gautam, Hazell and Alderman 1994; Sakurai and Reardon 1997). Recently, Cole, Giné and Vickery (2011), by using field experiments in a semi arid area of India, show that farmers which have access to rainfall index insurance\(^1\) are much more inclined to increase investment in higher return and higher risk investments.

Subsequently, the permanence of uninsured risks leads to self-insurance strategies and risk coping mechanisms, which are costly. This suggests that with the right financial instruments, poor households would be better off. Attempts at reducing risk via insurance (including index-based insurance) have met with limited success without heavy and continuing subsidies from government, donors and relief agencies. Furthermore, microfinance credit and savings products have typically been rigidly defined and managed, preventing their use to confront risk\(^2\). This requires more flexible financial products (i.e. adapted to clients ‘conditions like in case of emergencies or shocks) such as flexible savings, open lines of credit, and index-insurance confined to the types of risks that cannot be covered by savings and loans. Concerning index based insurance; the main problem is basis risk. This leads to a low take up for farmers especially because of the huge gap between their income losses and the insurance payouts. Authors like De Nicola et al. (2012) have tried to find a strategy to mitigate basis risk looking at the combination of different financial products especially weather index insurance, insured credit, and savings account. Using a dynamic stochastic model applied to the data of an Ethiopian household survey, they found that in presence of basis risk, the positive effect of weather assurance and insured credit is weakened. But savings accounts tend to reduce the effect of basis risk and mitigates the welfare loss due to basis risk when they are combined with weather insurance. An offer which combines the three products leads to higher welfare gains, putting in evidence their complementarities.

Some MFIs have offered such flexible products to their clients and it is the purpose of this paper to review how micro-financial products have been redesigned to offer more flexibility to users so they can be used to reduce and cope with risk. These new financial products have

\(^1\) Index insurance is a contract whose payouts are linked to a publicly observable index like rainfall, temperature or a commodity price etc.

\(^2\) In general, MFIs use rigid and standardized enforcement mechanisms like joint liability, frequent and regular repayment schedule without grace period, progressive lending, intolerant policy toward default and compulsory savings (Armendariz and Morduch, 2010).
to be designed and introduced in such a fashion that they both meet clients’ demands for risk reduction and secure high discipline and repayment rates for the supplying MFIs.

In the case of credit, greater flexibility would help borrowers use credit to do less risk management and better cope with risk. This represents a challenge because flexibility also exacerbates the commitment of the client and its discipline problem and MFIs have to reinforce their enforcement strategies. But too much rigidity can lead to credit rationing for example, and thus to the exclusion of the poorer. The dilemma here is to secure discipline as flexibility is increasing.

Concerning savings, behavioral anomalies like the difficulty for poor to save (Rutherford, 2000) emerge because of external pressure from family and friends (Anderson and Baland 2002), failure to plan and lack of attention (Karlan et al, 2010; Cadena and Schoar, 2011). Lack of self-control due to time inconsistency also leads agents to over-consume and under-save over time. Poor people tend to be more affected than rich by these behavioral biases because they are more vulnerable in case of errors and the temptation is decreasing with income (Banerjee and Mullainathan, 2009). Savings are flexible under the simplest passbook account form. The problem is the need to introduce motivational devices that help people acquire the discipline to save as much as they would rationally like to. Introduction of these motivational savings (dedicated savings accounts, fines and constraints on early withdrawal) increases discipline but reduces flexibility, especially to be able to withdraw savings in case of an emergency. So, there is like for credit a tradeoff between flexibility and discipline, but it is reverse. In credit, greater flexibility compromises discipline. In savings, greater discipline compromises flexibility.

This debate on the right balance between flexibility and discipline goes beyond microfinance, as it emerged in both banking theory and behavioral economics (Laureti, 2011). The main contribution of this paper is to review extensively flexible products in microfinance emphasizing the challenges they encountered when they are made flexible in order to play a role vis-à-vis risks and shocks. Few studies have explored the way to make microfinance more flexible (Sadoulet, 2002; Karlan and Mullainathan, 2006; Tedeschi, 2006). Some authors discuss existing MFIs offering flexible contracts like (CGAP, 2000; Rutherford, 2011) and focus generally in one single case studies with few exceptions like Ashraf et al. (2003) and CGAP/IFAD (2006) as underlined by Hamp and Laureti (2011). The latter also present a literature review of innovative flexible products but they make a confusion between convenience which is to adapt products to clients needs and flexibility which is to adjust the product to clients conditions like occurrence of shocks and emergencies. Consequently, in our review, we distinguish between convenience and flexibility. We go beyond Hamp and Laureti (2011) paper by exploring more products including combination of products that have components of credit, savings, insurance and those which have been tested within the framework of field experiments.

The remainder of the paper proceeds as follows. Section 2 presents a conceptual framework. Section 3 describes some flexible products while highlighting their flexibility and discipline features. We also assess for each product their performance, review the different impact
evaluations and propose recommendations for improvement of design and implementation. Finally, in section 4, we conclude by a discussion of achievements, remaining challenges and we give scope to further research.

2. Conceptual Framework: Towards Flexible Financial Products in Microfinance

It is important to conceptualize the meaning underlying flexibility and discipline with respect to financial products. Flexibility in microfinance refers to mechanisms that improve a client’s payment ability (Karlan and Mullainathan, 2006), improving the clients’ ability to cope with risk, and ability to manage day-to-day monetary costs. (Collins et al. 2009) Having flexibility increases clients’ ability to pay and willingness to pay in the case of credit. The flexibility of a financial product is balanced by disciplinary mechanisms. Hamp and Laureti (2011) contend that disciplinary mechanisms are a necessary component of microfinance to protect against two types of moral hazards: 1) In ex-ante moral hazard, borrowers do not put in effort for the success of their business; low effort affects revenues negatively, which could cause them to be insufficient to repay the loan. 2) In ex-post moral hazard, borrowers decide not to pay back a loan even thought they have the sufficient budget to do so. Discipline also protects against incentive problems that prevent people from saving, such as lack of self-control and external pressures.

Risks of “too stringent” financial discipline include:

- Overly strict disciplinary mechanisms can encourage risk rationing. This happens when clients do not apply for a credit because they consider the loss in case of default too high (Boucher and Guirkinger, 2007).
- Excessively rigid financial services can cause over-indebtedness and loan delinquency (Chaudhury and Matin, 2002; Schicks, 2010).

Balancing Flexibility and Discipline

The poor need flexible products that allow transactions adaptable to their cash flow. Such products help the poor to smooth their consumption during times in which their income flow is irregular and unpredictable, and to cover unexpected expenditures. Financial products designed for poor clients should also include disciplinary and enforcement mechanisms to protect lenders against “moral hazard behaviors,” such as lack of self-control, intra-household disagreement and attention failure. Such mechanisms enhance control over the client’s budget and assure that payments are duly made (Collins et al., 2009).

As noted above, in presence of uninsured risk, poor households involve themselves in risk coping mechanisms, which are expensive and ineffective in cases of severe covariate shocks, or shocks that occur in quick succession. Traditionally, microfinance products for the poor were rigid and standardized in order to deal with information asymmetry and transaction costs, so they do not allow to cope with risk and shock. But like each other, poor people need flexible product to effectively manage emergencies and to smooth their consumption.

Unbridled flexibility, such as ex-post loan repayment rescheduling can aggravate adverse selection by lowering a client’s motivation to pay back their loan. In the same vein, too much
discipline can encourage risk rationing, which happens when clients do not apply for credit because they consider the loss in case of default too high (Boucher and Guirkinger, 2007) or excessive rigidity can cause over-indebtedness and loan delinquency (Chaudhury and Matin, 2002; Schicks, 2010).

The main challenge is balancing between flexibility and discipline. This balancing differs between the cases of credit and saving. With respect to credit, greater flexibility compromises discipline. In savings, greater discipline compromises flexibility.

✓ For Credit

On the credit side, payment performance depends on client's willingness and ability to pay (Boucher and Guirkinger, 2007). Financial discipline enhances the willingness to pay and can worsen the ability to pay. In contrary, flexibility by easing money management enhances the ability to pay but it can decrease the willingness to pay. This represents a great challenge as flexibility lowers the commitment of the client and its discipline mitigating the sustainability of MFIs. So the latter have to reinforce their enforcement strategies by discipline features through close monitoring for example, as a consequence operational costs increase. But too much rigidity can lead to credit rationing, and thus to the exclusion of the poorer. The dilemma here is to secure discipline as flexibility is increasing. Many MFIs have tried to adapt their products to their clients and capacity to pay by offering customized products:

- Individual as opposed to group loans.
- Less frequent repayments with the possibility to do the installment on weekly or monthly basis.
- Grace period before loan repayment.
- Repayment calendar adapted to anticipated cash flow and crop cycles.
- Interest paid only on outstanding loan balance.
- Loans based on past performance and accumulated savings as opposed to collateral.

But all these features are convenience not flexibility because they do not allow poor household to manage emergencies and shocks. Major progress has been made in introducing fully flexible loans. This includes:

- Emergency loans on demand: credit lines, credit cards, good loans, payday loans.
- Contingent loans (flexible duration, borrower chooses when to repay).
- Early repayment options without penalty.

The challenge here is to maintain discipline while allowing greater flexibility. Options that aim to do so include stricter selection, closer monitoring, and heavier sanctions or rewards (Laureti, 2011).

On the demand side, flexibility might deteriorate the commitment of the client and his discipline. On the supply side, MFIs’ operational cost will increase and loan repayment rate decrease.
For Savings

Concerning savings, Passbook accounts allow instant unlimited withdrawal. Accounts with no minimum balance allow full withdrawal of accumulated savings. Difficulty here is to preserve motivational/commitment devices to help people save while maximizing flexible access for risk response. One option is to link the right to dis-save to the motivation to save. This is the case when saving is for an emergency health expenditure that can be verified by the holder of deposits such as a health expenditure in Dupas and Robinson (2011). Saving withdrawal can also be indexed on observable triggers similar to index-based insurance. Commitments through default options can be made fully renegable at any time as in the case of CHN experiment.

Ashraf et al. (2003) found that the main mechanisms may be divided into

- deposit-side mechanisms that help clients make regular deposits.
- withdrawal-side mechanisms that help clients restrict the use of their funds except for well-planned uses or emergencies.

Introduction of such motivational savings (dedicated savings accounts, fines and constraints on early withdrawal) increases discipline but reduces flexibility, especially to be able to withdraw savings in case of an emergency. So, there is like for credit a tradeoff between flexibility and discipline, but it is reverse.

Transfers, Insurance and Composite Financial Products

Electronic transfers such as M-Pesa allow immediate transfers in response to shocks. Transfers can be international (remittances, international solidarity), allowing to mobilize mutual insurance to cope with nationally covariate shocks (e.g., earthquake in Rwanda, Blumenstock 2012).

Index-based schemes help extend insurance to smallholder farmers that could not be covered with assessed loss-based indemnity insurance, but basis risk remains high, insurance premiums are very costly (loading cost), and uninsured background risks remain large. In addition, the poor may be liquidity constrained in paying premiums, there may be lack of trust in the insurance provider, and poor understanding of how an index-based insurance works. For these reasons, uptake has been low without substantial subsidies.

Composite financial products are also promising in mitigating basis risk, and need more attention; this includes:

- Combining index insurance with savings: basis risk in index-based weather insurance can be reduced by precautionary savings. Savings can also help protect a farmer from uninsured idiosyncratic risks such as health shocks that cannot be covered by an index-based instrument. In this case, there is complementarity between index insurance and precautionary savings, and they could be jointly offered to farmers (de Nicola, Vargas Hill, and Robles, 2012).
Livestock is both a productive asset and an instrument for precautionary savings. For households who dis-save to smooth consumption, insurance helps protect assets, acting as a substitute to savings. For households who reduce consumption to smooth asset holding, insurance helps protect consumption, acting as a complement to savings (Janzen and Carter, 2013).

When index insurance is used to insure loans at the bank level, insurance then serves as a complement to credit, inducing farmers to borrow and invest more.

✓ Impact Evaluation of Customization (Convenience)

In the literature, the authors have studied the effect of flexible versus rigid repayment schedules using randomized studies. They present mitigated results, while McIntosh (2008) found that monthly repayment enhance loan repayment and client satisfaction (decrease of the dropout rate) compared to a weekly repayment schedule in Uganda, Armendariz and Morduch (2010) reported that more flexible repayment is associated with higher default in Bangladesh. Regarding to Field et al. (2011) they found that the introduction of two month grace period into loan contract (repayment restart later) increases delinquency and default in the rural area of Kolkata in India.

Randomized control trials (RCTs) have also been used to test the impact of alternative enforcement measures associated to loans and commitments saving products like visits from collectors and SMS reminders. Deposit collection service has increased the savings and decrease borrowing (Ashraf et al.2005). SMS reminders seems to be effective, they increase savings (Karlan et al. 2006), improve repayment similar to that obtained with financial incentives like promise of 25% reduction in interest rate for good borrowers (Cadena and Schoar, 2011). Sending SMS permits to limit the present bias by increasing the salience of future expenditure and by reminding household who lack attention.

In definitive, the effect of less frequent installment on loan repayment seems to be ambiguous but visits from collectors and SMS reminders seems to increase savings as well as credit reimbursement.

In the remainder of this paper, we present some flexible products with their impact evaluation if it is available. This allows us to study how clients used these products to manage risk and shocks and what is their degree of satisfaction.
3. Presentation of some Flexible Products

This section provides a description and evaluation of non exclusive options designed to be microfinance services that are feasible for both borrowers and lenders. Each of the products being discussed and evaluated are extant financial products that have been selected as good candidates for widespread adaptation and development. Doing so involves offering products that carefully balance flexibility and financial discipline. Flexibility entails the utilization of mechanisms that stabilize client security and freedom. Financial discipline involves mechanisms that decrease the likelihood that a borrower for example will default on a loan payment.

SafeSave Financial Services Model

Product Description

SafeSave is an organization in Bangladesh, started in 1996 by Stuart Rutherford, which offers three financial services for the poor. These services include: 1) Passbook Savings accounts, 2) long-term savings, and 3) loans. The following are detailed product descriptions listed on the SafeSave website:

- **Passbook Savings**: Clients may deposit as little as one taka ($0.012) when the collector calls at their house each day. Accounts with balances above a minimum level earn 6% annual interest. Clients may withdraw up to 500 taka per day ($6) at their doorstep, or up to 5,000 taka per day ($60) at the branch office.

- **Long Term Saving (LTS)**: All clients may also open a longer-term 'commitment savings' account with a higher interest rate than passbook saving. Savers make regular deposit in a monthly basis for a defined term of up to ten years. Clients may borrow a maximum of 80% of their LTS balance at a low rate of interest. In case of early closure or withdrawal, client loses it higher interest rate which became equal to the passbook saving account.

- **Loans**: All borrowers start with a credit limit of 5,000 taka ($60). One loan at a time may be taken per household. Maximum loan interest is 3% per month on the declining balance (36% per year in nominal terms, or about 30% in real (inflation adjusted) terms): but for the entry-level loan (of 5,000 taka), and for all loans as soon as their outstanding balance falls to 5,000 taka or below, 2.5% per month is charged.” (SafeSave). Only 1/3 of the passbook saving balance is required as collateral.

Flexibility Features of SafeSave

- Circumvents need for credit history requirement to obtain a loan via the establishment of a savings account.
- The borrower determines the duration of a loan.
- There is no predetermined repayment schedule. The borrower is able to negotiate the repayment schedule in circumstances of financial hardship and weather shocks to crops.

**Financial Discipline Features**

- A minimum passbook savings balance equal to 1/3 of a loan balance is required as collateral at all times for borrowers. For LTS, it is possible to borrow 80% of the account balance.
- Daily loan repayment visits from local staff.
- Account withdrawal limitations for clients with outstanding loans.

**Product Delivery**

SafeSave hires field workers to visit their clients door-to-door at their home on a daily basis in order to collect payment on loans. In contrast to group-lending schemes, loans are delivered in an individual basis and there are no community meetings involved. Loans under the SafeSave scheme do not have fixed-term nor do they have fixed repayment schedule for loans, with the exception of the monthly interest payment. Borrowers are able repay any loan amount or deposit into savings any amount of money they choose. Bank visits are only required to open an account, take loans, or make withdrawals larger than $8. There is no minimum loan size and clients are not required to borrow at all.

**Evaluations of performance : Merits, Limitations and Impact**

**Merits of the SafeSave Model**

- Circumvents need for credit history requirement to obtain a loan via the establishment of a savings account.
- Repayment schedule is flexible.

**Limitations of the SafeSave Model**

- Financial services not accessible to clients without collateral.
- Daily visits may place significant pressure on borrowers and act as a disincentive against loan uptake.

**Impact and Performance**

At the end of 2012, SafeSave has nine branches serving 18,700 clients residing in Dhaka. The total dollar amount held in client savings accounts is $1,057,000 US Dollars. The average individual savings balance is $57. Approximately 50% of SafeSave clients hold loans, which are worth a total of $700,000, with an average per borrower outstanding loan balance of $72. The loan recovery rate of SafeSave loans exceeds 97%. (SafeSave Performance)
Recommendations for Improvement of Design and Implementation Re SafeSave

The 97% recovery rate that SafeSave boasts suggests that it is a very safe and feasible model. Interest rate is low (3%), however, the resulting margin of profit would be considerably weak, which may discourage banks from offering this microfinance product structure.

SafeSave is an innovative financial services model that attaches unprecedented flexible terms to its financial products. Specifically, the flexible repayment schedule and loan-term determination, which borrowers are empowered with, allow farmer borrowers to cope with weather shocks. The SafeSave model, conceived in 1996, has proven to be a sustainable model. However, there are aspects of the SafeSave model that could be acting as a barrier to loan uptake.

As mentioned above, daily collection visits may place significant pressure on borrowers and act as a disincentive against the uptake of financial services amongst potential borrowers. This memorandum recommends altering the daily collection visits mechanism to a monthly collection visits. McIntosh (2008) obtained empirical evidence that a monthly repayment schedule enhances both clients’ repayment of loans and their satisfaction with the product, measured by a decrease in the dropout rate, when compared with a weekly repayment schedule.

The second issue is that, given its collateral requirement for loans, SafeSave is virtually unable to serve the poor who possess little to no collateral. SafeSave attempts to deal with this problem by offering savings accounts for farmers to invest in, in order to reach a certain savings level that can be used as collateral for a future loan. However, given the low savings rates of 6%, this would take considerable time for poor rural farmers to qualify for a decent-sized loan if deposits are small in relation to the cost of required farming inputs. Landless farmers, who may be more short-term oriented, would elect to not pursue SafeSave services. This analysis recommends that SafeSave set up savings services with higher savings rates to expedite the time needed to obtain a savings level required to further obtain a substantial loan amount.

Fixed savings plan by Vivekananda Sevakendra-O-Sishu Uddyon (VSSU) in India

Vivekananda Sevakendra-O-Sishu Uddyon (VSSU) was created in 1983 to empower remote riverside villages and vulnerable rural communities in the district of South 24 Parganas in West Bengal, India. Its microfinance offer includes term saving plans with the possibility to take a credit based on saving balance.

Product Description

In the case of savings, the difficulty of poor to save is based on pressure from relatives; lack of attention and time inconsistencies among others. So, flexibility also implies motivational
devices which help the client to save as much as he would, reducing social pressure and temptations. VSSU products offer a wide range of convenience. Clients are encouraged to save both with deposit side mechanisms that help clients make regular deposits and withdrawal-side mechanisms that help clients restrict the use of their funds except for well-planned uses or emergencies (Ashraf et al. 2003).

As deposit side mechanisms, the frequency is flexible with deposits which can be daily (DD), weekly (WD) or monthly (RD) or a one-time saving, fixed deposit (FD). As mentioned in the following Figure a minimum deposit is required. The interest rate increases with term in case of regular deposit and funds are collected at the client’s doorstep by full time VSSU employees.

Clients have the possibility to take a deposit loan after three months with decreasing interest rate on loan outstanding except for WD, with a 12% flat interest rate per year. For fixed deposits, the maximal loan amount is 80% of the saving balance. For the other schemes, the loan can exceed the saving amount but the interest rate is higher in this case. Loyal clients with good repayment can get an over deposit loan and repay within 6 months at the reducing balance at 2% per month. For DD, clients can receive gifts at the maturity date if they make regular deposit.

Figure 1: VSSU Deposit Features

<table>
<thead>
<tr>
<th>Product</th>
<th>Minimum deposit amount (in Rs)</th>
<th>Interest rate (%)</th>
<th>Term (in month)</th>
<th>Death Insurance Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Deposit (DD)</td>
<td>10</td>
<td>4 – 6</td>
<td>12 ; 18</td>
<td>20 ; 18</td>
</tr>
<tr>
<td>Weekly Deposit (WD)</td>
<td>20</td>
<td>3 – 5 – 7</td>
<td>12 ; 24 ; 36</td>
<td>20 ; 36</td>
</tr>
<tr>
<td>Monthly Deposit (RD)</td>
<td>50</td>
<td>10 – 11 – 12</td>
<td>12 ; 24 ; 36</td>
<td>100 ; 36</td>
</tr>
<tr>
<td>Fixed Deposit (FD)</td>
<td>1 000</td>
<td>10 – 11 – 12</td>
<td>12 ; 24 ; 36 ; 48 ; 60 ; 72</td>
<td>5000 ; 72</td>
</tr>
</tbody>
</table>


Concerning withdrawal side mechanisms, in case of emergencies clients can withdraw their money or close their account. But this is not without cost; no interest is served before 12 months and clients paid fees or lose their interests for premature closing or early withdrawal which is not mentioned by the contract. Such penalties are higher if they occur early and decrease with term. Proper interest is paid only if the predetermined contract is respected, as examples more details are given in the box below for the DD.

Assurance death facilities are also available for each saving product if the client make regular deposit and respect a minimum maturity date (Figure 1 above).
REGULATION FOR MATURITY AND PREMATURITY WITHDRAWAL FOR DD

1) If client premature within 9 months from the date of opening: Rs. 60 or 4% of deposit amount (whichever is higher) to be deducted from the principal.
2) Between 9 to 12 months from the date of opening: no interest to be paid and no collection to be deducted
3) Between 12 to 18 months: 2% to be reduced from agreement interest rate.
4) Proper interest will be paid only in case of withdrawal at the time of maturity.


Flexibility Features

- Deposit loan
- Additional loan deposit available for clients with good repayment history.
- Early withdrawal and premature closing are permitted.

Financial Discipline Features

- Regular deposit
- Penalties in case of premature closing, early withdrawal and unpaid loan
- After 15 days of having the loan, a utilization certificate of that loan has to be submitted in schedule form to the branch manager.
- If the loan is unpaid on maturity date, deposit with interest will be adjusted to the loan due amount automatically without any notification to the client.
- Deposit collector at the client doorstep

Product Delivery

Clients can open a saving account at branch offices or with a collector after filling an opening form and paying Rs. 10. Two photocopies of passport and identity card are required to check the address. Funds are collected at client’s doorstep by VSSU employees. To get a loan client must go the branch office with a responsible guarantor of his family. Loan is reimbursed at branch or head offices.

Evaluation of Performance: Merits, Limitations and Impact

Performance

VSSU has developed a sustainable micro-financial service. In fact, the institution strategy which is based on helping the clients maximize their potential to save firstly and then transform these savings on helpful lump sums for household expenses, investments or emergencies needs, is the key of its success. This transformation occurs through 1) saving up by giving a safe place to savings until they matured into a useful sum and 2) saving down through loans by taking an advance against savings (Rutherford and al. 2002).

Savings products are not fully flexible in order to encourage saving and prevent households from external pressure or time inconsistencies. In case of emergencies and shocks, clients can use their saving at a certain cost before maturity date. These products are already offered by
other microfinance institutions in India, but VSSU has adapted its products to a wide variety of use with different schemes, maturity and prematurity regulations.

In 2011/12, the number of active clients was 15608 from 10536 in 2006 with a cumulative total of 97044 members. VSSU has reached 398 villages but the number of branches and staff has decreased since 2009/10. Average loan per borrower (8517) is higher than the average deposit per saver but the total saving portfolio is more important about Rs 85 million, because the total number of active borrowers is lower than the number of savers. The repayment rate is important; it was 96.4% in 2008/09. Once again, this situation highlights that poor people are more interested by saving products.

**Impact**

In 2002, Rutherford and al. carried an evaluation of VSSU. They showed that VSSU offered more convenience in practice to its clients with “charges waived, timetables and schedules curtailed or extended”, even if it is not mentioned in the contract. This is because of the special consideration system for each client “bibochena” which is very subjective based on the collector appreciation.

They also found that despite penalties, about 60 % of all savings plans were encashed prior to maturity and the effective interest paid for a term of 24 months was 3%, below the advertised rate of 4%, contributing to the profitability of VSSU.

Concerning client’s perception of VSSU products, they were generally satisfied especially for the daily plan. Many clients are familiar with this kind of product and they appreciate the door step collection service and the flexibility of the product. But we have complaints about the price structure which is complex and not clear for all the clients. As examples, some clients did not understand why withdrawals were not available or were more costly than bargained for. It is important to mention that in 2002, withdrawals were not yet possible for monthly scheme except premature close with penalties. Among other differences, the minimum deposit for DD has doubled, WD bas been introduced and saving maturity has augmented. In 2002, it was possible to have a loan amount which exceeds the saving amount for fixed deposit and it is no more the case.

VSSU has not a poverty focus and the institution considers that it already serves a poor rural area where 76,21 % of the population is below the poverty line (Rutherford and al, 2002; VSSU Annual Report 2008/09).

Savings products of VSSU have been designed in such a manner that they offer an interesting balance between flexibility and discipline compared to other rigid and standardized saving like forced saving in group lending. Clients are encouraged through interesting interest rate system, penalties for early closure or withdrawal and at the same time they can borrow using their saving as part of collateral.
Recommendations of Improvement of Design and Implementation

The timing which consists on giving access to a safe place for saving and then to give credit is pretty astute and VSSU demonstrates that this strategy is profitable. VSSU has succeeded by combining savings facilities with commitment measures. The institution has already take into account the recommendations of the assessment of Rutherford and al. (2002) like investment in management system, computerization, and staff training to adapt to the increase numbers of clients. With the special consideration system for each client “Bibochena” VSSU has offered much convenience to its customers and the institution has been encouraged to translate the results of this system into transparent codes of practice and governing products and staff.

Kisan Card Model

Product Description

The Kisan Card Model is a financial services model that was initiated by the National Bank for Agriculture and Rural Development in India in 1999. Various types of banks in India have since employed the Kisan Card Credit Scheme. Under the Kisan Credit Card Model, beneficiaries are issued a credit card and a passbook or a credit card that includes a digital passbook.

Flexibility Features of Kisan Card Model

- Borrowers can decide the portion of a total loan to withdraw.
- Borrowers can time loan withdrawal.
- Borrowers are able to decide repayment schedule within a 12-month window.
- Borrowers are able to reschedule their loan in case of damage to crops due to natural calamities.

Financial Discipline Features of Kisan Card Model

- Loan amount tied to a minimum savings amount.
- Card valid for 3 to 5 years subject to annual review. As incentive for good performance, credit limits could be enhanced to take care of increase in costs, change in cropping pattern

Product Delivery

The model targets farmers by providing loans loaded onto a credit card. Farmer borrowers are able to withdraw loan funds from ATMs or use funds at merchants that accept credit cards. The unique feature of the Kisan Card is that borrowers are able to, at their discretion, withdraw loan funds in portions over time. According to the Central Bank of India, the specific financial services provided under the Kisan Model include:
1) Short term credit for cultivation of short duration crop, including post harvest expenses and produce marketing expenses.

2) Working capital credit for activities allied to agriculture and also working capital required for floriculture, horticulture, plantation crops, etc.

3) Term credit (repayable beyond 12 months) for agriculture and allied activities including production of long duration crops like sugarcane. (Central Bank of India)

**Evaluations of Performance : Merits, Limitations and Impact**

**Merits of the Kisan Card Model**

- Flexibility to draw cash at any time and buy inputs as per the need of the farmer and also to repay as and when surplus fund is available.
- Flexible loan duration and repayment schedule
- Reduction in work load for branch staff by ridding the need for repeat loan appraisal and processing of loan papers under Kisan Credit Card Scheme.
- Minimum paper work and simplification of documentation for withdrawal of funds from the bank.

**Limitations of the Kisan Card Model**

- Financial services not accessible to clients without collateral
- No data on loan recovery for Kisan Credit Loans

**Impact and Performance**

The most recent data shows that as of 2011, approximately 100,000,000 Kisan Credit Cards have been distributed to farmers in India. Cooperative banks distributed 44.38% of Kisan Cards, commercial banks distributed 41.67%, and regional rural banks in India distributed 13.93%. (Chanda, 2012).

The Kisan Credit scheme has shown to have an impact on agriculture shares and subsequent economic growth in India. States that have had low initial shares of agriculture and employed the KCC scheme have done well both in terms of subsequent growth in overall GDP per capita and agricultural productivity (Chanda, 2012).

Sajane et al (2011), found that the total cost of credit as %age of borrowed amount was higher in non-Kisan credit card category (11.06 %), in contrast to the Kisan credit card (4.77 %). This reveals that the Kisan Credit Card has the added benefit of dramatic cost reduction for borrowers when compared to other types of lending, including informal lending.

Of notable concern regarding the impact of the Kisan Credit Card Scheme is that default and recovery rates are not collected. (Chanda, 2012)

**Recommendations for Improvement of Design and Implementation Re Kisan Model**
The Kisan Credit Card Model adopts many of the same tenets of the SafeSave scheme such as the flexible repayment schedule mechanism. This model, however, eschews daily visits and uses a card renewal scheme as a method of enforcing financial discipline. The Kisan Card Model has been in existence for approximately 14 years and, as mentioned above, demonstrated to lower borrowing costs for clients. Relieving the loan process of consistent loan paperwork and regular collection visits lowers transaction costs that banks accrue in providing finance.

However, the Kisan Card Model is not without its faults. A very significant problem associated with the Kisan Credit Card Model is that there is not any information on its outstanding loan recovery record. Also, this model still renders microfinance inaccessible to farmers without sufficient collateral. The Kisan Credit Card Scheme also proposes the use of savings account system for those with no collateral to begin the building of collateral, so that they may eventually meet the requirements that permit access to the Kisan Credit Scheme.

**Seasonal loans : case of Financiera CONFIANZA (Peru ) and Banco PROCREDIT (Salvador)**

It is a challenge to provide microcredit to poor in rural areas. High transactions costs for both MFIs and clients because of dispersed clients, small size of loans, lack of infrastructure, clients' volatile cash flows are among the barriers met by MFIs. Moreover, agriculture which is a riskier business where shocks are systemic in general is the main activity. Despite these difficulties, MFIs like Financiera CONFIANZA\(^3\) in Peru and Banco PROCREDIT\(^4\) in Salvador have succeeded in offering loans to their clients in rural areas (CGAP/IFAD, 2006).

**Product Description**

The product consists of a seasonal individual loan, with a variable amount according the economical situation of the household which is the financial unit. These contracts offered a lot of convenience as they fit closely the income and expenditure flow of farmers with loan installment and loan term adapted to the crop cycle, allowing the household to smooth their consumption. The repayment could be monthly, quarterly, semi-annual, annual or irregular, according to the income cycle and loan disbursement. As examples, some interest and partial principal payments are requested from clients who are projected to have the necessary cash flow. Otherwise a single bullet payment is required at loan maturity covering both interest and principal. The loan could be used to cover expenses relative to agricultural activities like seed,

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\(^3\)Financiera CONFIANZA formerly Edpyme CONFIANZA before 2009 is a Peruvian regulated microfinance institution since 1998. After a delinquency crisis in 1999 with more than half of its loan portfolio at risk\(^3\), the institution has started many institutional reforms including stricter lending requirements, rigorous loan monitoring and portfolio diversification. In order to continue to reach more and more poor in rural areas despite the strict rules and avoid mission drift, CONFIANZA has also designed its agricultural loans to fit the income and expenditure cycles of agricultural production.

\(^4\)BancoPROCREDIT El Salvador is part of PROCREDIT group which is present in Africa, America Latina and Eastern Europe. It started by urban lending to small business, then the portfolio was extended to rural areas after a pilot project initiated in 1993 by granting loans to small farmers producing vegetables in El Salvador.
fertilizer, acquisition and maintenance of machinery, animal husbandry or other consumptions needs.

Banco PROCREDIT also has an innovative approach to collateral, because assets are estimated by their subjective or use value for the borrower rather than the recovery or market value for the lender.

**Flexibility Features**

- Emergencies credit lines for good clients.

At Financiera CONFIANZA, clients with good repayment history have access to emergency credit lines. Banco PROCREDIT also offers automatic credit handled as line of credit to its good clients after responding to a questionnaire, about 75 to 90 % of the requests were approved in 2006 according to Buchenau and Meyer (2007).

**Financial Discipline Features**

- Household must have a diversified source of income.
- A minimum of 2 ha of land and two years of experience in agriculture production is required by Financiera CONFIANZA.
- Penalty in case of late for loan repayment.
- Rigorous loan monitoring with regular visit to check the activity and remember repayment during harvest
- Collateral is based on the household income
- No tolerance toward default

**Product Delivery**

Loan officers are at the cornerstone of the mechanism of product delivery. In both institutions, they are well trained and are generally professional agronomist or veterinarian with a good knowledge of agricultural business and established ties to the communities where institutions branches are located. So they are more able to scrutinize and choose creditworthy customers.

At Banco PROCREDIT<sup>5</sup>, the loan officer organizes meetings with potential client in order to present the product emphasizing that in case of default all agreed penalties will be used including the seizure of collateral. The process is expected to encourage self selection and discourage noncreditworthy persons. Then, interested clients are interviewed by the loan officer with questions about sources of income for repayment, purpose of the loan, potential sources of collateral, and credit history, two references who are not relatives are also required. The loan officer will visit them and the client’s home, place of business, and local community to evaluate the client’s work habits, management capacity, character, and history of meeting obligations.

<sup>5</sup> From Bucheneau and Meyer (2007)
With all the information gathered, the cash flow projection is established and the proposed loan is submitted to the credit committee (composed of loan officer, branch credit coordinator and branch manager) which approve, reject or modify the loan contract.

Like Banco PROCREDIT, Financiera CONFIANZA uses cash flow projection. It has developed partnerships with local public and private sector institutions that monitored weather patterns and agricultural commodity prices, in order to better predict repayment rates.

**Evaluation of Performance: Merits, Limitations and Impact**

**Performance**

**Figure 2**: Overview of performance in 2011

<table>
<thead>
<tr>
<th></th>
<th>Banco PROCREDIT</th>
<th>Financiera CONFIANZA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Loan Portfolio (USD)</td>
<td>214.7 million</td>
<td>168.0 million</td>
</tr>
<tr>
<td>Number of active borrowers</td>
<td>23,503</td>
<td>91,102</td>
</tr>
<tr>
<td>Number of Rural borrowers</td>
<td>n.a</td>
<td>11,578</td>
</tr>
<tr>
<td>Number of Agricultural loans</td>
<td>1274</td>
<td>n.a</td>
</tr>
<tr>
<td>Portfolio at risk&gt; 30 days⁶</td>
<td>14.04 %</td>
<td>4.87 %</td>
</tr>
</tbody>
</table>


Financiera CONFIANZA and Banco PROCREDIT are among the best performing MFIs in Latin America (CGAP-IFAD, 2006) in terms of financial sustainability and outreach. They are both profitable and in March 2013⁷, Banco PROCREDIT had 1274 active agricultural loans representing 6.06 per cent of its total portfolio with an amount estimated to US $ 8,273,246 about 4, 33% of the institution’s total gross loan portfolio. With 91,102 active clients in 2011, Financiera CONFIANZA has more clients and the proportion of agricultural loans is higher. This can be due to the fact in contrary to PROCREDIT which first served urban areas, Financiera CONFIANZA has started by agricultural loans in rural areas and after 1999’s delinquency crisis, the target proportion of agricultural loans was reduced to 30 % of the portfolio (CGAP, 2005). Despite this reduction, the volume of agricultural loans has increased (CGAP-IFAD, 2006) and this is also the case for Banco PROCREDIT (Bucheneau and Meyer, 2007). Both institutions have a diverse portfolio and limit the proportion of agricultural loans to cope with risks and shocks and ensure their sustainability. But this exclude highly impoverished people conjugated to the income diversification requirement to have access to loan. Bucheneau and Meyer (2007) found that there is no difference in terms of operational cost between rural and urban lending in 2006 For Banco Procredit. This could partly be due to the fact that El Salvador has a high density of population and clients are less dispersed even in rural areas compared to urban ones.

**Impact for Banco PROCREDIT**

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⁶ Defined as the total value of loans with payments more than 30 days overdue as a percentage of the total portfolio

⁷ Banco PROCREDIT (2013), “Informe Financiero “, EL Salvador

Gonzalez-Vega, et al. (2002) have investigated the dynamics of the rural clients’ income situation and corresponding poverty measures from 1997 to 1999. During this study, interviewed a sample of 241 households that were clients of PROCREDIT in 1999 and compared their characteristics with those obtained in a random sample of rural households. They found that rural clients of PROCREDIT tend to be richer than rural non clients. In 1999, 39 % of the clients of Banco PROCREDIT were below the national poverty line with income below twice the subsistence level. Outreach seemed important because all households under the poverty line do not have the willingness and the ability to pay. Besides, compared to its competitors, the institution did not appear to ration credit and exhibited longer repayment period, lower interest, quicker disbursement of loan and discretionary use of funds. On average, the income of rural clients had relatively decreased but it is less volatile in comparison to rural non client. This reduction in income volatility appears to indicate that access to credit has enabled these households to invest in new activities which generate less income on average at the moment but which allow for a reduction in income volatility. Evidence suggested that they reoriented their resources to more stable activities, like formal employment.

Concerning clients’ satisfaction, in rural areas, they were in general satisfied with the products. Their main critique was the level of interest rate even if it was not higher compared to most direct competitors, except to the subsidized interest rate by BFA. Secondly, they disliked the size of the installments, which may point to a shortcoming of the credit technology and its adjustment to the rural income situation. The distance from the branch bank was also criticized.

Despite external shocks like hurricane Mitch, earthquake, fall in cereal prices, the institution has shown good results in rural areas. Ex ante measures include the fact that clients must have a diversified source of income. As ex post actions, we can consider the example of the earthquakes in 2001; Banco PROCREDIT had rescheduled an estimated 10% of the loans in these severely affected areas and had to write off about 0.7% of its rural portfolio in addition to the average amount which is written off in normal years (Bucheneau and Meyer, 2007).

**Limits**

Banco PROCREDIT and Financiera CONFIANZA have well managed their seasonal loans to respond to the cyclicality of income and expenses in rural areas but as underlined by Hamp and Laureti (2011), these short term contracts respond only to seasonal working capital needs, they don’t permit to cope with natural disasters and price volatility which are a great concern for farmers, except for good clients which have access to emergencies lines of credit.

**Recommendations for Improvement of Design and Implementation**

In order To include more poor people, the discipline feature have to be reduced and accent could be placed on asset building with dedicated saving account for example. Dupas and Robinson(2011) demonstrated that allowing the poor to have a safe place where to put its money for a particular purpose could increase savings through mental accounting. Their
savings could permit to the household to diversify their source of income and then have access to seasonal loans.

**Barclays Bank and the Susu Collectors in Ghana**

*Product Description*

It is about the collaboration between the Barclays Bank, a multinational bank group and the Susu collectors who are active in informal sector. The idea is that linking formal and informal financial services providers could improve the service offered by combining the strengths of the two types (Pagura and Kirsten, 2006).

Susu collectors function as a mobile banking proposing a kind of saving account without interest. They visit each client at their home or workplace to collect a predetermined amount of money on a daily or weekly basis over an agreed period, usually one month. At the end of the period, the accumulated savings are returned to the depositor minus a commission generally equivalent to one day of deposit, corresponding to a monthly interest rate about 3.3%. Some Susu collectors provide small loans to their client. Since 2005, Barclay Bank has been providing savings account and investment capital for on lending to Susu collectors in order to facilitate their intermediary action. The program includes capacity building on credit, risk and delinquency management in the financial sectors for Susu collectors, and courses on good financial management for their clients. This is interesting because financial illiteracy is one of the reason of poor people low demand for financial products they need. The cooperation allows Susu collectors to give more important amount of credit to their clients with high level of convenience (little bureaucracy, no collateral, low transaction cost).

*Flexibility Features*

- Permits adjustments of conditions to changed circumstances, as in emergencies (Osei, 2007).

*Financial Discipline Features*

- Collection of deposit at client's doorstep on daily visit.

*Product Delivery*

The Barclay's Bank in Ghana proposed an investment capital to Susu collectors, namely the "Dwetiri". The account enables SuSu collectors to deposit their funds, and also provides them with loans to help build their capital. Barclays lends money to the collectors at an interest rate of 2.1 % per month, which they on-lend to their clients at the same rate. Barclays also provides capacity-building services to SuSu collectors so that they can calculate their credit

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8Susu, or daily deposit collection, is a traditional and informal financial institution in West Africa and can be traced back at least three centuries. It is called “ajo” among the Yoruba of Nigeria, “nago” in Ivory Coast, “Yesyes” in Southern Togo and “Susu” in Ghana.” (Osei, 2007)
risk and operate with basic formal financial skills. Clients of Susu also have access to courses on financial management.

**Evaluation of Performance: Merits, Limitations and Impact**

**Performance**

As underlined by Hamp and Laureti (2011), the results of the program were relatively good after the pilot stage. From the starting in 2005, where the program reached 100 collectors, their number has attained 500 in 2007. About 70% of them had been trained, and 81% were satisfied about the program. If we considered that a Susu collector has between 200 to 1,500 clients (Osei, 2007), the program had indirectly reach about 100,000 to 750,000 persons.

**Impact**

An impact evaluation also showed that 72% of Susu collectors had increased the number of their clients since they joined the program (Hamp and Laureti, 2011).

Concerning client satisfaction, 61% said their lives had improved and 93% of those in business recorded an increase in sales and income. Susu collectors and their clients are relatively closed, this facilitates monitoring and discourage clients to shirk. Financial discipline is also encouraged through the daily visit. Susu collectors have an excellent knowledge of the local market and understanding of the needs and limitations of their clients and their businesses, their saving and loan are more flexible and could be adjusted to changed circumstances, such as emergencies. Moreover, with capacity building and training, clients which become more comfortable with the financial formal system are encouraged to open an account in a formal institution.

**Limits**

As limits of this program, it only reached Susu collectors clients among the population and we have many examples of Susu collectors who fled with their clients' money. Such customers will be recalcitrant to join the program, so a significant effort will be necessary to restore trust and confidence. Furthermore, in remote areas, it will be difficult to reach people since the Susu collectors cannot do the daily depositing of clients’ money with Barclays.

**Recommendations for Improvement of Design and Implementation**

The approach of Barclay's bank to reach poor clients is innovative and complete as it integrates access to financial services through a well established informal actor coupled with their capacity building and training of their clients. Susu collectors are well organized in Ghana, they are federated in an association and this has facilitated their participation and their monitoring by the Barclay's bank and its partners. In order to scale up the Ghana program and start microfinance operations in other countries, this strategy could be replicated by looking at the existing financial system and the possible linkages which can be developed to reach poor clients.
Concerning outreach, it is limited to Susu collectors clients, it could be interesting to look at other partnership may be with other MFIs which operates in more remote rural areas.

**M-PESA in Kenya and linked financial products**

*Product Description*

M-PESA is mobile phone-based, person-to-person payment and money transfer system that was developed and implemented in Kenya in 2007. M-PESA allows users, using their personal mobile phones, to store funds in a digital account. Users are also able to deposit or withdraw funds in the form of hard currency at an M-PESA agent location.

M-PESA is not a traditional microfinance product in that it does not provide loans or credit. Rather it is a mechanism used to save funds and to digitally access credit that one may obtained from another source.

Safaricom, the Kenyan mobile network operator behind M-pesa has also developed partnership with multiple operators (banks, Nonprofit organizations, insurance companies, health service providers…). It is piloting M–banking products like savings and insurance. Some of those are:

- M-Kesho (kesho means “future” in Kiswahili), is a savings account provided by Equity Bank that also gives flexible access to loan and insurance facilities (Equity Bank, 2011). Only electronic transactions are allowed to and from M-Kesho. There is fee for withdrawals, and no minimum balance. Clients can ask for an emergency loan, between US$ 1.30 to US$ 67, which is obtained after verification of their creditworthiness by a credit scoring system, based on transactional history on their M-Pesa, M-kesho and normal equity accounts over the previous 6 months if available.

- Mamakiba (“mother and savings” in Kiswahili), is a savings plan for pregnant women provided by Jacaranda Heath Clinic and Multiple Choices Labs (Gnimano, 2010). Savings are blocked for a specific purpose. A saving calculator is used to determine the target amount and the minimal periodical deposit according to client’s cash availability.

SMS reminders and SMS alerts are used to help clients.

*Flexibility Features*

- Borrowers are able to time the withdrawal and use of personal funds.
- Borrowers are able to time the withdrawal and use personal funds. Access to personal funds and credit is virtually instant.
- Under M-kesho, clients have access to emergency credit on demand and personal accident insurance
- Does not require regular monetary deposits into one’s personal savings accounts
- Dedicated saving account for pregnant women, with Mamakiba.
Financial Discipline Features

<table>
<thead>
<tr>
<th>M - Pesa</th>
<th>M-Kesho</th>
<th>Mamakiba</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Borrowers are able to view their stock of funds digitally and have to go through the process of visiting an M-PESA agent center to withdraw funds, which encourages responsible accounting and consumption smoothing.</td>
<td>- System of credit scoring - Fee for withdrawal and no fee for deposit - Positive interest rate on saving, depending on balance</td>
<td>- Calculation of saving plan - Money is locked for a specific purpose - SMS reminders and SMS alert</td>
</tr>
</tbody>
</table>

Evaluation of Performance: Merits, Limitations and Impact

Merits

Provides the means for users to save and smooth consumption without having to physically be present at a bank, which reduces transaction costs for both banks and users. The ability to save and smooth consumption better prepare users to cope with potential economic shocks.

Limitations

These products require the necessary technological infrastructure and physical agent infrastructure be accessible to potential users. This requires monetary investment. The initial monetary investment, excluding the provision of mobile phones, in Kenya amounted to 1.9 million sterling pounds (Vodafone Group provided 990,000 Sterling pounds and DFID 910,000 pounds sterling) (Winifred et al, 2008). In terms of US dollars, that amount converts to $3,063,750.

Impact and Performance

As of 2013, the number of M-PESA users amounts to 10.5 million individuals. There are 65,547 M-PESA agents located throughout urban and medium-to-large market centers in the country. 26,000 M-PESA agents were added in the last financial year. Kshs 522 Kenyan Schillings (6,181,158,600 USD) was transacted between customers within M-PESA. Kshs 444 billion Kenyan Schillings (5.257,537,200 USD) was deposited into M-PESA via agents. 390 billion Kenyan Schillings were ( $4,618,107,000 USD) withdrawn from M-PESA via agents.(Safaricom)

Demombynes and Thegeya (2012) also find that, all else equal, the introduction of M-PESA increased the likelihood to save by 20% and average monthly savings by 12%.

Jack and Suri (2011) studied the impact of M-Pesa, Kenya’s mobile banking system, on consumption. They randomly selected and surveyed 3000 households in September 2008, and conducted a follow-up survey in 2009 and 2010. They used a balanced panel from 2008, 2009
and 2010 and explore the change in consumption due to being an M-Pesa user, controlling for household demographics, years of education of the household head, occupation dummies, use of bank accounts, savings and credit cooperatives, rotating savings and credit associations, and cell phone ownership. They find that over a six-month period, while non-users experience a 10-7% reduction in consumption due to negative shock, M-Pesa users are able to smooth shock perfectly and do not experience any significant reduction in consumption.

M-kesho was launched in May 2010 and after 3 months, it reached 455,000 persons, but activity on these accounts remain low (Radcliffe, 2010). Concerning Mamakiba, it targets 25 to 30 women per month from low to medium income level.

**Recommendations for Improvement of Design and Implementation**

Given the findings listed above, M-PESA is a proven mechanism to enhance the responsible economic behaviors of its users, namely increased savings and consumption smoothing. The number of MPESA users had exploded from 1 million at the end of its first year to 10.5 million, within a span of six years. That and the sheer monetary size of the transactions completed under suggests that the M-PESA mechanism is in high demand amongst those who were previously unbanked and that it spurs enormous economic activity.

The M-PESA mechanism would be an ideal complement to existing loan and credit schemes, whereby borrowers could access their loans digitally. More research on M-PESA reduces moral hazards is needed.

**Peer to peer lending: case of Zidisha**

Peer-to-peer financing is a process that involves a direct relationship between individual lenders and borrowers. Prospective borrowers digitally apply for a loan and lenders select the borrower that they wish to fund, partially or in full.

**Product Description**

The Zidisha Model for peer-to-peer microfinance distinguishes itself from other peer-to-peer financing models in that it requires that prospective borrowers have access to a computer with Internet and possess a credit history. Internet access is verified through the online loan application. As for verifying one’s credit history, Zidisha requires all prospective borrowers to provide confirmation from local credit bureaus, local officials, and credit associations. Moreover, the borrower should not be indebted and he must also have the support of a local community leader (such as a school principal or leader of a place of worship) through a recommendation letter.

The product proposed by Zidisha is highly flexible. Borrowers can decide several parameters of the loan, which include: (1) the loan amount, (2) the maximum interest rate, (3) the period in which the loan will be repaid, and (4) the grace period that is allotted to the borrower to make the first repayment on the loan. Borrowers are able to cope with risk and shocks since
they are also allowed to reschedule their repayment, at their own initiative without the consent of lenders, in case of unexpected circumstances such as paying a hospital bill for a sick child, loss of livestock, drought. They can request a grace period or reduce the monthly installment, resulting in a longer loan period. Loan interest is adjusted in these situations to avoid that lenders lose their money.

There are restrictions to this flexibility, however. For instance, Borrowers may not reschedule more than 2 times during a single loan period, and may not increase the repayment period to more than 60 months from the date of rescheduling.

The total cost to the borrower for each loan is the 5% transaction fee, plus the weighted average interest rate bid by lenders financing the loan.

Lending on Zidisha is very risky for the lender because the relation is based on confidence. Consequently, Zidisha inform them to lend only amounts that they can afford to lose. The institution is “not responsible for assessing credit risk of borrowers, enforcing repayment, or guaranteeing repayment of loans posted on its website.” (Terms of use, Zidisha website) 9.

**Flexibility Features of Zidisha**

The product is very flexible for borrowers because:

- They can reschedule the loan at their own initiative without the consent of lenders twice during a single loan period within a maximum of 60 months after the date of rescheduling.

- No ex post verification of the use of loan, relation is based on confidence as long as repayment is done on time.

**Financial Discipline Features of Zidisha**

- Borrowers are required to undergo a credit history verification process.

- They must not currently hold any debt or outstanding loans from other sources.

- Lending is progressive based on loan repayment and the maximum amount for a first loan is US $100, then borrowers must wait 3 months before asking a new loan if the amount is less than US$3000, beyond, the delay is 12 months.

- They must have an active business or employment with sufficient income to ensure repayment of the loan in monthly installments.

- They have to be able and committed to posting frequent updates regarding use of the loan and progress of the business on the Zidisha website.

- Zidisha has volunteers or interns which may visit the borrower to get information about its business and activity.

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Despite these discipline mechanisms, when a borrower misses a payment, Zidisha issues a courtesy reminder by email and text message to the borrower's mobile phone within one week of the missed payment's due date. The institution tries to understand the circumstances in order to find a solution like loan rescheduling; the mediation from the local community leader who recommended the borrower to Zidisha could be requested. The last resort would be legal action following local regulations in each country.

**Product Delivery**

Borrowers have to apply online giving information about their credit history and providing a recommendation letter from a local community leader and its contact. Clients are also asked to provide a Facebook account for identification or the phone number of their contacts. Zidisha checks the different information and after receiving creditworthiness confirmation from a verifying institution, a borrower is able to apply for loans online through Zidisha’s network.

Once the loan application is completed, lenders can select loan applications that they wish to fund partially or in full. Lenders can also choose the interest rate within the maximum acceptable interest rate set by the borrower. The lender bids with the lowest interest rates are grouped to provide the loan and the final interest rate is collectively determined. Each lender involved with the loan receives their loan contribution plus interest by the end of the loan period. Once the loan is fully funded, the borrower elects to accept the loan right away or wait an additional month for other lenders to bid on the loan at a lower interest rate.

Loan disbursement requires a digital mechanism, such as the M-PESA mobile banking network, whereby borrowers receive their loan credit digitally and are able to access the loan through their cellphone.

The borrower interacts with its lenders through its own page on the Zidisha website, informing them about the use of the funds and how it is impacting his life.

**Evaluation of Performance: Merits, Limitations and Impact**

**Performance**

The following Figure provides cumulative statistics on Zidisha’s impact and performance:

**Figure 3: Cumulative Statistics of Zidisha**

<table>
<thead>
<tr>
<th>Loans Raised</th>
<th>USD 1,062,648</th>
</tr>
</thead>
<tbody>
<tr>
<td>Businesses financed</td>
<td>2,533</td>
</tr>
<tr>
<td>Number of Registered Borrowers</td>
<td>2,364</td>
</tr>
<tr>
<td>Number of Registered Lenders</td>
<td>3,069</td>
</tr>
<tr>
<td>Average Lender Interest</td>
<td>4.60%</td>
</tr>
<tr>
<td>Loans Written Off</td>
<td>USD 7,780</td>
</tr>
<tr>
<td>Historical Loan Loss Rate</td>
<td>4.90%</td>
</tr>
<tr>
<td>Loan Recovery Rate</td>
<td>85%</td>
</tr>
</tbody>
</table>

Zidisha has succeeded in offering flexible loan to people in developing countries at a lower interest rate with an average at 9.60% compared to the 40% per year offered by other MFIs in general. This is because its innovative approach to microfinance as it eschews the need for a bank and its ability to leverage low-cost funds from lenders via Internet. In effect, this reduces transaction costs associated with obtaining a loan for borrowers who would otherwise have to travel in person to apply for a loan. The network of potential lenders also fosters competition, which better ensures that borrowers are receiving low interest rates. The ability for borrowers to decide the maximum interest of the loan and the loan repayment period gives borrowers great flexibility. In terms of sustainability, Zidisha boasts a 85% loan recovery rate. However, the number of individuals involved in the Zidisha network is relatively small, which makes its scalability questionable.

Impact

After the introduction of loan rescheduling, Daniel Rozas (2012) lead an assessment of the effect of this measure on repayment. He found that with rescheduling, two thirds of the loan were repaid or remained current under the new schedule. However, “most borrowers who waited to reschedule until they’d already fallen more than 30 days behind (when traditional MFI rescheduling often tends to take place), soon fell delinquent on their new schedules as well”. For him, two factors might explain the difference between these two types of rescheduling. First, may be borrowers who reschedule early are better money managers than those who wait to reschedule. The latter may also be facing more serious cash flow problems, which makes it difficult to plan future payments.

Moreover a field experiment conducted by Field et al. (2011) in India with poor urban borrowers suggested that allowing a grace period of two months at the beginning, as Zidisha, permitted to borrowers to invest in risky business with high returns. This increases the risk for default but after three years, grace period clients had weekly business profits and monthly income 33% and 18% higher on average than regular clients with no grace period. One could reasonably extrapolate that by providing greater repayment flexibility, Zidisha may likewise be helping clients to increase their incomes as underlined by Daniel Rozas (2012).

Limits

Among limitations, the requirement that borrowers have access to a computer and the Internet may be prohibitive to rural populations, who are generally the primary market for microfinance. The credit history requirement may also be unaffordable for rural populations that reside in areas where institutions for creditworthiness evaluation do not exist and for prospective borrowers who have never taken out a loan in the past.

Recommendations for Improvement of Design and Implementation

A major barrier that hampers the applicability of the Zidisha model is that it requires access to computers and the Internet. Populations that demand microfinance tend to live in rural areas with very limited infrastructure. In order for the Zidisha model to be feasible, it would require that the infrastructures, such as internet kiosks, are readily available to prospective borrowers.
For sure Zidisha must take advantage of widespread telephony, internet connectivity, mobile money transfers in developing countries. In Kenya for example, Zidisha already uses the M-pesa platform to transfer money to borrowers.

**Bank Rakyat Indonesia’s lottery-linked savings account**

*Product description*

Small scale farmers suffer from unstable income not only because of production seasonality, but they have to cope with other covariant risk like natural disasters affecting crop and livestock and price volatility. They need financial services to smooth their consumption and reduce their instability by investing in new technologies or diversifying their source of income. In Thailand, Bank Rakyat Indonesia (BRI), a state-owned commercial bank, proposes saving account with a lottery component, called Simpedes. The product is more flexible and targets the middle-lower class in rural and sub-urban areas (BRI, 2010). There is no fee to open an account and no limitation for deposit and withdrawal, interests are paid monthly and in 2010, the average annual interest rate was 2.41% (BRI, 2010, page 313). All Simpedes saving account holders have BRI Card so that they can enjoy e-banking services conducted by BRI. This high liquidity associated to the lottery is very attractive for poor.

The lottery is organized by small localities where everybody knows each other. Number of tickets depends on the saving balance, so with a large balance, you have more tickets and more chance to be the winner. The product is innovative as it uses the lottery as a motivation tool that does not affect flexibility for the saver.

*Flexibility Features*

- Full flexibility with no minimum balance, no limitation for withdrawal, no compulsory deposits, no fee for account opening

*Financial Discipline Features*

- Lottery system organized twice a year encourages savings

*Product Delivery*

BRI Simpedes savings accounts can be served in all work units. BRI has an extensive branch network covering the entire nation. In rural areas, clients mainly used BRI units. The latter operate on a full commercial basis, with each unit acting as a semiautonomous entity serving micro and small customers. They are commonly found in a central location of the sub-district town, often near the market place. In 2009, BRI teras have been developed in order to better facilitate accessibility and provide faster service to micro customers (BRI, 2010). The difference between BRI teras and BRI units is the location and the target population. BRI Teras are located at the center of business activities and they target people working in this location like traders. Consequently, BRI allows these customers to save money without having to leave their business activities. We also have mobile teras, these are vehicles which
permits to visit directly the traders to provide them with regular banking services. BRI units and BRI teras constitute essentially the microfinance network of the bank.

**Evaluation of Performance: Merits, Limitations and Impact**

**Performance**

In 2010, Simpedes represented 61% of the total of savings deposits of BRI. They served as the main source of financing for *kupedes* microloans. There is a high demand for this product and from 2006 to 2010; Simpedes grew at an average of 18.76% per year (CAGR), from Rp38.34 trillion in 2006 to Rp76.26 trillions in 2010. Up to 2010, the number of Simpedes account holders had reached over 22 million customers (BRI, 2010). This demonstrates the large potential for savings among relatively low-income people when they have a safe place to keep their money.

Much of this success may be attributed to the organizational set-up of the single BRI Unit as a highly decentralized and semi-autonomous financial entity since 1983. This success story has widely been studied in literature, from a non-profitable organization, the BRI units have became self reliant partly because of an active policy of saving mobilization essentially through Simpedes.

**Impact**

Gertler et al (2003) used data from the Indonesia Family Life Surveys (IFLS, 1993 and 1997) to test the impact of access to microfinancial savings and lending institutions on the ability of Indonesian families to smooth their consumption after declines in adult health, measured by individuals’ physical abilities to perform activities of daily living (ADLs).

Their estimates suggested that the average value of BRI savings accounts was large enough to help families insure consumption against major illness for close to half a year, about 5.4 months\(^\text{10}\). And after verifying that localization of credit institutions is not endogenous, they found that for communities which are located next to a BRI branch, health shocks have no effect on consumption. In contrast, the loss of an ADL in areas not served by a BRI branch lowers consumption by 2 to 3%. These results are interesting as BRI units are associated with increase in savings which permit to household to cope with health shocks.

Despite competition from other commercial banks and state banks, they remain leader in this sector with their growing network covering the entire territory of Indonesia. We must also take into account that Indonesia has a high density of population and it is easier in this context to reach rural areas by establishing branch units.

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\(^{10}\) This is based on the fact that in the mid-1990s, the mean BRI account was around $184 (Yaron et al., 1998) and the effect of the head of the household going from being able to perform all ADLs to none reduces household consumption by about 22%, which translates into about $34 per month.
Recommendations for Improvement of Design and Implementation

Simpedes are very attractive saving accounts for the poor because they are cost free and funds are available at any moment. BRI is continuously extending its network to reach more and more poor, but it has also been demonstrated that the difficulty for poor to save (Rutherford, 2000) emerges because of external pressure from family and friends (Anderson and Baland 2002), failure to plan and lack of attention (Karlan et al, 2010; Cadena and Schoar, 2011). BRI can cope with these patterns by introducing motivational devices that help people to save as much as they want through for examples dedicated saving accounts. However, these products would be less flexible and create additional cost for monitoring. A pilot study could identify the constraints and fines on early withdrawal which have to be apply within the framework of Indonesia based on experiences in other countries. As example, in a field experiment conducted in Kenya by Dupas and Robinson (2011), the authors demonstrated that saving products for a specific purpose had permitted to increase savings. It was easier to avoid unplanned expenditures, money became not fungible with other sources of income, despite it is accessible. The psychological process in this case is a mental accounting form called labeling (Thaler 1990).

Innovative savings with lottery component by the Bank of Agriculture and Agricultural Cooperatives in Thailand (BAAC)

Product Description

In Thailand, BAAC was established in 1966. As a government owned bank, it provides a wide range of financial services including savings and credits to agricultural producers, either directly or through agricultural cooperatives and farmers' associations. Like BRI Indonesia, BAAC has also adopted the lottery system for a saving account which is called Om Sap Thawichoke Savings Deposits.

Saving facilities have been designed in order to reduce financial risk encountered by farmers and mobilize funds for credit purpose.

- Om Sap Thawichoke Savings Deposits

The target population is low income household especially in rural areas (BAAC, 2010). The minimum amount required is 50 baht less than US$ 2. Further deposit may be for any amount. They are payable at sight upon request and are exempted from government income tax. The interests are paid twice each year in late March and late September. The specificity here is that, people are encouraged to save through a lottery system. Besides earning interest, depositors have a chance to win prizes in the form of items such as motor cars, motorcycles, gold, televisions, refrigerators, radios, etc. based on three lucky draws each year. The prizes are drawn once every six months at the regional level and once a year at the national level. To be eligible for each draw, accounts must have a balance of at least 2,000 baht over the preceding three months. Depositors will have an additional prize-drawing card for each additional 2,000 baht of their deposits.
In addition, BAAC also proposes a protection against price volatility through the Farmers’ Revenue Assurance Scheme, concerning rice, cassava and maize. This compensation is activated when there is a difference between the reference crop prices and guaranteed prices by the government.

**Flexibility Features**\(^{11}\)

- Full flexibility as long as the minimum balance is maintained.

**Discipline Features**\(^{12}\)

- Minimum balance of 50 baht
- Lottery system

**Product delivery**

BAAC offers its products either directly or through agricultural cooperatives and farmers’ associations. For individual loans, the borrowing farmers have to be registered as BAAC clients. They submit their loan proposals to a BAAC credit officer at their local branch or field office. The credit officer helps and advises farmers on the client registration procedures.

**Evaluation of Performance: Merits, Limitations and Impact**

As of February 2013, BAAC has covered a total of 7.27 million clients, reaching 95% of total farm households in Thailand. Deposits are the main source of BAAC funds accounting for 84% of the total. As a result, BAAC has generated an unprecedented record of 986 billion Baht savings or US$ 33 billion through its famous Thaweesin and Thawichoke savings schemes. Now BAAC has become self-reliant in its rural financing functions.

In Thailand, Kaboski and Townsend (2005) use variation in policies and institutional characteristics to evaluate the impact of village-level microfinance institutions on asset growth, consumption smoothing, occupational mobility, and reliance on informal moneylenders. Their study is based on household and institution level data from a survey conducted in May 1997 in four provinces including semi-urban and rural areas.

Concerning savings, they found that more flexible policies (traditional accounts and optional savings) have less impact on households than the restrictive policies, such as tying loans to savings, requiring minimum initial deposits, and, most especially, pledged savings accounts. The latter had the greatest impact except for smoothing bad shocks where flexible saving perform better. In fact, they allow household to access more easily their fund and decide which amount they want to use. According to the authors, these results could be explained by:

> “the behavioral economics literature (see Benartzi and Thaler 2004...), where it has been argued that internal conflict and time inconsistencies cause people to save less

\(^{11}\)Idem

than they would like to, and savers would actually like to bind themselves to higher forced savings rate ... A second possible explanation is that the growth of the institution drives the impacts on households. Pledged savings plans seem to have several organizational and accounting advantages over standard savings accounts... Organizationally, infrequent deposit and withdrawal times allow funds to avoid either the (crime and interest) costs of holding large amounts of money in the village or the transportation costs of repeated trips to the formal, outside bank that holds the savings. In addition, pledged savings accounts (often only allowing a standard pledge rate) allow for very simple accounting procedures and so self-managed funds may be easier to maintain.” (Kaboski and Townsend, 2005 page 42-43)

Despite the competition in the deposit market, BAAC has succeeded in attracting savings from the poor in rural areas with innovative and flexible products. The case of BAAC is unprecedented, rural farmers have access to banking services in Thailand and the institution is profitable with less subvention from the government.

Concerning the compensation in case of price volatility, in March 2011, 82 % of the total rice farmers participating in community meeting were compensated. In contrary, because of higher reference price than guaranteed price for maize and cassava, the producers were not entitled to receive compensation (BAAC, 2011).

**Recommendations for Improvement of Design and Implementation**

BAAC has an important outreach for its products especially savings which are cost effective, this product could be more flexible with no minimum balance to attract easily more poor. It offer could also be extended to cover other covariant risk more effectively because the use of saving is limited only to the farmer financial situation in case of severe covariant risks.

In order to permit to increase savings, BAAC could propose pledge accounts as demonstrated by Kaboski and Townsend (2005), they are associated with increase of household assets than more flexible accounts, allowing them to be less vulnerable in case of shocks. But, it implies a decrease in saving liquidity preventing household to smooth their consumption as they want in case of shocks. Certainly, BAAC could extend its services by giving them the possibility to choose between the saving account with lottery and pledge saving account.

**Flexible Health Saving Products : Presented by Dupas and Robinson (2011) in their article"Why don't the Poor Save More? Evidence From Health Savings Experiment"**

**Product Description**

To understand why the poor are limited in their ability to save, authors used a field experiment strategy in Kenya in which they experiment four innovative products with participants of Rotative Saving and Credit Association (ROSCA).
**Product 1 : Safe box**

It functions as a simple saving account with soft commitment. Respondents were given a locked box with a padlock and the key was provided. They had to choose a health product that they were saving for and record each deposit.

**Product 2 : Lock box**

It is the same system like the safe box but the key was kept by the program officer. When they reached their saving goal, respondents called him and they meet at the shop to purchase the health product.

**Product 3 : Health pot**

ROSCA participants were invited to contribute to a health pot in addition to the regular ROSCA pot. The health pot was earmarked to a specific health product. Respondent were encouraged to choose the same product and to purchase the health product on the behalf of the pot recipient or to accompany him to the shop.

**Product 4: Health saving Account (HSA)**

This product also took advantage of the ROSCA structure but an agreement among the members is not required. Each participant was encouraged to make regular deposit on an individual saving account earmarked only for health expenditures. The account was managed by the ROSCA treasurer.

The Lock box and the Health pot were designed were designed to mobilize saving for preventive health expenditure and HSA for when health shock occur. The safe box could be used for both preventive and curative purposes.

**The study had evaluated for each product :**

- Taking up of the savings technologies (adoption).
- Investment in preventive health products.
- Whether households are able to deal with health emergencies.

**Flexibility Features**

- Conditions for withdrawal congruent with risk
- Products were adjusted to clients needs, preventive health expenditure and health shock.

**Financial Discipline Features**

- Commitment saving for health purposes

**Main Results**

Taking up for all four products was high. After 12 months, take up was respectively, 71 % for the safe box, 66% for the lock box, 72% for the health pot and 97 % for the HSA among those
sampled for each product. Concerning investment in preventive health products, the *Safe Box* increased investment by about 68% while the *Health Pot* increased investment by about 129%. By contrast, the *HSA* treatment had no effect on investment, which is not surprising in that it was to be used for saving for health emergencies only. This demonstrate that a saving product for a specific purpose encouraged savings. With earmarking, it was easier to avoid unplanned months, expenditures because savings were labeled for a specific purpose and they became not fungible with other sources of income, despite the money is accessible. Labeling here is a form of mental accounting that act as commitment device (Thaler, 1999).

The experiment also highlights the fact that informal mechanisms such as ROSCA are insufficient, because giving people only a simple safe box permits to increase savings.

In average, earmarking for preventive health was ineffective for the average individual in contrary of earmarking for health emergencies for which the saving was more liquid.

**The impact also vary according to background characteristic:**

The only subgroup which continues to pay for preventive health is “the most tax by their social networks” who are always solicited for money by their relatives and receive no assistance in return if needed. May be demand on their income is strong as limiting liquidity is not as costly for them. This behavior could also be driven by some unobservable characteristics. This findings are consistent with those of Baland et al. (2011), Jakiela and Ozier (2011) which found respectively for Cameroun and Western Kenya that middle class people or people who are willing to pay prefer to lost money by taking a loan in order to send a signal of their poverty and avoid being asked for money.

**Time inconsistency** is also an important constraint. For individual with present biased preferences to save more, only the last product permits to increase their saving. So they need products not only with earmarking but also with a strong commitment to make regular loan deposits.

**Intra-household barrier to individual saving:** authors found tentative evidence that intra-household heterogeneity in time preferences provokes a misallocation of saving as founded by Schaner (2011) for Kenya.

So, mental accounting is beneficial and products which does not severely limited liquidity are preferred especially by people living in environment where income shocks are common like in Rural Kenya. This paper contribute to the literature on savings in developing countries which argue that, the reason for low saving is not just that poor are simply too poor to save.
Products experimented by D. Clarke et al. (2012) in their article “The Value of Customized Insurance for Farmers in Rural Bangladesh”

The authors used an experimental demand elicitation to assess the demand of different kind insurance of savings accounts by small farmers in rural Bangladesh.

Product Description

Insurance

Concerning insurance, the authors proposed index based insurance products which covered both covariate shocks like flood, extreme drought and other event which affect yield like pestilence or crop disease which can be idiosyncratic. Respondents have to choose between the basic, medium or high coverage which prices are respectively 600, 1,200 and 1,800 taka.

Since agricultural activities among small farmers is not mechanized in Bangladesh, their income could also be affected by illness, injury, and death of a working member of the family. In order to cope with this kind of risk life and disability insurance are also proposed. These products covered against idiosyncratic household level shocks.

Savings

As saving accounts, respondents had the possibility to choose the group saving option or individual saving. Under the first scheme, each member contributed a same fixed amount and withdrawal are allowed in case of agricultural or non agricultural emergencies. It is the group which decided, what is an emergency and the maximum of money that could be lent. The individual saving account was fully flexible because we did not have withdrawal restrictions. Interest rate was fixed at 5 % per year for both options.

For some farmers, group saving could be substitute for life and disability insurance products because they are both effective in coping with idiosyncratic shock. Index insurance covers only covariate shocks that are not taken into account by group saving, so these two products are complementary. Individual saving could be a substitute for any kind of insurance because farmers can use it to manage both types of shocks (covariate and idiosyncratic).
### Figure 4: Description of Insurance Products

<table>
<thead>
<tr>
<th>Insurance Type</th>
<th>Event Insured</th>
<th>Amount Paid Out (in taka)</th>
<th>Approx. Probability of Payout</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Basic</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>Aman Insurance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aman area yield</td>
<td>If the average yield of paddy (rice) at the upazila level is below 19 (Bogra) / 17.5 (Manikganj) maunds per acre during Aman, you receive a payout.</td>
<td>600</td>
<td>1,200</td>
</tr>
<tr>
<td>Aman dry days</td>
<td>If the total number of consecutive days without rain during the Aman season is above 63 (Bogra) / 60 (Manikganj) days, you receive a payout.</td>
<td>600</td>
<td>1,200</td>
</tr>
<tr>
<td>Aman flood</td>
<td>If the total number of days with dangerous river height levels during the Aman season is above 73 (Bogra) / 30 (Manikganj) days, you receive a payout.</td>
<td>600</td>
<td>1,200</td>
</tr>
<tr>
<td><strong>Boro Insurance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boro area yield</td>
<td>If the average yield of paddy (rice) at the upazila level is below 35.5 (Bogra) / 35 (Manikganj) maunds per acre during the Boro season, you receive a payout.</td>
<td>600</td>
<td>1,200</td>
</tr>
<tr>
<td>Boro dry days</td>
<td>If the total number of consecutive days without rain during the Boro season is above 107 (Bogra) / 99 (Manikganj) days, you receive a payout.</td>
<td>600</td>
<td>1,200</td>
</tr>
<tr>
<td><strong>Life and Disability Insurance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of limb or eye</td>
<td>If you lose at least one arm, one leg, or one eye, you receive a payout.</td>
<td>15,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Death of spouse</td>
<td>If your spouse dies due to natural causes or due to an accident, you receive a payout.</td>
<td>15,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Death of self</td>
<td>If you die due to natural causes or due to an accident, your family receives a payout.</td>
<td>15,000</td>
<td>30,000</td>
</tr>
</tbody>
</table>

Source: Clarke et al. (2012), page 4

**Flexibility Features**

- index insurance are effective in case of covariate shocks
- Life and disabilities insurance are useful in case of individual idiosyncratic shocks like health emergencies.
- Group saving are designed to manage agricultural and non agricultural emergencies according to the group definition. So they are also effective for idiosyncratic shocks.
- Individual saving with no limitation on withdrawal allowed household to pool risks across time and they can be useful for both covariate and idiosyncratic shocks.

**Financial Discipline Features**

- Payouts for insurance are based on an independently and verifiable index and situation.
- Peer monitoring under group saving option.

**Product delivery**

First the authors used a wide variety of data to determine the kind of risk faced by farmers in rural Bangladesh as well as the risk coping mechanisms generally used in the absence of insurance markets. Then they designed products to offer protection against those risks.
At the beginning of the experiment, a discussion on risk in agriculture and the role of insurance was organized. The experiment and its purposes are explained to the respondents. Each participant received 30 stickers corresponding to 600 taka (about US$ 8). They can allocate the stickers to the types of insurance and levels of coverage they need. If they did not choose an insurance product, they kept their money in their individual saving account with an interest rate of 5% per year.

Only the price of area yield insurance was varied across sections.

**Main Results of the Experiment**

**For insurance**
- Respondents allocate 90% of the stickers to insurance products and the remaining mainly on savings.
- Among insurance products, death and death of spouse were the most popular choice for life and disabilities insurance. For agricultural insurance, insurance for dry days and area yield products were the most commonly selected.
- Agricultural demand of each insurance reflects the prevalence of risks, as example in sub districts where pest and disease were prevalent during the last five years, demand for area yield insurance was higher, likewise for drought. For flood insurance the result was not significant may be because the index had design problems and ineffectively captured flood.
- Demand for area yield insurance fell with increasing price.
- Male participant tend to choose drought index insurance while women are more interested by life insurance for their spouse. Older farmers prefer area yield insurance.
- Risk aversion is not significant in determining the take up of insurance overall may be because it has not been well measured.

**For savings**
- Group saving was preferred by individuals and its demand reached 77% when insurance decisions were made as group.
- Group saving seemed to be a substitute for life insurance which demand decreased when the first is proposed. This not the case for other insurance products, their demands were not significantly affected.
- Group decision are influenced by the more educated farmers who were more able to impose their vision.

In the case of Bangladesh, the experiment shows that rural farmers are interested in products which cover both covariate and idiosyncratic shocks and how they can be used as substitute (group saving and life insurance) or as complementary (group saving and agriculture insurance). The price is also determinant as an increase in area yield insurance reduces its demand.
**SEWA flexible products for poor women and their relatives in India**

Self Employed Women's Association (SEWA) has been established in 1972 with the aim to empower poor women from undeserved rural communities by providing them with access to financial services. Members of SEWA work in majority in informal sector without regular salary and social protection, whence their vulnerability. In 1992, in order to respond to their members' continuing quest for social protection and self-reliance, the association has instituted an Integrated Social Security Scheme, especially designed to manage risks commonly encountered by women, with coverage for life, asset loss, widowhood, personal accident, sickness and maternity benefits. Then, the scheme was extended to their husband and children including health and medical insurance.

It is in 2009 that VimoSEWA was registered as the National Insurance VimoSEWA Cooperative. VimoSEWA provides life insurance, health insurance, asset protection and accidental insurance. SEWA Health delivers low cost pharmaceuticals, trains midwives and provides other medical services. In the event of earthquake, communal violence or other disasters, SEWA has been a distributor of relief. In addition, the association also offer other financials products like saving and credits through SEWA bank.

**Product description**

VimoSEWA offer a choice of three bundled microinsurance schemes covering life, illness, accidental injuries and property loss with options to also cover husbands and children for a lower incremental fee. Products are available at various prices in order to ensure affordability, the main features are that clients have two ways to pay for coverage 1) via a fixed deposit saving account at SEWA Bank, in this case, premiums are paid with the interest accrued from their savings account or 2) annual payments (See Figure below).

**Figure 5: Insurance Schemes**

<table>
<thead>
<tr>
<th>Member's Insurance</th>
<th>Annual Pre. 175 F.D. 700</th>
<th>Annual Pre. 375 F.D. 1800</th>
<th>Annual Pre. 250 F.D. -</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural Death</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accidental Death</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acc. Death of husband</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House &amp; assets insurance against, Fire, Flood, Natural calamities.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Death</td>
<td>Rs 10,000</td>
<td>Rs 30,000</td>
<td>Rs 30,000</td>
</tr>
<tr>
<td>Accidental Death</td>
<td>Rs 40,000</td>
<td>Rs 75,000</td>
<td>Rs 75,000</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>Up to Rs 2000</td>
<td>Up to Rs 6,000</td>
<td>Up to Rs 2,000</td>
</tr>
<tr>
<td>House &amp; assets insurance against, Fire, Flood, Natural calamities.</td>
<td>Up to Rs 10,000</td>
<td>Up to Rs 20,000</td>
<td>Up to Rs 10,000</td>
</tr>
<tr>
<td>Husband's insurance</td>
<td>Annual 125 F.D. 1500</td>
<td>Annual 350 F.D. 4000</td>
<td>Annual 225 F.D. -</td>
</tr>
<tr>
<td>Natural Death</td>
<td>Rs 10,000</td>
<td>Rs 30,000</td>
<td>Rs 30,000</td>
</tr>
<tr>
<td>Accidental Death</td>
<td>Rs 25,000</td>
<td>Rs 25,000</td>
<td>Rs 75,000</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>Up to Rs 2,000</td>
<td>Up to Rs 6,000</td>
<td>Up to Rs 2,000</td>
</tr>
<tr>
<td>Total</td>
<td>Annual Pre. 300 F.D. 1150</td>
<td>Annual Pre. 725 F.D. 3150</td>
<td>Annual Pre. 250 F.D. -</td>
</tr>
</tbody>
</table>

Annual Pre.: Annual Premium / F. D.: Fixed Deposit / Currency: Rs
Source: [http://www.sewabank.com/insurance.htm#sewa-insurance](http://www.sewabank.com/insurance.htm#sewa-insurance), accessed 07 June 2013
Installments are collected door to door or through self help groups, they can be annual, quarterly or monthly. All coverage is voluntary with an annual payment for a one-year term.

In addition to insurance linked to fixed deposit, SEWA bank also offers credit linked to savings under the Worry Riddance scheme which has caught our attention among the proposed saving products. Deposits (Rs.40/-) are made on a monthly basis and in case of emergencies and after one year of joining the scheme, the member can get a loan up to Rs 5000 in lieu of the savings kept with the bank.

**Flexibility Features**

- Insurance linked to fixed deposits (FD) with coverage for the whole family and FD are available in case of emergencies.
- Emergency credit lines linked to savings for clients after one year under the Worry Riddance scheme.

**Financial Discipline Features**

- Payment of premiums from interest of fixed deposit.
- Door to door premium collection.
- SMS reminders.
- Emergency credit only after one year for Worry Riddance scheme with regular monthly deposit.

**Product Delivery**

SEWA insurance is a collaborative effort of SEWA, SEWA Bank and the nationalized insurance companies. Products are marketed and delivered at grass root level through Vimo Saathis, which is a team of women composed of Vimo Aagewans who are central to the National Insurance VimoSEWA Cooperative Ltd. A Vimo Aagewan is "a community leader trained on the subject matter of insurance, and taught how to sell and service the insurance product." (Garand, 2005, p.21) . They performed different tasks:

- Promotion and information about the product for potential and existing members
- Enrolment of new members
- Assistance in claim processing by helping women to obtain the requirement documents and to accelerate the procedure. They follow up with the claims processing on behalf of their member till a satisfactory settlement is reached.
- They serve as bride between members and VimoSEWA by providing constant feedback to both on service quality and client satisfaction.

At Sewa Bank level, banksathis are the bank's frontline worker. They come from the same communities as the customers and live alongside them in the same neighborhoods. A banksathi is someone who has" experience at maintaining a bank account; is a local leader with good credibility; is strong, energetic, and alert; is active within SEWA; and can preferably read and write" (SEWA Bank). Supervised by a bank facilitator Banksathis collect savings and assess the creditworthiness of potential borrowers, they explain them loan process
and repayment rules. If the application is accepted or rejected by the loan committee, they inform the client. The banksathi earns approximately 1% on savings and 3% of loans over the total business she has transacted (SEWA Bank website).13

**Evaluations of Performance : Merits, Limitations and Impact**

Starting in 1992 with 7000 members, in January 2013, 119,477 individuals (62060 women, 36258 husbands and 21159 children) are insured under National Insurance VimoSEWA Cooperative Ltd., in both urban and rural areas (VimoSEWA, 2013 website).14 Between 1992 and 2008, 65953 claimants have received benefits during the crises in their lives with a total payout of Rs 126 million.

The number of insurers is not stable over years, with increases and decreases as well as the renewal rate which was about 60% in 2010 (Yadav, 2010). Among factors influencing this rate, we have raise in premium or fixed deposit amount, for example to take into account inflation, and misunderstanding of insurance benefits. VimoSEWA with its Vimo Aageans are making continual efforts at educating members on the solidarity of insurance and its importance for their life. A study by Garand (2005) found that from 2002 to 2005, the low renewal rate was due to annual premium option because the renewal rate for FD was around 100%. Asset insurance was the much used product.

The FD method minimizes VimoSEWA’s premium collection costs, creating a semi permanent user. The disadvantage appears when the FD amount has to increase due to an increase in premium or declining interest rates; members have to be convinced again to contribute.

VimoSEWA tries to satisfy their clients by taking into account their complaints for product improvement as demonstrated in particular by extension of coverage for husband and children. Important factors in making the decision to change the product are an assessment of the members’ ability to pay for the coverage; VimoSEWA’s capability to manage the product; the cost of adding the benefit; and the probability of viability.

VimoSEWA has already experienced many covariant risk with the Gujarat earthquake in 2001 and the communal violence in 2002 which have permitted to improve its services. Especially for the last event, the institution encounter difficulties to provide timely responses resulting in client dissatisfaction. Since a disaster team has been established to better manage earthquake and other crisis for next time (Garand, 2005).

**Recommendations for Improvement of Design and Implementation**

VimoSEWA is centered on insurance products for self employed women in India in order to help them manage risks. But as it has been demonstrated insurance take up is generally low for poor and illiterate persons who do not understand all the principles, rules and claims process. May be it will be interesting to develop products like the worry riddance scheme with

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loans linked to saving in case of emergencies which are more easy to understand and timely available than insurance.

**Composite financial products**: Case study of Francesca de Nicola, Ruth Vargas Hill, Miguel Robes, (2012) in their article “Interplay Among Credit, Insurance And Savings For The Farmers In Developing Countries”, International Food Policy Research Institute.

This study analyzes the impact of three innovative products, namely weather index insurance, insured credit, and savings account that could improve farmer’s ability to cope with agricultural risk. The authors used a dynamic stochastic model applied to the data of an Ethiopian household survey to study the impact of these products on consumption, investment and welfare gains. Its main contribution is to analyze the effect on welfare gains of the combinations between the three products.

**Product Description**

**Weather index insurance**

It permits to manage covariate shocks only. Farmers receive payouts when the local weather station indicates that drought or extreme climatic conditions are going to affect their crops. The index is independently observed and verifiable and this permits to avoid moral hazard, adverse selection, transaction costs, elapsed time between loss and payout compared to a loss based index. Take up of such products has been low mainly because of basis risk. This situation is due to the fact that weather index is not based on loss assessment so farmers may experience income reduction which are not indemnified.

**Insured agricultural loans**

Under this scheme, the bank insures its agricultural loan portfolio through an index insurance. Consequently, farmers are allowed to stop their loan repayment when index insurance pays out. In this case, weather index insurance and insured agricultural loan are complementary. But it is not sure that small farmers will have enough money to take at the same time a credit and insure both their lending and their livelihood.

**Saving accounts**

While weather index insurance is not effective to manage idiosyncratic shock, saving can be used to cope with both covariate and idiosyncratic shocks. When a shock occurs, farmers use saving that they had accumulated during good years. So saving and index based insurance are substitute. But saving could be insufficient in case of severe shocks or against shocks that occur in quick succession.

The authors also test the effect of

- Combining index-based insurance and savings.
- Offering a combination of three products: weather-index insurance, insured agricultural loans, and savings

**Flexibility Features**

- Weather index insurance is effective in case of covariate shocks with farmers receiving payouts.
- Insured agricultural loans allows farmers to stop their loan repayment in case of covariate shocks.
- Savings are effective both in case of covariate and idiosyncratic shocks since farmers use money accumulated during good years.

**Main Results of the Evaluation.**

It has been demonstrated that uninsured risk discourages innovation and risk taking. In this study, the availability of weather index insurance permits to increase welfare gains defined by the permanent increase in consumption. These gains increase over time since farmers are able to manage more effectively covariate shocks and they take more risk by reducing their investment in risk free assets and investing in farming inputs. This better allocation of resources allows clients to benefit from a higher and less volatile income. However, in the presence of basis risk, welfare gains are lower.

Results for savings are similar to those of weather insurance index in contrary they represent a good strategy against basis risk. Welfare gains are higher for richer farmers who can save more and invest more efficiently.

The more interesting results concern those of combined products. Authors found that:

- Saving products mitigate the welfare loss due to basis risk when they are combined with weather index insurance.
- Offering a combination of weather index insurance, insured credit, and savings leads to higher welfare gains.
- Welfare gains are higher for the poorer farmers who enjoy both benefits from insurance and additional resources to finance agricultural investment and growth faster. So their income become less volatile as they can manage more effectively risk and shocks.

**Rabobank Supply-Chain Financing**

**Product Description**

The supply-chain lending scheme presented here is based on a design by Rabobank International. The Supply-chain approach contends that borrowers of small loans should be financed in directly via contract farming, using the credit history of well-rated “off-takers” or buyers of goods. Under such a scheme, the farmer commits to supply 100% of a particular crop to the off-taker, and the off-taker commits to buy 100% of the farmer’s product, but
pays that money directly to the bank, thereby allowing a direct repayment. (Van Empel, 2010)
Under this framework, the repayment risk burden for individual farmers is converted into
performance risk for both the farmer and the off-taker. (Van Empel, 2010) This cross-liability
system, whereby members guarantee one another’s loans, could reduce risk to banks, which
could further lower interest rates issued by banks. This also shields farmers from commodity
price variability. Lending is primarily provided on a group loan basis. Key to RaboBank’s
model for supply-chain financing is the offering of weather-index insurance as a complement
to loans, which provides ex-post flexibility for borrowers that face shocks. Rabo Development
also provides management services and technical assistance and advice to farmers.

**Flexibility Features of Rabobank Supply-Chain Financing**

- Circumvents the need for collateral or credit history without the need for a long-
established savings account.
- Supply-chain financing is often coupled with crop insurance in order to allow for
  weather shock coping.

**Financial Discipline Features**

- Farmers subject to group-lending pressure.
- Insurance coupling reduces loan default risk.

**Evaluation of Performance: Merits, Limitations and Impact**

**Merits of Rabobank Supply-Chain Financing**

- The contract purchase of goods by the off-takers shields farmers from commodity
  price variability that may occur after they begin growing the crops.
- Off-taker contract purchase ensures expedient loan disbursement

**Limitations of Rabobank Supply-Chain Financing**

- The success of agricultural development is dependent on the creation of a large group
  of professional local farmers producing high volumes of marketable output at a
  consistent quality to meet the generally large crop orders.

**Recommendations of Improvement of Design and Implementation**

The RaboBank model for supply-chain makes finance accessible to farmers in an innovative
fashion by shifting the credit history requirement to product off-takers. This effectively
overcomes the credit history and collateral requirement that often bars farmers from accessing
loans or credit. RaboBank has also built flexibility into its scheme by offering weather-index
insurance as a complementary product. It must be noted, however, that without the weather-
index insurance, borrowers are without any form of flexibility to help them adapt to weather
shocks. Since weather-index insurance is not mandatory, clients should be encouraged to
purchase insurance alongside financing.
Also, given that crop orders are usually very large, supply-chain financing is most appropriately implemented in the context of farmer cooperative groups, as opposed to individual farmer lending.

4. Concluding remarks

Flexible financial products for transfers, savings, and credit and composite financial products offer promising complements to index-based insurance in risk management and risk coping. Lessons derived from both theory and practice are the following:

- While theory tells us that savings and credit must both be used to reduce uninsured risks, complemented by index-based insurance as protection for extreme events and for cases where credit constraints apply, there are still few MFIs that offer these products in a flexible and complementary fashion. Innovative partial solutions have been introduced in the case studies reviewed. Exploring the saving-credit-insurance relation and the design of corresponding composite products is needed to reduce exposure of the poor to uninsured risks. Relying on index insurance alone will not suffice.

- Incentives to save, and not to dis-save, can be provided without compromising flexible access to savings for risk response. This includes motivational devices such as frequent reminders, visits of deposit collectors, peer pressure, lottery, and pledged savings plans with renegadable (default) options that do not interfere with flexibility. It also includes dedicated savings accounts related to shocks, and indexation of withdrawals on observable shocks.

- Flexible loans can be extended without compromising repayment discipline. This includes credit lines, credit cards, and demand-driven rapid access to emergency loans. Implementation requires introducing disciplinary practices by the providing MFI such as careful selection (collateral, credit scoring from past experience with the MFI or based on credit bureau information servicing MFIs, established reputation), careful monitoring (frequent visits by credit officers), and enhanced sanctions on defaults (fines, ostracization). Difficulty is to design these disciplinary practices in such a fashion that they do not introduce participation constraints that selectively exclude the poor.

- Composite products can be constructed to build on complementarities between financial products in handling risk. Most important is a combined saving-credit instrument, with SafeSave the closest approximation to lessons derived from theory. This also includes savings to reduce basis risk in index-based insurance and institutional-level insurance to encourage borrowing.

- Customization of micro-finance services can be applied to flexible products. This is all the more important that market failures are idiosyncratic and determine the optimal combination of financial products to deal with risk.

- Based on what we have seen in this study derived from theory and practice, the design of a financial product to reduce uninsured risks for the poor would have the following
features: (1) Motivated flexible savings options are offered for the purpose of coping with shocks. Motivation is orthogonal to or dedicated to risk. Depositors can draw on savings in response to shocks either freely or conditional on verification of the shock in accordance with the dedicated purpose of saving. (2) Flexible credit lines are offered to respond to shocks as precautionary savings are being decapitalized. Assistance is provided to reconstitute savings with pledged savings plans linked to the repayment of debt. (3) Index-based insurance is provided at the institutional level to cope with extreme events. This can take the form of social protection as a club good for members of associations or of administrative entities.
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