

Turning Interest into Savings

Financial Access Initiative

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The Financial Access Initiative is a research center based at New York University, focused on finding answers to how financial sectors can better meet the needs of poor households.

Introduction

Low-income households are often trapped in a “debt-cycle”: They borrow to cover necessary expenses, repay the loan with their subsequent income, then borrow again because they have nothing remaining after repayment. Inconsistent income and seasonality, especially for farmers, makes borrowing attractive at the time of necessity. However, the associated interest costs may stifle the chances for the borrower to accumulate savings. If they were able to forgo borrowing, saving the interest they would have paid on the loan and the resulting interest on this savings should render borrowing unnecessary in the future. This behavior would place the household in a “savings cycle” in which they would gradually accumulate savings, spend the accrued savings on large purchases, and generate income from which to draw more savings. Surely a self-perpetuating cycle involving savings should be much preferred to one involving debt.

Commitment devices facilitate self-control by allowing the customer to set aside future money and prohibiting withdrawal from these funds for a set period spending ; this allows them to circumvent the temptation to spend money immediately.

This case study describes the design, implementation and results of piloting a debt-to-savings product in India. This product combines a loan with a commitment-savings device that targets microfinance users who cover everyday expenses through borrowing. It is often difficult for people to save money in-hand since they lack self-control to forgo spending money today. Commitment devices facilitate self-control by allowing the customer to set aside future money and prohibiting withdrawal from these funds for a set period spending; this allows them to circumvent the temptation to spend money immediately. This new product uses such a mechanism by allocating funds to savings through automatic deductions which are used

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not only as payments against the outstanding loan but also as savings contributions into a hands-off savings account; thus loan repayment also results in automatic accumulations of savings.¹

The design was tested in India with a loan that allows borrowers to set up their own backyard poultry farming unit. Due to institutional and operational challenges with the poultry farming supply chain, the pilot was terminated prematurely. This case study summarizes the intended design and operational challenges with the hope that the lessons may be valuable for future product innovation efforts.

The first two sections describe the problem and the innovation designed to address it. The next section describes the prototype that was developed and tested. Subsequent sections discuss the implementation, key features and framing. The case study concludes with an overview of the lessons learned. The preparation of this case study was supported by funding from the Financial Access Initiative (FAI).

The Problem: Persistent Borrowing

Persistent borrowing is a typical phenomenon among many low-income households in both urban and rural areas. In rural areas, for instance, farmers face stark seasonal variations in income with a peak around harvest and long troughs in between. The situation is even worse for cultivators of long gestation crops such as sugarcane farmers, who endure crop cycles of up to 12 months. For them, sustaining the one-time payment after harvest to cover all family expenses as well as farm-related investments during the next crop cycle is pivotal. Farmers frequently meet their expenses throughout the crop cycle by borrowing, often with multiple loans. When harvest payments come they are then typically used to repay all outstanding debts before the new crop cycle begins. Thus farmers are often caught in a persistent “debt cycle” that keeps them from accruing savings.

A shift from debt to savings is not necessarily beyond the financial capacities of low-income households. Street vendors often use informal loans to finance the purchase of the fruits or vegetables they expect to sell throughout the day. For instance, about 40% of street vendors interviewed during a survey in Chennai reported taking small loans of up to 1,000 Rupees (about \$23 USD) every day in the morning to pay their suppliers.² However, they also reported consuming sweet tea purchased from local tea stalls during the day. If a vendor would forgo just one cup of tea, which

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1. This product shares important features with “P9,” a saving/borrowing device devised by Stuart Rutherford and implemented in Bangladesh at SafeSave. The Financial Access Initiative is preparing a case study on P9, focused on its extension of ideas from behavioral economics and lessons from its implementation.

2. Ananth, B., et al. 2007. “Microentrepreneurs and Their Money: Three Anomalies.” M.I.T. Jameel Poverty Action Lab Working Paper.

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normally costs around 5 Rupees, she could reduce the need to borrow money to around 995 Rupees the subsequent day and save the resulting interest. If she continues to put aside 5 Rupees daily, she will be debt-free within 32 days due to the compound growth of her savings—all by forgoing just one cup of tea per day.³

The example of the street vendor shows that low levels of income do not fully explain why low-income households revert to debt finance. Behavioral economics provides additional clues that help to better understand this phenomenon. Building up savings requires not only financial but also mental resources because an individual must forgo the gratification of immediate consumption in order to put spare money aside. Thus self-control is necessary for saving because there is a strong tendency for immediate consumption to trump long-term benefits in terms of attractiveness—disproportionately overvaluing present over future money is referred to as “hyperbolic discounting.” This behaviour is heightened when people procrastinate and are loath to change their current situation (i.e. status quo bias). In the case of the street vendor, the long-term benefits (i.e. reduced borrowing costs) may be more difficult to envision or calculate whereas her immediate desire to treat herself to a cup of sweet tea might be particularly strong after having worked all day in the heat and dust of the streets. Hence, the inability to manage temptation prevents many people, not only the poor, from saving more efficiently. For the poor, however, this behaviour may be compounded by their scarcity of income.

In order to save for upcoming needs, both street vendors and sugarcane farmers have to find ways to effectively curb some of their spending. In this respect, loans may act as a tool to facilitate self-control if the prospect of losing future access helps people remain committed until the entire loan is repaid. Alternatively, commitment savings devices assist individuals in exercising the self-control needed for building up lump-sums. These products deliberately restrict the customer’s choices in terms of both depositing into and withdrawing money in order to help her to increase savings. Since it is easier for people to forgo future rather than present money, customers are more willing to plan on saving in the future. Also, by setting up such an account they are avoiding procrastination by bypassing future decisions for allocating funds that they would have put off. Finally, by creating a default setting for allocating savings, the device capitalizes on people’s preference for the status quo.

Interestingly, commitment savings devices are generally chosen to meet various savings goals such as a family wedding, or to purchase gold or other assets as investments, but these tools are rarely used to move out of

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3. Assuming a daily interest rate of 10%, which is the typical cost of credit for these types of borrowers.

debt cycles. Farmers have met their crop investments through borrowing for many generations. Thus repeated borrowing is simply accepted as inevitable. ideas42's design attempts to generate a "savings cycle" without requiring the farmer to change her established pattern of borrowing. The next section explains its main mechanism and describes the product prototype.

The Poultry Loan Product: Building Up Savings Through Borrowing

The Centre for Innovative Financial Design CIFD and ideas42 developed a borrowing-to-savings product that breaks the cycle of persistent borrowing among low-income households. The product acts as a typical loan but instead of offering it at a reasonable rate (e.g. 15%) the interest rate is set at a higher rate of (e.g. 20%). When payments are made, the incremental interest paid (in this case, the 5% difference in rates) is automatically placed into a commitment savings account. Therefore, through the repayment of the initial loan, savings can gradually accumulate until a level is attained that renders any further borrowing unnecessary.

CIFD in India developed the Poultry Loan product in close collaboration with ideas42. CIFD combines insights in behavioral economics and poverty with expertise in product design to develop innovative instruments that help the poor better manage their money.⁴ The Poultry Loan product does this by providing a loan in the form of money for a chicken coop and batches of chicks for the farmer to raise and eventually sell. The sale of the grown chickens then generates income from which the loan is repaid and excess funds are automatically allocated to a savings account. CIFD chose poultry farming for pilot testing because it requires little maintenance (as the birds are scavengers), the rate of return is very high, and growth cycle is much shorter than most crops.

Simply packaging the product as an all-purpose loan with a higher interest rate and holding the excess amount as savings would not be enough to encourage a savings commitment. From a behavioral perspective, it would be easier for customers to forgo spare money during times of high liquidity. Moreover, linking the product to a certain business activity would make it easier for the loan provider to identify these periods and thus sell the product to potential customers. Finally, tying savings to a particular cash-flow stream would increase the chance that savings would continue even after the loan was totally paid off. Ideally, customers would continue using

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4. <http://www.ifmr.ac.in/cifd/>

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the automatic deductions to further increase their savings even though they had already repaid their debts—this would be using the “status quo bias” to their advantage rather than disadvantage.

Designing the Field Test: Linking the Product to a Supply Chain

The Poultry Loan targeted predominantly farmers in rural areas that raised chickens as a side business. The loan provides chicks for meat farming and cash to build a chicken coop. The chicks are Kuroiler™ birds genetically re-engineered hens from Keggfarms™ that are meant to achieve a marketable body weight of 1 kg within about 50 days in scavenging conditions.⁵ This makes the birds not only a source for nutritional food but also a promising business opportunity for low-income households in rural areas.⁶ Once a farmer sells a batch of grown chickens, he can then obtain a new batch so that the amount of birds kept at one time never exceeds the capacity of his farm.

The loan product still had to find a way to capture the customer’s income at the point of sale in order to allocate income to repayment and savings. To accomplish this, the team designed a poultry supply chain that allowed the institution to capture the portion of revenues that went to chicken purchases. CIFD then developed a business case to ensure that the customers would have sufficient funds to continue their business after repayment. The team reconciled various product parameters such as lending duration, the loan principal, and the loan installments to determine the “trapping amount” required.

To execute the field test of the Poultry Loan product, CIFD closely collaborated with Shashtradhara Kshetriya Gramin Financial Services (Shashtradhara KGFS)—an innovative financial service provider that targets the under-served population in rural areas of in Uttarakhand, India.

The pilot of the Poultry Loan product tested the cash-trapping mechanism in practice. The product was launched in two of Shashtradhara KGFS’ service areas in the hills of Uttarakhand. In exchange, CIFD took over the responsibility of developing the pilot, building the supply chain, and developing a marketing strategy for a successful launch. A successful test would result in scaling up the product across all Shashtradhara KGFS entities throughout India.

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5. <http://www.keggfarms.com/products.html#kuroiler>

6. See also the case study by the Harvard Business School: Isenberg, D. 2008. “Keggfarms (India)—Which Came First, the Kuroiler™ or the KEGG™.” Harvard Business Publishing.

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The new product was restricted to a sample of no more than 50 existing customers as a pilot. These pilot participants were to have been identified during CIFD's marketing and promotion campaign prior to the product launch. Existing Shashtradhara KGFS customers could then have signed up for the pilot on a first-come first-served basis. The objectives of the campaign were two-fold. Firstly, it would have offered operational guidance about poultry-rearing that would have enabled the customer to raise chickens effectively. Secondly, it would have clearly described the roles and responsibilities of the farmer during the pilot. This would have ensured that the intervention did not appear to be a program run by the government or a non-for-profit organization that distributes chickens free of charge.

The supply chain that was built for the subsequent execution of the field test linked the product to a supplier and distributor:

- **The supplier sold chicks to farmers.** CIFD identified a chicken supplier that was around 150 km away from the pilot venue. This supplier normally rears chicks up to three weeks of age, vaccinates them if necessary, and then sells them to the customers at a rate of 45 Rupees per bird.
- **The distributor bought grown chickens from farmers and allocated the funds.** CIFD also identified a distributor who was willing to buy the adult Kuroiler™ birds at a fixed amount of 90 Rupees from the pilot participants. At collection points outside villages, customers could collect new batches of young chicks from the supplier while simultaneously selling the adult birds to the distributor. To ensure effective collection, CIFD nominated the distributor as a Shashtradhara KGFS collection agent who could then divert both the loan installments and committed-savings contributions to Shashtradhara KGFS.

The specific parameters of the Poultry Loan were based on the business case that was developed for a small-scale Kuroiler™ poultry farming unit. The loan was designed to cover the entire investment of 5,320 Rupees within a period of five months. The annual rate of interest charged is 20%.⁷ The pilot operated with 15-day cycles for disbursement of chicks and sale of grown chickens, respectively. The process was the following (see Figure 1):

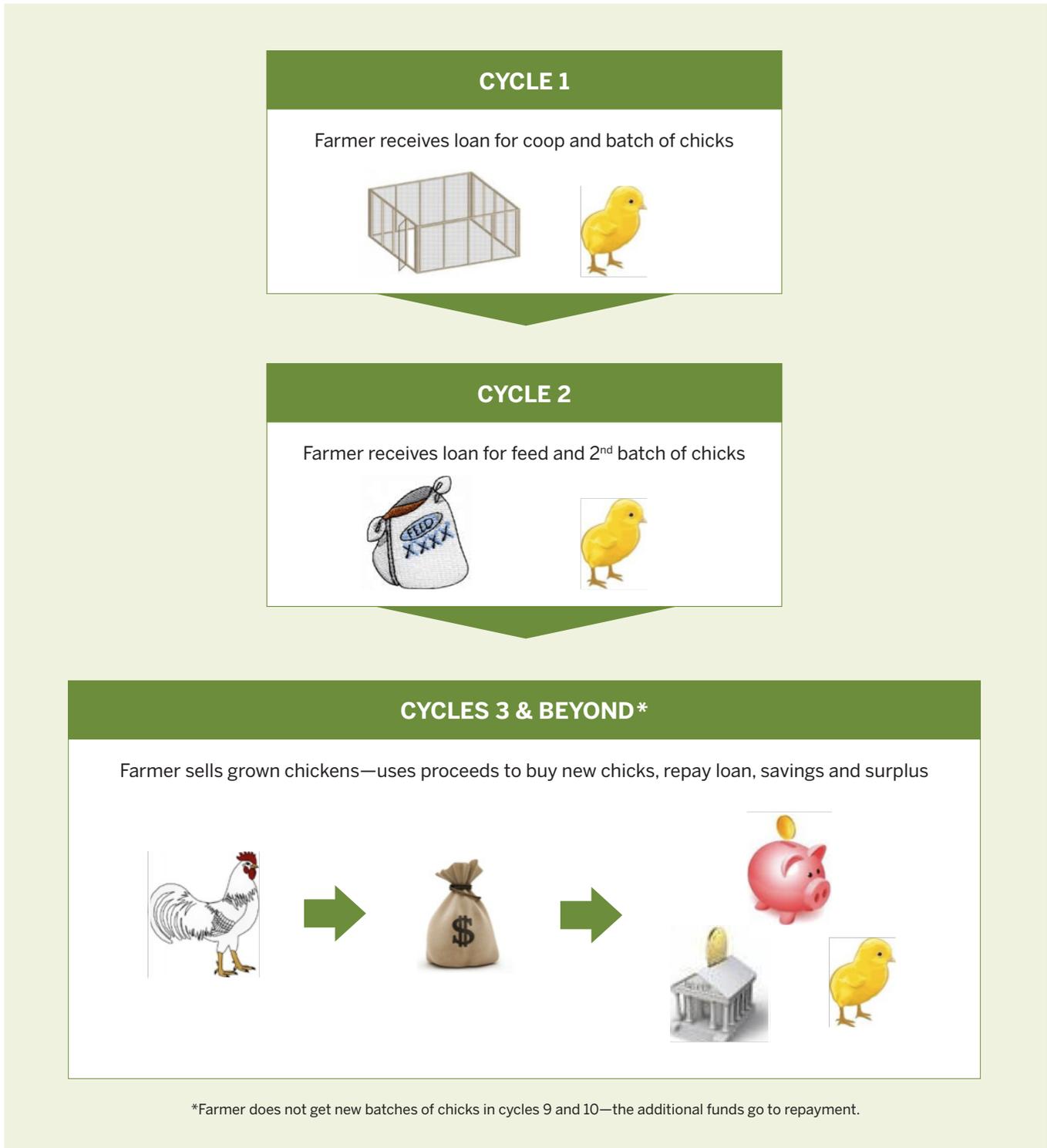
- **1st Cycle.** The bank provides 750 Rupees for the farmer to purchase a chicken coop and the supplier disburses 12 chicks (valued at 540 Rupees).

7. The accrued interests payable are the result of the loan principal that has been disbursed to customer. During the first growth cycle, the customer obtains 12 chicks in addition to cash of 750 Rupees. Since 1 chick is charged 45 Rupees (each batch of 12 costs 540 rupees), the total amount disbursed is 1290 Rupees. Given the annual interest rate of 20%, the accrued amount of interests for the first 15 days is 11 Rupees.

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Figure 1: Poultry Loan Cycles



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- **2nd Cycle.** The bank provides 250 Rupees for chicken feed and the supplier disburses another batch of 12 chicks.
- **3rd through 8th Cycle.** The supplier brings another batch of 12 chicks and the farmer can now sell the chickens they have raised from previous batches for 90 Rupees each to the distributor. This generates an estimated revenue stream of 972 Rupees each cycle. This amount is allocated by the distributor to the following from the 3rd through 8th cycle:
 - o *Paying off the loan*—140 Rupees
 - o *Buying a new batch of chicks*—540 Rupees
 - o *Revenue surplus to the farmer*—100 Rupees
 - o *Committed savings*—192 Rupees
- **9th and 10th Cycle.** The farmer sells those chickens that are full grown and receives no new chicks. The allocation of income is the same as above except the 540 Rupees for purchasing new chicks is now paid towards the loan. After these two cycles, the loan is paid off.

Upon loan repayment, the customer would have generated savings in the amount of 1,536 Rupees (see Chart 1 for cumulative outstanding loan and savings by cycle), which is around 20% of the entire revenue. These savings are invested in Money Market Mutual Funds to generate interest for the customer. Along with the future earnings, this financial cushion is enough to finance subsequent batches of Kuroiler™ birds, which ensures the continuation of the customer's business. Thus, if the pilot works effectively, the farmer will be on a "savings cycle" that allows for slack in income to invest further and face unforeseen shocks.

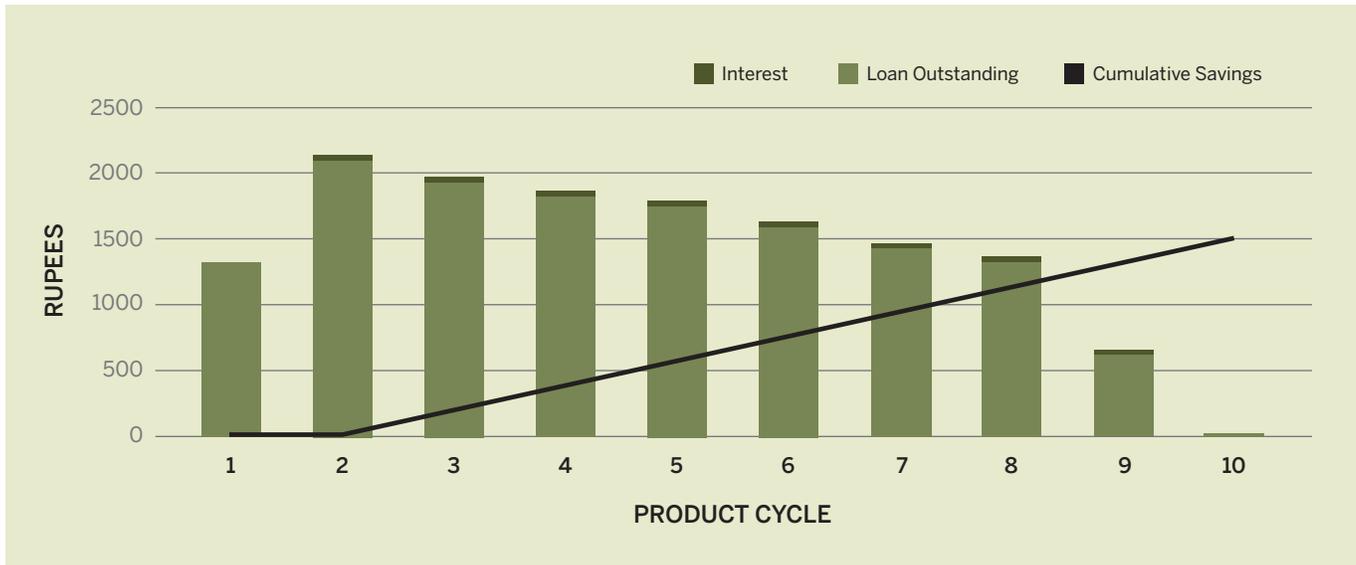
Implementation & Results

In June 2010, the pilot testing began; however, it had to be terminated after four cycles due to operational problems with the poultry supply chain. Several operational factors contributed to the end of the pilot; primarily, the health of the birds was lower than expected. The survival rate of around 75% (instead of the assumed 90%) still covered loan installments and committed savings. However, the distributor's expectation of the weight of the chickens was not met so they stopped buying birds after the second round. With this new development, Shashtradhara KGFS decided to put the entire pilot on hold to avoid damage to their reputation and credibility amongst its customer base.

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Chart 1: Poultry Loan Cumulative Cash Flow



In early 2011, CIFD conducted a pilot assessment to gather evidence on how the intervention performed in the field. It was also interested in understanding why the poultry business model did not meet expectations on the ground. While the financial component of the design could not be tested fully, qualitative findings suggest it is understandable and desirable to consumers. During customer interviews, product users were asked to both explain and rate the various components of the loan product. Generally, customers seem to have understood its details. One could interpret the fact that a group of 46 customers took up the product as evidence of its general marketability.⁸

In fact, respondents explicitly appreciated the idea of holding aside cash at times of high liquidity for the sake of building up savings. As they explained, such a tool would effectively help them to avoid unnecessary spending. “Far too often you just spend the money that you have,” one of the respondents explained. Indeed, farmers recognize their own behavior and are willing to take steps to “shackle” themselves. This shows that there is a need for commitment devices among this population. These devices facilitate self-control since it is easier for the farmer to consider forgoing money in the future, especially during peaks in income. By setting up an allocation of income beforehand, the farmer also avoids future procrastination and presumably is set on a path from which it would be hard to diverge.

8. The prospect of generating such a high rate of return might have been another very strong driving factor for taking up the Poultry Loan product.

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During the product pilot assessment the team conducted focus group discussions with pilot participants and in-depth interviews with other stakeholders (i.e., the supplier, the distributor, Shashtradhara KGFS, CIFD). A number of issues were discovered based on the research.

- **Change in recruitment approach.** The recruitment strategy, which included a training program on backyard poultry farming, had to be replaced by individual customer selection to avoid a conflict with a Shashtradhara KGFS policy against active marketing of lending products. Customers with past experience in poultry farming were selected, however, their level of knowledge proved to be insufficient based on pilot results in that coop construction and feeding proved to be inadequate.
- **Effect of weather.** The project was to start in February 2010 so that the farmers would benefit from the subsequent dry season. However, due to a complex IT systems migration, launch had to be delayed until July 2010 right at the beginning of the monsoon season. While it was known this was not an ideal time for launch, the implementation didn't anticipate that the weather would have as large an impact as it did.
- **Lower growth rate of birds.** A marketable body weight within 50 days is possible when raised by experienced professionals. However, for start-up poultry businesses, assuming longer growth cycles would be more appropriate. In this case, the birds grew at a slower rate than anticipated for two reasons. Firstly, the chicks were underfed as a result of their delivery time being delayed by the weather. Secondly, farmers did not always use proper feeding methods due to lack of sufficient training.
- **The product framing—lack of ownership.** Customers noticed the poor state of the birds upon delivery and complained about their slow growth. When asked about the poor state of the chicks on the second and third batch, respondents frequently stated that they would never have accepted the chicks if they had paid “with their own cash.” None of the participants saw the need to consult any veterinarians or experts to obtain advice on how to raise the “Shashtradhara KGFS birds.” Rather than seeing the animals as their own property, customers treated the chicks as if they were the property of Shashtradhara KGFS that had simply been lent out to them. Pilot participants did legally own the chicks, but since pilot participants did not participate in any of the monetary transactions between

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Shashtradhara KGFS and the supplier to purchase the birds, a feeling of ownership might not have been instilled. Previous experiences with government poultry schemes that distributed free chicks to farmers in the region may have also contributed to this perception among farmers.

Complex pilots need to have a long timeline with greater involvement from experts, and a higher risk of failure should be anticipated.

Lessons Learned

Although it ended prematurely, the pilot of the Poultry Loan product provided useful insights that are instructive for future product testing. These insights relate to both the design of the Poultry Loan product and to the product innovation process in general.

For Design

The product was useful to customers based on preliminary evidence of quick uptake and positive qualitative feedback. Many farmers welcomed the idea of committing to saving in order to avoid the immediate temptation to spend. However, a key issue is that the current product design does not foster a sense of ownership by engineering a process for customers to receive cash and then immediately pay that cash to purchase birds. Using training sessions in the villages to market the product can also better prepare the customers to care for the chickens. Tying a loan to a new enterprise with no up-front monetary investment from borrowers is also always risky as they may not consider the decision to start a business carefully enough. In cases where there is an established business, for example sugarcane farming or dairy, this issue will not be a concern.

For the Product Innovation Process

This pilot ran into many challenges but the ultimate results are quite This pilot is a cautionary tale for anyone trying to test a very complex process. The financial product design was relatively complex in and of itself, but setting up the logistics of an entire poultry farming business made the pilot infinitely more difficult to execute and much more vulnerable to mishaps. Complex pilots need to have a long timeline with greater involvement from experts, and a higher risk of failure should be anticipated.

Second, the pilot also illustrates the importance of a clear approval process and subsequent coordination between parties that take into account

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the expertise of all that are involved in the product innovation. Successful coordination would prevent last-minute changes that could damage the integrity of the product design, but is often challenging to do while still making the implementing partner feel ownership for the product pilot.

In summary, complex product designs should be avoided, but if they are tested, a senior product manager from the implementing partner should be closely involved from the beginning of the design phase.