

Mobile phone as the tool to redefine Savings for the poor: Evidence from Kenya

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Abstract

Research conducted on the poor and their finances indicate that there is need to develop financial instruments that specifically fit their needs. However, banks have not been able to provide such services, because the returns don't justify the cost of delivering them. The uptake of mobile phones and mobile money (in various guises) in the recent years has been tremendous and widely documented. While the basic product is person-to-person money transfer, more sophisticated financial products designed for the poor are now coming on line. This paper describes the experience of Kickstart in Kenya designing, piloting, deploying and sustaining a mobile phone savings application, leveraging the widely popular M-PESA money transfer service to target poor, small-scale farmers. KickStart, a non-profit organization headquartered in Kenya, designed a "Mobile Layaway" service that enables farmers to make mobile payments of any amount and of any frequency to purchase human-powered irrigation pumps. The specific goal is to help farmers amass a lump sum for a major equipment purchase (foot-pedaled water pump). After the pilot, the flexible and targeted mobile-layaway program recorded over 95% success rate, with most farmers saving faster than they expected, giving a lot of hope that such saving tools can actually provide a safer, more secure, and more effective way to save for products and services. In addition, more women were able to buy water pumps than without the savings program. This paper suggests that the success of Kickstart's Mobile Layaway provides a template for other similar products targeting the base of the pyramid, and draws lessons from the Kickstart pilot that may prove valuable for other mobile-money firms and

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financial service providers. The paper also presents two lessons learned in the design and implementation of the mobile money product; that iterative mobile money product design is critical for success and that simple solutions do overcome the issue of mistrust. It also makes some conclusions and recommendations for further research work.

Key words: Mobile Money, Layaway, Bottom of the Pyramid

The uptake of mobile phones, particularly in Sub-Saharan Africa, has led to a growing interest to establish how mobile phones could be used to improve the lives of the poor. There have been several mobile phone based innovations that have substantially changed how people conduct their daily business and in a way improved lives. Specifically, the use of mobile phones for money transfer, access health care information and agricultural market information are illustrations that demonstrate the positive effect the mobile phones have had in the lives of low income earners.

Since the publication of the book *'The Fortune at the Bottom of the Pyramid'* (Prahalad, 2004), there has been an increased attention in developing business models that enable business organizations to generate income while serving the poor. There are emerging business models that work well in developing countries, such as layaway programs, lease-to-own and pay-as-you-go (Karamchandani, A. et al, 2009; Omwansa & Sullivan, 2012). Technology can be used to streamline these business models. In this paper, we discuss a case of a mobile layaway program in Kenya as used to facilitate payments for commodities that would ordinarily be considered expensive for the poor.

2. Background and Literature Review

The poor and their financial lives

The World Bank estimates that 2.5 billion people (almost 40% of the world population) live on less than 2 dollars a day. Approximately a similar number of adults across the world are financially excluded. Of these poor, less than 10% have access to formal savings products.

A collection of financial diaries from more than 250 households conducted in India, Bangladesh and South Africa documented in *The Portfolios of the Poor* (Collins, et al. 2009) established that most poor households just like richer ones, need to finance big purchases. They save up large sums to buy household goods, assets or investments. All the households in the study at some point in time accumulated these sums in piecemeal and mostly withdrew the funds all at once. It was observed that most of the savings were entirely spent in the course of the year, i.e. they were built to be spent.

Not only do poor families need to save, they are indeed capable of accumulating lump sums of cash over a period of time despite their low and lopsided income (Rutherford, 2001). They use multiple

instruments to save including informal savings clubs which increase the discipline necessary to save. Rotating savings and credit associations (RoSCAs) enable members to save certain similar amounts per member every so often. Such informal methods are appropriate for the poor because of certain ingredients, such as ease of exiting from the group, trust among the members (members decide who would be part of the group) and payment flexibility (members agree on frequency of contribution and amount).

The informal saving tools work for the poor, but they are not sufficient. The schedules provided often do not match the household cash flows and they do not enable longer-term savings (Collins, et al. 2009). With low and irregular income, the poor need instruments that increase their sense of obligation and in a way are automated. Without these, they are unable to balance between the need to spend today and the critical need to stay disciplined in saving for the future (Rutherford 2001; Collins, et al. 2009).

In the book *The Portfolios of the Poor*, the researchers concluded that reliability, convenience, flexibility and structure are the four key principles that policy makers and micro-financiers need to bear in mind as they develop regulations and products for pro-poor financial services. Reliability is considered the single most important attribute of a financial service product for the poor. It implies that the products should be timely and accurate. Convenience implies that the transactions should be close to homes or workplace, be quick and private or without any obstruction. Several research outcomes, just as the findings from the KickStart Mobile Layaway in Kenya confirm that the poor are willing and able to pay for such convenience.

In his book *The Poor and Their Money*, Rutherford argues that in order to create better financial services for the poor, policy makers and application developers should start by having a clear idea of just what constitutes good services for the poor. To expound on this, he says that financial services for the poor help them swap their savings for lump sums of cash. To achieve a good swap, financial tools for the poor should enable them to save in small sums, of varied value, as frequently as possible. In addition the delivery systems should be local, frequent, quick and transparent with reduced paperwork and transaction costs (Rutherford 2001). The KickStart's Mobile Layaway service in Kenya demonstrates how this is all put together, with a high degree of success to help farmers achieve some particular financial goals.

Mobile as an instrument for savings

Micro-finance has been believed to be the tool to accelerate the poor out of poverty. Besides demonstrating that micro-credit has had a positive impact on poverty reduction, a number of studies have also advanced the discussion on the need to emphasis savings (Noose, 2001; Morduch, 2002). The uptake of mobile financial services has demonstrated that both micro-savings and micro-credit can be even more reliably and cost effectively be delivered through mobile phones.

A survey of over 2,000 Kenyan households established that 89% of respondents stored money on their phones using M-PESA (Jack and Suri, 2010). M-PESA was never designed for savings; it was designed for sending money (P-2-P). Several researchers have underscored the powerful tool a mobile phone can be for the poor. Being ubiquitous and yet personal, the mobile phone has the potential to fill the gap of providing the right financial service for the poor. In their analysis on developing innovative financial services to suit poor users, Morawczynski and Sean identified four kinds of saving scenarios for the poor. In the first category, users accumulate mobile money over time and then send it to a pre-determined recipient. In the second, users receive large amounts and withdraw in small bits until the account is exhausted. In the third, users utilize the mobile money account just like a transactional account, making small deposits and withdrawals. In the fourth and last category, users deposit little amounts towards a specific goal; working through a structured schedule the users only withdraw the cash once the target has been reached, unless an emergency occurs (Morawczynski & Sean, 2011).

One question that arises is how to ensure that the poor do not walk away from the target just because a minor emergency came by. The poor are in many cases characterized by low literacy levels and may make bad financial decisions due to unforeseen pressure. How do we balance between their right to walk away at any time with ensuring they stick despite the odds? A poor person setting a personal financial goal and achieving it can be miles apart. In the case of Mobile Layaway, discussed in this paper, the poor are encouraged to stick to the goal until it is achieved. This goal is jointly set by the farmer and the target provider, in this case KickStart. Due to the challenges faced by the poor in managing savings, working with professionals to set and manage the targets and then working together towards achieving the goals makes a whole lot of difference.

A study conducted by Oliver Wyman for the Bill and Melinda Gates Foundation in sizing the poor, established that the majority of poor people in the world are small scale farmers (Wyman, 2007), a category that KickStart is effectively reaching out to in Kenya. While the Mobile Layaway program attempts to sell pumps to the poor farmers, indirectly answers some of the questions that many developers, researchers and policy makers interested in empowering the poor have, including designing mobile phone savings programs, piloting, managing the execution, motivating farmers, sustaining customer support among others. With over 95% success rate, the Mobile Layaway program has a lot to inform the micro-saving sector.

The case study of a mobile money product (Mobile Layaway from Kenya) that follows demonstrates one way of designing and executing a mobile money instrument that enables the poor not only to achieve a target, but also sustainably empowers them economically.

3. Case Study

KickStart International is a non-profit social enterprise whose mission is to take millions of people out of poverty quickly, cost-effectively, sustainably and permanently, and in doing so, to fundamentally change the way the world sees and fights poverty. KickStart achieves this mission by attacking the deepest root of poverty: lack of regular and reliable income. It first identifies profitable business opportunities open to thousands of very poor people; then it designs, manufactures, and mass-markets simple moneymaking tools that unlock these business opportunities and enable them to create highly profitable family enterprises.

KickStart's human-powered 'MoneyMaker' irrigation pumps enable poor farmers to grow crops all year round, and to transform from rain-dependent subsistence farming to commercial agriculture. Farmers using 'MoneyMaker' pumps see a 300% to 400% increase in household income within 18 months. They use their new purchasing power to meet basic needs, including medicine, education, food and shelter.

Since KickStart began in 1991 to date (June, 2011), more than 114,000 successful new businesses have been started in Africa using its products. Today, more than 1,200 new businesses are being created each month. Each year these businesses generate over \$115 million in new profits and wages and employ over 150,000 people.

Rationale for Mobile Layaway

KickStart spends most of its resources building awareness of and demand for its pumps. However, even when a farmer is convinced that he or she wants a pump, there is still the constraint of the purchase price. MoneyMaker pumps are “big ticket” items for poor rural farmers. With a pump, hosepipe, seed, and fertilizer, the initial investment could cost from \$65 to \$185.

It would seem that the simple solution is to offer credit so farmers could buy the pumps. But that model is far more complicated than it first seems. First, the "Grameen" model of microfinance is not set up for farmers, as those loans go into repayment almost immediately and a farmer must wait at least one crop cycle to begin repayment. Second, most successful microfinance programs spread responsibility for loan repayment among peer groups – and are ideally suited to villages where loan recipients live close together and can be cost effectively supplied with loan products. In East Africa, however, farmers tend to live far from the village. Finally, unless there is an aggressive effort to collect on loans, the program would quickly become a de-facto giveaway, which is the antithesis of KickStart’s model.

Many of the studies conducted on micro loans mention the number of poor people who simply do not want to take loans and go into debt. There is a huge and still unmet need for safe and secure savings vehicles. By some estimates, poor households lose as much as 40% of the cash they try to save "under the mattress" through theft or family borrowing⁵. As a result, it can be very difficult for smallholder farmers to save up enough money to purchase a MoneyMaker pump.

Therefore, KickStart has designed and introduced a very exciting new solution for financing its irrigation pumps: layaway (micro-payments) via cell phones. The Mobile Layaway service, which is marketed as “*Tone Kwa Tone Pata Pump*” (Swahili for “Drop by Drop Gets the Pump” – in short form, the service is marketed as “Tone Kwa Tone”) enables customers to make mobile payments of any amount, of any frequency, using Safaricom’s M-PESA, a mobile money transfer system used by over 15 million subscribers in Kenya. Mobile Layaway provides a convenient, secure, interest-free method of “saving” up for a MoneyMaker, and helps customers commit to the purchase before they have the full amount to purchase it.

⁵ See publication of the Financial Services for the Poor on Savings at <http://www.gatesfoundation.org/financialservicesforthe-poor/Documents/savings-statistics-financial-services-for-the-poor.pdf>

Two surveys were conducted, one upon registration for the Mobile Layaway and upon completion of a full payment. In the first survey Sales Representatives were equipped with a questionnaire printed on paper forms. When the customer signed up for the Mobile Layaway, the Sales Representatives either asked the customer to fill out the survey on paper, or asked the questions verbally and record the answers on the paper form. In the second survey, KickStart's impact monitoring team visited the Mobile Layaway customers who had completed full payment on their MoneyMaker pumps and interviewed them in person. The enumerators recorded the answers on a paper form.

Product design

KickStart spent about three months designing the initial product based on input from a cross-functional team of representatives from the Product Management, Sales, Marketing, Operations, and Finance teams. The team designed the rules and policies (registration fee, minimum initial deposit, maximum payment period, etc.), roles and responsibilities, and the processes for registering customers, processing payments, issue the pump upon completion of payment, SMS communications, and follow-up for overdue customers, etc.

The farmers can register for the layaway program with any KickStart Sales Rep or at any participating MoneyMaker retail shop. Farmers are informed of program specifics (fees, how to make payments, maximum payment period, rules & policies, etc.). Upon registration, layaway customers make an initial down-payment to KickStart through M-PESA's "Pay Bill" service. They will make subsequent payments, as they have the funds, to KickStart's M-PESA business account. KickStart sends a confirmation text message upon receipt of each payment, as well as monthly text messages containing the account balance and encouraging the next deposit. A typical message from KickStart reads, "Edna, as of the end of February, you have paid KSH. 2,450 (29%) in total towards your Super MoneyMaker Pump. Your remaining balance is KSH. 6,050. Thank you!" Once the customer has fully paid for the pump and accessories, KickStart sends an SMS notification to both the dealer and the customer, who will then collect the pump at the dealer. If, however, customers choose to terminate the layaway program, KickStart will refund their payments (minus the service fee and a cancellation fee).

Product piloting

KickStart designed the pilot in a two-phase approach. The main objective of Phase 1, which ran from September 2010 through January 2011, was to implement the basic structure/system/procedures for offering layaway and test initial hypotheses. The main objective of Phase 2, which ran from February 2011 through June 2011, was to create a “Market Test” to incorporate feedback from Phase 1, deploy improved system/processes, and refine service design for nationwide launch. 13 KickStart Sales Representatives from 4 regions of Kenya (Nyanza, Rift Valley, Western, and W. Aberdares) registered 27 customers during the Phase 1. Another 18 KickStart Sales Reps from 3 regions of Kenya (Rift Valley, Western, and W. Aberdares) registered 67 customers during Phase 2. As of June 30, 2011, KickStart’s Sales Representatives had registered 94 customers. Figure 1 shows the registered customers over the nine month registration period for the three regions selected by KickStart.

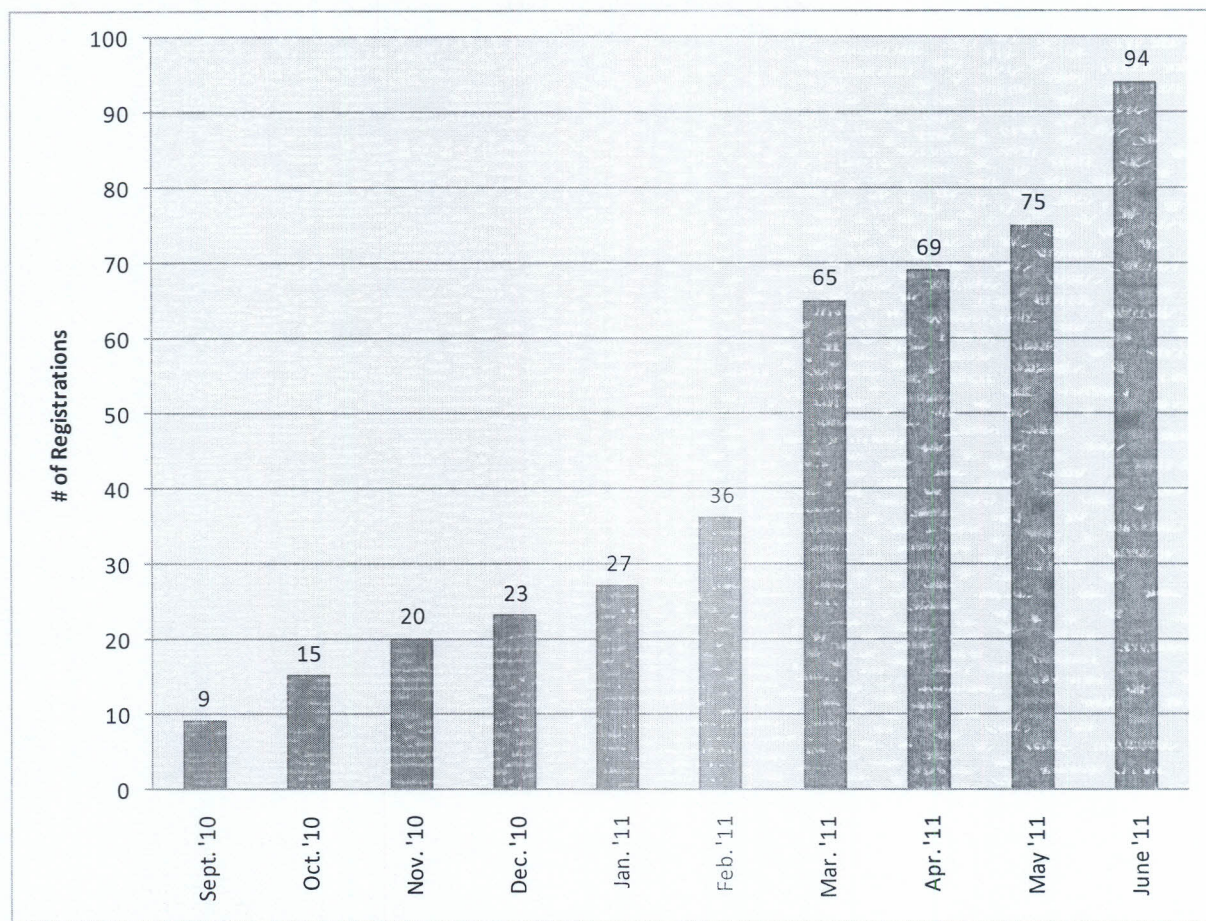


Figure 1: Number of Customers During Pilot

The profile of an average Mobile Layaway customer is a 43-year old man whose primary occupation is farming. 39% of customers said that they first learned about “Tone Kwa Tone” at a KickStart-authorized dealer⁶, 27% at a group meeting, and 15% at a Farmer Field Day. Conversely, KickStart Sales Representatives reported that it was easiest to register a customer at a group meeting, moderately easy at a farm demonstration or Farmer Field Day, and most difficult at the dealer. This suggests that dealers are an effective channel for product awareness, but explanation of the service by a Sales Rep is necessary for full understanding. Most customers cited horticulture crops and monthly salary as the source of income for making micro-payments, but a few also cited cash crops, small

⁶KickStart-authorized dealers are primarily private sector “agrovets” or hardware shops that already sell farm inputs such as seeds, fertilizer, and pesticide to small-holder farmers.

businesses (such as washing cars or selling water drums), or casual labor as the source of income. 45% of customers said that they made payments “whenever I received a lump sum of money” while 36% said “whenever I felt I had saved up enough money.” A transaction cost of KShs. 20 (approx USD 0.5) is paid every time a payment is made. This could be about five times in a period of three months for a pump of about USD 105. An in-depth evaluation of this pattern revealed that the farmers were not necessarily trying to avoid paying transaction fees; rather, they simply made payments when they were ready. In as much as transaction fees may seem a barrier to entry, the poor people were willing to pay for the convenience and do recognize that the transaction fees accounted for a very small percentage of the entire amount spent, about 4-5%.

Although KickStart had originally predicted that the average payment size would be relatively small, the average mobile payment size was KShs. 1,054 (about \$11.70). The average payment size was also correlated with the product, that is, the total payment expected. In 2008, the Kenya National Bureau of Statistics (KNBS) did an income classification of 5 levels, the lowest being level 5. The regions where these studies were done are in the range of level 4 and 5. According to the urban Consumer Price Index (CPI), households in the lower-income group with a gross monthly income of below KShs. 25,248 (US\$ 315.60) but above KShs. 10,000 (US\$ 12.50) (translating to a range of USD 4.00 to USD 10.5 per day per household) and constitutes 72.12 per cent of the households.

Table 1 shows that the average M-PESA payment averaged between 20.9% and 23.6% of the total payment expected.

Table 1: Average M-PESA Payment as a % of Total Payment Expected

Product	Total Payment Expected (Ksh)	Average Payment (Ksh)	M-PESA Average Payment as % of Total
Hip Pump	3,350	792	23.6
Hip Pump + Hoses	5,780	1,253	21.7
SMMP ⁷	8,500	1,951	23.0
SMMP + Hoses	10,930	2,279	20.9

⁷ **Super MoneyMaker Pressure Pump (SMMP) is used to pump water from hand-dug wells, rivers, streams, lakes and ponds. It is ideal for sprinkler irrigation, filling overhead water tanks, or for use with nozzles and sprays attached to the end of the delivery hose. This powerful pump can draw water up from 23 feet (7m) and has a total pumping head of 46 feet (14m). It can be used to irrigate up to 2 acres of land.**

Furthermore, people generally underestimated how much their average payment amount would be. When considering what customers answered to “What do you think will be your average payment?” on the “Customer Survey Upon Registration,” 28 out of the 39 (71.8%) customers actually made a significantly larger average payment amount. Customers also underestimated the amount of time it would take them to complete payment. When considering what customers answered to “How long do you think it will take you to complete payment (in # of months)?” on the “Customer Survey Upon Registration,” 25 out of the 39 (64.1%) customers actually took less time. This suggests that consumers save more and save more quickly than they plan or imagine if given a formal and simple savings mechanism.

Product impact

The mobile money product design and implemented by KickStart had three key impacts. One, it shortened the time to purchase a MoneyMaker pump. Many Mobile Layaway customers indicated that they could have eventually paid for the pump in cash, but it would have taken them a much longer time period. For example, recent impact monitoring studies show it takes a MoneyMaker customer an average of 12 months to purchase a MoneyMaker pump. Using the Mobile Layaway service, it takes customers an average of only 2.5 months to complete full payment.

A further impact is that the mobile money product enabled KickStart to reach an even poorer income segment. For example, the majority of customers acknowledged that without Mobile Layaway, they would never have been able to purchase the pump. In comparison to customers who pay for their KickStart products in cash, the average Mobile Layaway customer generates less annual income and owns less land, livestock and household assets (see Table 2 below).

Table 2: Economic Comparison of Mobile Layaway Customers to Cash Customers

	TKT BASELINE	HIP PUMP	SMMP
Average annual income (Ksh)	305,926	348,585	474,890
Owned land under cultivation (acres)	1.58	3.34	5.6
Total land owned/ accessed (acres)	3.52	7.7	22.3
Improved cattle	2.80	3.3	2.56
Local cattle	0.27	2.5	2.46
Improved sheep	1.40	2.6	0.35
Local sheep	1.53	1.7	2.63
Improved goat	0.20	1.1	0.23
Local goat	2.40	5.3	1.25
Cell phone	2.67	1.89	1.38
Radio	1.27	0.95	0.90
Bicycle	0.73	0.74	0.77
TV	0.47	0.57	0.50

The final impact is with respect to women empowerment. The mobile money product enabled KickStart to reach more women than using other methods of purchasing the asset. The study shows that only 18% of customers who purchased pumps in cash were women, yet 31% of the customers who had registered for Mobile Layaway were women.

Customers truly valued the “Tone Kwa Tone” service. When asked what aspect they most valued, the following were the responses:

- “The flexibility of paying “pole pole” (bit by bit) instead of all at once” (70%);
- “The convenience of making payments via M-PESA instead of at the dealer” (18%);
- “The security of paying via M-PESA instead of in cash” (9%).

In general, we believe that “Mobile Layaway” is an innovative mobile money product and model that can be applied to the purchase of any product or service being offered to the so called base of the pyramid (BOP) customers.

4. Lessons, Conclusions and Recommendations

Lessons

There are two lessons that the case study provides. The first is that iterative mobile money product design is critical for success. One of KickStart's main challenges when approaching product design was determining the appropriate level of policies to ensure that only serious customers register for the Mobile Layaway service yet without deterring the targeted customers. For example, for the first phase of the pilot, KickStart decided to require customers to make a minimum initial deposit of 30% of the retail price. However, the Sales Team quickly learned that this was one of the top reasons why customers did not register for the service. Once we lowered the initial deposit to 15-20% of the retail price, many more customers registered for the service and many fewer customers complained that the minimum initial deposit was too high.

The second lesson is that simple solutions can overcome the issue of mistrust. KickStart's Sales Team discovered early on that many rural customers were familiar and comfortable with person-to-person M-PESA transactions, but almost none had ever used M-PESA's "Pay Bill" service for customer-to-business (C2B) M-PESA transactions. In some rural areas, M-PESA-related scams are common, so people in those areas tended to be extremely wary of the Mobile Layaway service. In some cases, customers would give cash or send M-PESA directly to the Sales Representatives, whom they did trust and who would then send M-PESA to KickStart on behalf of the customer. Once customers received both an SMS confirmation from Safaricom as well as from KickStart, they would often make subsequent payments on their own. To date, about 23% of M-PESA payments are sent by KickStart Sales Representatives.

Conclusions

The first conclusion is that a well-designed mobile money product can be an effective mechanism of mobilizing savings among the poor. In the case described, poor farmers who could ordinarily not save towards a productive asset were able to easily save. They were then able to purchase a productive asset aimed at enhancing their income. A related conclusion is empowerment to women. The mobile-money enabled saving arrangement enabled more poor rural women to acquire assets that they would ordinarily not be able to afford in cash.

The third conclusion is that designing and deploying mobile products requires a proper understanding of the poor, including involving them, overcoming their fear, marketing techniques, communication, branding, motivation, and so on. A further conclusion is on trust. The case study showed that a

simple solution built trust. This trust was enhanced by the poor farmers' familiarity with sending money using M-Pesa. It was also enhanced by feedback on transactions and monthly statements.

Finally, although KickStart never thought about it, the authors suspect that the high acceptability of the mobile money based saving scheme was largely because its design was based on a traditional saving mechanism among the rural poor—small and regular payments into rotating savings and credit associations (ROSCAs).

Recommendations

The case study is based on a relatively small number of adopters of a mobile money-based saving scheme. We recommend a rigorous adoption study, involving adopters and non-adopters of the described product. We also recommend a study to compare the effectiveness of similar mobile money products designed for mobilizing savings. Finally, we recommend research on various mobile money products targeting the poor and their impact on poverty alleviation. These recommended studies should also aim at influencing policy on the role of ICT in poverty alleviation.

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