Promoting Savings Among Informal Sector Workers in Kenya

Research Project Proposal

1. Motivation

Most of the countries in Sub-Saharan Africa face huge challenges in reducing social and economic risks faced by their citizens, not only because of high levels of poverty, but also because of very low coverage of formal savings products and social insurance programs. One of the main reasons for this phenomenon is that the majority of the workers in these countries are in the informal sector, i.e. they are not registered with the social security system. They furthermore do not have access to bank accounts.

Although the last two decades have witnessed improvements in the area, the coverage of social insurance programs is still not higher than 15% in Sub-Saharan Africa (Samson 2009), which mainly consists of formal sector employees. The remaining workforce in the informal sector faces an irregular income stream due to being self-employed or working without formal contracts. This population is extremely vulnerable to economic shocks.

Some countries in Sub-Saharan Africa have recently taken action to extend the social insurance coverage to all workers including the informal sector. For example, in Kenya, the Retirement Benefits Act enacted in 2008, led to the development of the government sponsored pension plan M-Bao, which was specifically designed for the needs of informal sector workers and aims at extending the social protection to all citizens. Two specific features of this plan are promising for reaching a high coverage rate: First, it is built on the newly developed mobile money system, which is now used by as much as 70% of Kenya (Ravi and Tyler 2012) and allows people to store money in a private account linked to their mobile phone numbers and transfer it instantaneously to any other account in the mobile money system. Thus it is very easy for informal sector workers to make deposits to this plan, even though they do not hold bank accounts. The second important feature of the plan is that it does not specify an amount to be deposited each month, due to the erratic income stream of target population. Because of this feature, it is defined as a "voluntary savings scheme".

Although the second feature of the pension plan provides the potential for being appealing to the informal sector workers, it inherently has the risk of not increasing the savings of members due to the voluntary nature of the contributions. Saving for the distant future is a difficult problem and requires cognitive effort as well as strong self-control for most people. If left alone, individuals systematically make mistakes regarding this decision by over-discounting future expenditures and ending up choosing to spend more in the present than what they would prefer over a lifetime consumption plan (Frederick Donoghue and Loewenstein 2002; Laibson 1997). This behavioral setback is usually alleviated for formal sector workers by offering them commitment products such as automatic withdrawals from their regular income.

As this type of a voluntary savings scheme has a high potential of being adopted widely, it is extremely important for policy makers to assess its effectiveness and identify ways for improvement in its early stages.

2. Purpose

The purpose of this research project is to test whether adding novel services to a voluntary contribution scheme (in our project, M-Bao) can significantly increase savings among informal sector workers in Kenya. Our novel services are designed to be simple and easy to be scaled up by any pension plan provider in Kenya using mobile financial platform. They are designed in the light of research over the last few decades in the area of behavioral sciences and aim at tackling the psychological barriers people face when making savings decisions as explained below.

One of the psychological barriers to save is suggested to be systematic inattention to the needs of the future (Karlan et al 2011). This theory assumes that attention is a limited cognitive resource and people can consume it while paying attention to the salient components of a decision problem, systematically discounting the components that are not salient. For example, an individual with low-income can consume his or her limited attention when s/he considers all the immediate expenditures such as sheltering and food, thus failing to accurately estimating future needs. This theory suggests that regularly drawing attention to the needs of a distant future or drawing attention to the level of current savings would help correcting this bias in savings decision and lead to increased savings. Indeed, text message reminders, regularly sent to mobile phones to encourage depositing money into the savings accounts have been shown to be effective in increasing savings among three randomly drawn samples in Latin America (Karlan et al 2011).

Another psychological barrier to save, which is specifically relevant for mobile money is being distant from a tangible representation of money (such as cash or gold that can be touched and counted). For example, consumers systematically spend more when they are paying with credit cards instead of cash (Soman 2001). One of the theories explaining this phenomenon is that cash makes the depletion in wealth salient, thus making the tradeoff explicit, whereas credit cards make people underestimate the amount they actually spend. Applied to savings behavior, this theory suggests that representing savings with a medium that is tangible would make the increase in future wealth salient and help to make a better decision between consuming today or tomorrow.

Given the well-known psychological barriers to save for anyone as well as the additional financial barriers informal sector workers face, we will test whether behavioral interventions and financial incentives can be useful as policy mechanisms to motivate informal sector workers save more for their future. By testing the effectiveness of each intervention scientifically, our specific objective is to identify the most successful and cost-effective intervention to promote savings and to achieve efficient welfare outcomes amongst Mbao members. Furthermore we hope to continue collaborating with our partner institutions to scale up our findings in cooperation with the Mbao pension plan.

Our broader objective is to provide scientifically proven, effective policy examples, which can be adopted by policymakers in the world who aim to increase savings of low-income individuals.

3. Design

In this research project, we will partner with the Retirement Benefits Authority of Kenya, which is the regulatory government body which has developed and currently oversees the M-Bao pension plan to

implement a randomized control trial to test the effects of the following interventions on savings behavior. These interventions will be communicated as additional new services of the already existing M-Bao pension plan.

3.1. Coin: This service will provide individuals with a coin at the beginning of the trial. The coin's surface will display a picture representing continuous savings and resulting increase in wealth (see attached picture). The coin has engraved numbers from 1 to 24, representing each week of the 6 months of the trial period. Individuals will be asked to scratch the corresponding number of the coin every week they make a deposit. The coin aims to make the savings tangible and help the decision making process to correctly estimate the actual value of tomorrow's savings.

3.2. Text message: This service will send weekly text message reminders to individuals, prompting them to make a deposit. The text message service will be customized to include the name of a family member (e.g. children) to specifically draw attention to the future needs of the household as a goal for saving.

3.3. Ex-Post Matching of contributions: In this service, at the end of each week, an extra 10% (20%) of the contributions made in that week will be deposited to the individual account. The amount will be capped (e.g. a preset cap of $5). On top of the psychological barriers that are faced by everyone, low-income individuals face an additional financial barrier to save, i.e. dearth of sufficient income. When the income is low, future consumption might be discounted extensively, shifting the weight of consumption decision to the present. In this case, providing financial incentives to save for future can indeed help change behavior significantly. For example, in the U.S.A., matching contributions of low income individuals registered with Individual Retirement Account (IRA)s has been implemented since 1980s and research suggests that a 20% match can increase average contributions up to 46% (Duflo et al 2006). Little is known, however, how this service performs compared to the behavioral services such as coin and text message reminders.

3.4. Pre-Matching of Contributions: With this service, 10% (20%) of the cap as featured in service 3 (e.g. a preset cap of $5) will be deposited to the individual accounts at the beginning of each week. At the end of the week, the match will be adjusted so that it is 10% (20%) of the actual contributions made that week. If, for example, an individual saves half of the cap, half of the match will be withdrawn from the account. This service provides the same basic financial incentive as service 3 but makes use of a prepayment form. It is now a well-known phenomenon that people dislike losses more than they like equal size of gains (Kahneman and Tversky 1979). Based on ample research, we hypothesize that the loss frame of this service, i.e. saving more to avoid losing the match, will result in higher savings compared to the gain frame of service 3, in which saving more means obtaining a higher amount matched.

The complete design consists of a control group, which does not have any additional service, and the treatment groups as explained above. We will also include interactions (such as Coin + Pre-Matching or Text Message + Pre-Matching) of the treatments, however the exact number of interactions and which ones to be included will be determined after a pilot. Please note that the interactions do not change the inherent features of the interventions. Since our main aim is to scientifically estimate the effect of these interventions on savings behavior, it is important to include a randomly assigned control group in the design so that we can compare the average savings between the control group and each of the interventions.

Depending on the circumstances, the exact percentage to be matched in the Pre-Matching and Ex-Post Matching treatments might be changed from the provisional 10% and 20% after the pilot, however the basic elements of the treatments will remain the same.

4. Subject Selection

We will draw random samples from two populations: Existing members and new members of M-Bao pension plan, who work in the informal sector. *The project area will cover the entire country in principle, because Mbao pension plan is a nationwide plan and when we randomly select our participants from existing members we will not initially know where they are based. However, our partners indicated that the majority of current Mbao members reside around Nairobi and thus we expect that the majority of our participants in the existing member sample to reside around Nairobi. The project area for the new recruitments will be Kibera and Viwandani.* Any individual who is eligible to sign up for the Mbao pension plan and works in the informal sector can potentially participate in our project. From the existing members of the plan, we will draw a sample of approximately 2200 individuals and as the new members of the plan we will recruit approximately 1400 individuals. Note that however, that the sample sizes might change in minor numbers after the final decision about the interaction groups in the design.

To implement the trial with the new members of the plan, we will invite the informal sector workers of Kibera and Viwandani slums to join the M-Bao plan. During the invitation, each individual will be randomly assigned to one of the experimental groups and will be offered the corresponding service for the specific group. The individuals will be informed that this service will last for 6 months, the objectives of the project will be explained and they will be asked whether they want to participate. Those who are willing to participate will be asked to sign the consent form and they will be asked about their socio-demographic background, their current savings habits as well as hypothetical questions to elicit their time preferences.

During the recruitment, identifying information such as names and last names will be collected as part of the procedure of opening an account in the pension plan. Also, phone numbers of the participants will be collected as all accounts are essentially linked with the phone numbers. However, we will not store any of this information. We will get savings data from our second partner, Eagle Africa, which is the insurance company that administers the plan, in de-identified form (so that names and last names are separated from the rest of data) and we will use phone numbers as unique identifiers for each subject when we analyze data. For the survey data, we will also collect the phone numbers of participants. We will link the survey and savings data using the phone numbers as they uniquely identify each subject. To sum, after we link the savings and survey data, we will de-identify the data by separating names and last names from the rest before the analysis. No identifying information will be used in and after the analysis step.

Among the population of existing members of the M-Bao plan, a randomly drawn sample of approximately 2200 informal sector workers will be randomly assigned to one of the experimental groups. Each individual will be reached via phone and will be offered the additional service depending on the assigned group. Each group member will be informed about the purpose and the length of the service. Those who accept to participate will be informed about the content of the consent form and will be asked to confirm that they understand their rights. They will also be asked about their socio-demographic background, overall savings habits and time preferences, as the new members.

Note that the planned sample size might be different in the final design, depending on the experimental groups we include as interactions.

At the end of six months, a follow up survey will be conducted with the sample of new members of M-Bao via phone, to track the changes in their overall savings behavior. This survey will include only the questions on overall savings behavior that were part of the initial survey and questions about their general attitude toward the service they experienced. Thus, our analysis will involve comparison of savings in the M-Bao accounts between the experimental groups and the control group, as well as comparison of overall savings measured by self-reported survey data.

To track the changes in savings behavior of existing members, their savings data prior to the randomized control trial will be examined. This will allow us to compare the difference in savings between the trial period and the pre-trial period in each experimental group, in addition to the comparison of absolute value of savings in each experimental group.

As mentioned above, the trial period is 6 months for each participant. Thus, the time period for data collection starts with the day we start collecting data and ends 6 months from the day the last participant signs up for the plan. It is anticipated that all participants will be recruited in a period not to exceed four months, meaning the full data collection period would be 6-10 months. All data will be collected using Computer Assisted Interviewing and remain encrypted on the researcher's computer for the duration of the project. The estimated timeframe for the entire project is one year, including the period for a pilot and a conservative estimate of the time required for recruiting participants.

5. Limitations, Expected Results, Risks and Benefits

The main focus of our project is informal sector workers. Thus the limitation of our project is that it might not be generalizable to a broader population, including the formal sector workers.

However, to the best of our knowledge, our project will be the first to test the effectiveness of both financial and behavioral interventions on a savings product for informal sector workers. We expect that our interventions will have a positive effect on savings.

Our project is designed and will be implemented in a way to ensure the application of the successful interventions in a subsequent stage for savings products in Kenya. Identifying the most effective interventions will not only guide policy makers, regulation authorities, and the financial sector in Kenya to improve their policies and products as well as help Kenyans save more for the future, but also contribute to the literature in behavioral research on savings decisions.

There is no anticipated risk of participating in this project.

There will be no direct benefit to participants from participating in this project. However, they will be presented with a token of appreciation of their time after the study. Furthermore, we expect that participants will indirectly benefit from participating in this project by increasing their savings.

6. Partnering Institutions and Data Management

For this project, we are partnering with Retirement Benefits Authority of Kenya, which established the M-Bao pension plan, and with the insurance company Eagle Africa, which administers the pension plan. We will receive savings data from Eagle Africa.

The savings data will be stored electronically and the survey data will be stored electronically on an encrypted hard drive to which only the researchers will know the password to decrypt. Raw savings and survey data will not be shared with anyone other than the researchers. The researchers will have exclusive access to the encrypted data until the analysis phase is finalized.

7. Data Analysis

Our main analysis focuses on mean savings in each experimental group during the trial. We will compare the mean savings in each treatment group with the control group first and then we will compare the treatment groups with each other. Furthermore, we will compute mean self-reported total savings (see survey questions, section four) at the beginning of the trial and at the end of the trial (via follow up survey) and compare the mean difference in the total savings among the experimental groups for the new members.

Among the existing members of the plan, we will compare mean savings in the trial period with the mean savings in the six preceding months for each experimental group separately and compare the difference in the two among experimental groups.

8. Confidentiality

Complete confidentiality of participants will be maintained. Consent forms will be collected and stored separately from experimental data. Participants' names will not appear anywhere in data and will in no way be linked to any of the information they provide. Results will be reported in aggregate.

8. Informed Consent

The consent form will be presented to newly recruited M-Bao members either on the computer or on paper, depending on the availability of the materials. It will be read to the existing members of the plan on the phone and they will be asked to confirm that they received the information.

CONSENT TO PARTICIPATE

You are participating in a research project conducted by researchers from Duke University, Dan Ariely (dan@danariely.com) and Seher Merve Akbas (merve.akbas@duke.edu).

The purpose of this project is to understand if M-Bao pension plan can help people to save more for their future.

In addition to introducing you the M-Bao pension plan, we would like you to complete a short survey about yourself. Completing the survey will take no more than ten minutes.

There are no risks of participating in this project.

Your participation in this project is completely voluntary and you are free to withdraw from it at any time. During the project, all the information about you will be analyzed anonymously and reported only by groups..

If there is any change made to the services of the plan, you will be immediately informed about it and asked if you would like to stop participating in the program.

For any questions or concerns about the project, please contact the researcher Seher Merve Akbas (e-mail: merve.akbas@duke.edu) (Phone: +1919-328-0080), (Address: 2024 W. Main Street, C104E, Durham, NC 27705, USA) , the project associate, James Vancel (email: jvancel@poverty-action.org) (Phone: +254725066428), or the project manager, Joseph Njoroge (jmuiruri@poverty-action.org) (Phone: +254722900068). If you have any questions about your rights as a research subject, please contact ors-info@duke.edu

I have read this information, and would like to participate

Name: _____ Date:_____

Amendment: Additional treatments

To expand our knowledge on which policies motivate informal sector workers in the most cost effective way to save for their future, we would like to add new treatments to our experiment, which test behavioral interventions we haven't been investigating with our current design.

In these additional treatments, we would like to test the effect of offering a prize-linked savings account on savings behavior. With a prize linked savings account depositors periodically receive a chance to win a specified (and potentially large) prize that is a function of deposit amounts, in contrast to a fixed interest. In this account, deposits count as lottery tickets, with the only difference that the depositors never lose their deposit, even if they don't win the lottery. When they win the lottery, the amount they won is added to their savings account. A recent lab experiment in the US (Filiz-Ozbay et.al. 2013) suggests that this mechanism is promising to motivate people to save. We would like to test the effectiveness of this policy on informal sector workers with our study. Before incorporating the treatments to the M-bao pension plan, we would like to test it with a small sample (200) of informal sector workers from Kibera. Thus the procedure we want to amend to our existing protocol only involves this small scale sample.

The Procedure:

Participants will be invited to the Behavioral Lab in Nairobi to participate in a research study. In the lab they will be given decision tasks, which will measure their time preferences, risk preferences and gambling tendency. (An early draft of decision tasks is included in the appendix) At the end of the session, they will be invited to join a savings program for a month (the length of the period might change to 15 days or any number of days between 15 and 30).

We will have three between-participant conditions and participants in each condition will be offered one of the products below:

***Interest:** Participants in this group will be offered commitment savings account with interest that accrues daily. They will be asked to deposit XX or more shillings per day. And the pre-specified interest will be added to their account at the end of each day.*

***Lottery:** Those in the lottery group will participate in a "lucky numbers" lottery. Deposits in the lottery accounts do not earn interest; instead, deposits serve as "lottery tickets" that can earn a large lump-sum payoff each day. The lottery ticket will consist of 2 numbers 1-31 (inclusive) and will be sent in a txt message upon receipt of the necessary deposit. On the morning of the following day, the winning lottery numbers will be sent out in a text message. Winners will receive the prize as additional deposits to their accounts. Note that those who do not win the lottery keep their account deposits; there is no risk of losing any deposits.*

***Lottery + Regret:** The lottery + regret condition works similar to the lottery treatment. The only difference is that these participants will be sent their lottery ticket in the morning even if they didn't save that day. Then they will be instructed to deposit XX or more shillings over the day to "keep" the ticket. Those who have deposited the sufficient amount keep the ticket and are eligible to win the lottery, while those who have not, will not be able to get their prize even if they win that day.*

Participants will be assigned to one of these conditions randomly before they start the lab decision tasks.

At the end of the saving period (between 15-30 days), we will conduct a phone survey with the participants asking questions on their overall savings behavior as well as how much they gambled during the research study period.

2. Subject Selection

Subjects will be recruited from the current subject pool the behavioral lab in Nairobi (Busara Center http://www.busaracenter.org) maintains. Their subject pool consists of mainly low-income inhabitants of a slum near Nairobi, called Kibera. The lab announces new experiments via a phone SMS message to the subject pool.
We plan to employ about 200 subjects.

3. Limitations, Expected Results, Risks and Benefits, Data Management, Data Analysis, Confidentiality will be the same as in our existing protocol. (With the only difference that in this small sample, the participants need not be Mbao Pension Plan Members)

4. Compensation

Participants will be paid for the lab part of the study upon departure, either cash or via mobile transfer (MPESA).

At the end of the savings period (the end of the field part of the experiment) they will be given back their savings with interest (or the prizes they won) via mobile transfer (MPESA).

5. The consent form for these treatments will be as follows:

CONSENT TO PARTICIPATE

You are asked to participate in research project conducted by researchers at Duke University, Dan Ariely (dan@danariely.com) and Seher Merve Akbas (merve.akbas@duke.edu). The purpose of this project is (1) to understand how people make decisions about money, (2) how people make risky decisions, (3) how people decide to save money.

During the study in the laboratory, you will be presented a number of decisions involving money. Your payment will depend on your decisions and specific rules about it will be explained to you before you start.

Your participation in this project is completely voluntary and you are free to withdraw from it at any time. During the project, all the information about you will be analyzed anonymously and reported by groups.

Do you have any questions that you would like to ask now?

For any future questions or concerns about the project, please contact the researcher Seher Merve Akbas via e-mail (merve.akbas@duke.edu) or phone (+1919-328-0080) or Dan Ariely via e-mail

(dan@danariely.com) or the project associate, James Vancel (email: jvancel@poverty-action.org) (Phone: +254725066428), or the project manager, Joseph Njoroge (jmuiruri@poverty-action.org) (Phone: +254722900068). If you any questions about your rights as a research subject please contact ors-info@duke.edu.

I have read this information, and would like to participate

Name: _____ *Date:*_____

7. Game instructions for Time and Risk preference tasks:

Note: None of the economic games involve deception. All choices, probabilities and outcomes are made explicit and any payment promised is certain. As is typical in economic experiments with multiple interventions, we may employ probabilistic payouts. That is, subjects make decisions and earn money in multiple tasks, but the actual payout is probabilistically chosen from one of the tasks, or one of the rounds of the task. This is to prevent income effects and portfolio effects that may bias results. The probabilities of payout for each game will be made explicit to the subjects.

Risk 1: In this task subjects are endowed with an amount of money, ***M****, that is theirs to keep. They may invest this money in an asset, which pays* ***P*** *times the amount invested with probability 0.5, and pays 0 with probability 0.5. In the example screenshots,* ***M = 50ksh****,* ***P = 4****. Thus a subject who invests all of his endowment in the asset has a 50% chance of earning 200 ksh, and a 50% chance of earning 0 ksh.*

Risk 2: In this task subjects must choose from a list of payouts the one that he/she prefers. The payouts are determined by a 'coin flip' (via computer) and both heads and tails have differing payouts for each choice. There are 6 possible choices, and the expected value of the payoffs increase along with the variance. Subjects choose from the menu which payoff set they would like to have. Then the computer flips a coin and determines which payoff they have earned.

Time Preference: In this task subjects choose between a smaller amount of money in the near term vs. a larger amount of money in the far term. The amounts of money and terms will vary as subjects answer questions. This allows us to determine their degree of time preference. For example, we may ask a subject if they prefer 100 ksh today or 200 ksh in 1 month. If they choose the money today, we can ask them another question to understand their indifference point. We might ask them if they prefer 100 ksh today or 300 ksh in one month. Depending on their choices, they may be paid sometime in the future. This will be accommodated through the use of mobile money.

APPENDIX

THE COIN:

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