

Mental Accounting and Mobile Banking: Can labeling an M-PESA account increase savings?*

Preliminary Results - Please Do Not Cite or Circulate

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October 2015

Abstract

Working with a sample of vulnerable women in Kenya, we conduct a field experiment involving a savings intervention consisting of a labeled mobile banking (M-PESA) account, savings goal setting, and text message reminders. The effect of the intervention on savings is positive but imprecisely estimated. The intervention did lead to statistically significant increases in savings for those who report having problems saving due to spending on temptation goods. In addition, individuals with temptation constraints to savings spent less on temptation goods as a result of the intervention. We provide suggestive evidence that the increase in savings for those facing temptation constraints was most likely due to the labeled M-PESA account. This suggests that the labeling of a mobile banking savings account may induce mental accounting and can relax temptation constraints to savings.

*The authors received invaluable support from Malin Olero of KidiLuanda Community Programme, Petronilla Odonde of Impact Research and Development Organization, and Alexander Muia, Elizabeth Kabeu, Sylvia Karanja, and Evans Muga of Safaricom. Special thanks also to Lawrence Juma, Jemima Okal, Matilda Chweya and Joyce Akinyi for excellent management of field work and IPA Kenya for administrative support. We thank Tanya Byker, Peter Matthews, John Maluccio, and participants at the Middlebury Economics Seminar for useful comments. Research funding was provided by the Hewlett Foundation, IFPRI, Middlebury College, an anonymous donor, and the UC Davis Blum Center. All activities involving human subjects were approved by IRBs at IFPRI, Middlebury College, UC Davis, and the Maseno University Ethics Review Committee in Kenya. All errors are our own.

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1 Introduction

The use of savings programs targeted at the poor in low-income countries is an area of growing focus in both research and policy circles. A number of recent studies have examined the various constraints to savings such as transactions costs, social appropriation, and self-control problems.¹ On the policy front, influential development organizations such as the Bill and Melinda Gates Foundation, have increased emphasis on opening access to savings products for the underbanked.² Coincidentally, at the same time as interest was growing in savings access for the poor, mobile banking services have become increasingly popular. Mobile banking services are attractive to the poor because they provide safe places to store money and have lower transaction fees than formal banks. By far the most popular of these services is M-PESA in Kenya, where over 70% of households have adopted it (Suri, Jack, and Stoker, 2012). This paper examines the effect of offering a M-PESA account that is specifically labeled for savings goals and emergencies on savings behavior of vulnerable women in Kisumu, Kenya.

The importance of savings is twofold: it serves as a buffer for unexpected negative shocks and it allows individuals to accumulate small deposits to invest in larger productive assets. Our study is particularly focused on how savings can act as a buffer; insufficient savings can lead individuals to take costly actions during a negative shock. For example, women may sell productive assets or engage in transactional sex (i.e. sex for money) to cover unexpected medical expenses. In our context, transactional sex may be particularly costly as the women in our study reside in Kisumu, Kenya which has some of the highest rates of HIV in East Africa (18.7% prevalence).³ Given that negative shocks are common, why don't the poor save more? A number of constraints to savings have been proposed; we focus on social appropriation and self-control problems. Social appropriation is when family and friends have claims on an individual's resources and act as a tax on savings.⁴ Self-control problems are varied, but the one we focus on in this study is temptation - specifically individuals purchase temptation goods instead of saving surplus funds.

Our study evaluates an intervention designed to alleviate social appropriation and temptation constraints to savings. Our sample consists of over 600 vulnerable women in Kisumu, Kenya who all have an existing mobile phone and M-PESA account ("First M-PESA Ac-

¹See Karlan, Ratan, and Zinman (2014) for a comprehensive review of the leading constraints to savings that the poor in low-income countries face.

²The Bill and Melinda Gates Foundation in 2010 pledged \$500 million to expand savings access in the developing world.

³HIV-prevalence figure comes from Kenya AIDS Response Progress Report (2014).

⁴The empirical evidence appears mixed with regards to social appropriation being a binding constraint. Jakiela and Ozier (2012) find evidence of social claims on investment gains in a lab experiment in the field in Kenya, while Brune et al. (2015) find that their commitment savings product did not lead to fewer transfers to relatives nor did publicly releasing savings balances affect any observable behaviors.

count”). Women were randomly assigned on an individual basis to either the control or savings treatment arm. The savings treatment consists of setting up savings goals and opening a new “labeled” M-PESA account.⁵ Women were encouraged to use the labeled M-PESA account to save for their goals and to accrue a buffer stock for use in the event of an emergency. The funds in the labeled M-PESA account could be withdrawn at any time without penalty. The hypothesis is that the labeled M-PESA account would induce mental accounting which would help alleviate social appropriation and temptation spending. We follow up with everyone in the study at midline (3 months) and endline (9 months).

We find that the savings intervention lead to positive but imprecisely estimated increases in M-PESA balances (First + Labeled M-PESA accounts) and total savings at both midline and endline.⁶ To shed light on whether there are binding constraints to savings, we ask women at baseline whether social appropriation or temptation is preventing them from saving more. We find some evidence that our intervention helps those with social appropriation pressure save more. Our strongest finding is those facing temptation constraints save significantly more when offered the labeled M-PESA account. Women who face a temptation constraint save an average of 315 KsH (\$3.71) more in their M-PESA accounts and 1116 KsH (\$13) in liquid savings at endline.⁷ These estimates are robust when outliers are taken into account via winsorizing. The savings effects are economically meaningful as well - the increases amount to over a doubling of M-PESA and liquid savings compared to those with temptation problems in the control arm. In addition, we show that our intervention reduces spending on two temptation goods (hairdressing and cosmetics) for those who report that temptation spending is preventing them from saving more.

While our savings treatment is a package of interventions, we provide suggestive evidence that it is the labeling of the M-PESA account that is driving the results. Given that the funds in the labeled M-PESA account are fungible (no to minimal withdraw fees), it is most likely that the labeling of the account is inducing some form of mental accounting.

Our findings contribute to the growing literature on increasing savings access to the poor (see Karlan, Ratan, and Zinman (2014) and Table 3 in Prina (2015) for comprehensive reviews).⁸ Our study is perhaps most motivated by Dupas and Robinson (2013b) which

⁵Additional elements of the intervention include SMS (Text) reminders of a woman’s savings goals for the first 12 weeks of the study. A weekly lottery where everyone in the treatment and control arms was eligible for was also conducted during the first 12 weeks of the study. Full details are provided in Section 2.3.

⁶Total savings is the total of M-PESA balances, other mobile phone balances, money kept under the mattress or with family and friends, and bank account balances).

⁷Liquid savings is the total of M-PESA balances, other mobile phone balances, and money kept under the mattress or with family and friends,

⁸There are a number of studies that implement randomized offers to individuals to open formal bank accounts. Studies have explored whether opening account fees and minimum balances acted as barriers to savings accounts (Prina (2015); Dupas and Robinson (2013a); Schaner (2013)). Other studies looked at whether variation in interest rates affect adoption (Karlan and Zinman (2013); Schaner (2013)). Another strand of the savings literature focuses on whether commitment savings products can help the poor save,

provided mostly women in rural Kenya various types of savings devices. In two of the intervention arms, a metal box with a lock was provided to deposit savings; in the “safe box” arm the key was given to the individual, while in the “lock box” arm the key was kept by a program officer. They study finds that the soft-commitment of the safe box was more effective than the hard commitment of the lock box in accumulating savings for preventive health expenditures. Our study extends this further by using a mobile banking savings account as a soft-commitment device. We note two important differences. First, mobile banking is much more scalable and provides a high levels of security than a metal lock box (M-PESA withdraws require both photo identification as well as a personal identification number).⁹ The second difference is that we are able to make progress on a key constraint that the labeled account is relaxing: temptation spending. Temptation goods present good-specific discount factors that can lead individuals to under-save (Banerjee and Mullainathan, 2010); our findings suggest that simply labeled a widely used savings product might be enough to curb temptation spending.

Our study was registered with the American Economic Association registry for randomized control trials (Trial Number: AEARCTR-0000323). We submitted a pre-analysis plan after baseline data was collected (but not yet analyzed), but before the midline data collection commenced. Overall, our study adheres to the pre-specifications of estimating equations and outcomes quite closely.

2 Study Design

2.1 Financial Services in Kenya and M-PESA

M-PESA, operated by the leading mobile service provider Safaricom, is a highly successful private enterprise which provides clients with branchless banking accessed via mobile phone. Any individual with a national ID card and Safaricom SIM card can set up an M-PESA account, allowing her to make deposits, withdrawals and transfers using her mobile handset. M-PESA points are ubiquitous; they are located at nearly every shop and one can be found open at nearly any time of day. The district in which this study is set has fewer than 3 formal financial institutions per 100,000 population (Kenyan average across all districts is 5.3). In contrast, the region has 38 mobile network vendors per 100,000 population.¹⁰

especially those with behavioral biases or other-control problems (Ashraf, Karlan, and Yin (2006); Brune et al. (2015); Dupas and Robinson (2013b); Karlan and Linden (2014)).

⁹While both the safe box and lock box have a lock, it is conceivable that a thief could simply take the metal box and defeat the lock.

¹⁰Authors’ analysis of data from Gaul (2012). Formal institutions are defined as Banks, Micro-finance institutions, Mortgage finance institutions, and PostaBanks; excludes cooperatives.

2.2 Sample

Our sample consists of 627 vulnerable women in both urban and rural areas in Kisumu County on the western edge of Kenya. The urban sample consisted of female sex workers (FSWs) and the rural sample consisted of widows, separated or divorced women, or never-married female heads-of-household.¹¹ The women in the rural sample were deemed to be at high-risk of entering into sex work. The sample selection was aimed at examining the linkages between savings and a risk-coping behavior common in this setting – transactional sex.

Table 1 provides summary statistics for the full sample as well as the rural and urban samples. The women in the study have an average age of 28 years and less than half have completed primary school. Household size is about 3.5, and this consists primarily of child dependents. Relationship status is somewhat evenly distributed between single, widowed, and divorced/separated, however the rural sample has a higher proportion of widows while the urban sample has a higher proportion of single women.

Women in our sample are considerably vulnerable: 66% of the women are categorized as severely food access insecure based on the Household Food Insecurity Access Scale or HFIAS (Coates, Swindale, and Bilinsky, 2007). Average weekly income is about \$19 USD (1648 KsH) which is about 20% less than the average income in Kenya.¹² Average incomes and expenditures are higher in the urban sample; this is consistent with the differences in occupational choice between the two samples. Women in the urban sample are primarily commercial sex workers and this type of work typically pays a higher premium compared to shop keeping or agriculture.

Women were queried about savings goals, and only 40% reported having one. Of those who reported having a savings goal, a majority cited that they were saving for unexpected expenses. When women in the study were asked what prevented them from accumulating savings, the three most cited responses were: lack of income (90%), spending on temptation goods (19%) , and pressure to share by family and friends (9%).

Finally, it is important to note that everyone in the sample has an existing M-PESA account, which we define as the “First M-PESA account”.

2.3 Intervention and Data Collection

The study involved two local partners that are geographically based. Our urban partner is an NGO that provides health and counseling services to FSWs in Kisumu. The NGO’s

¹¹Women in the rural sample are considered vulnerable because they lacked financial support from a male partner (i.e. husband or boyfriend).

¹²GNI per capita in Kenya was \$1290 in 2014, which is about \$25 per week (World Bank Development Indicators) .

operations include operating “hotspots” which are walk-in centers distributed throughout Kisumu where FSWs can access its services. Our rural partner is a community based organization that targets vulnerable women (i.e. widows, divorced/separated women) and provides economic assistance programs. Both partners are well respected in their local communities.

The study has one control arm and two treatment arms and randomization was done on an individual level. Everyone in the study is grouped into geographic clusters: 12 sub-locations in the rural sample, and 15 “hotspots” in the urban sample (see Figure 1). We stratified by rural/urban samples and then by geographic cluster. Each cluster was randomly assigned to be a Type I or Type II cluster. Within each cluster, we stratified by age, and then each individual was randomly assigned into treatment or control; treatment individuals in Type I (Type II) clusters were assigned into the Treatment 1 (Treatment 2) arm.

The control group participated in group discussions on the importance of savings that lasted about one hour. Individuals in the Treatment 1 arm (T1) received the same group discussions as the control arm, plus a one-on-one activity eliciting savings goals, weekly SMS reminders on the savings goals, and a free M-PESA account with zero transaction costs that we define as the “labeled M-PESA account.” Individuals in the Treatment 2 arm (T2) received everything in the T1 arm and a 5% monthly interest rate on their labeled savings account for the first 12 weeks of the study. We are unable to reject the null that T1 and T2 have the same effect on savings outcomes, and thus we pool the T1 and T2 arms in our analysis.

Women in the treatment arm chose savings goals and were told to use the label M-PESA account to save for their goals. We also asked each woman in the treatment arm to think about the unexpected expenses that they face and to set aside a specific amount each week for emergencies and deposit this into the labeled M-PESA account. The average woman in the rural (urban) sample set 1.6 (1.3) goals, with a total goal amount of \$290 (\$600) and an average time set to complete one goal at 52 (67) weeks. The average treatment women in the rural (urban) sample also committed to set aside \$1.5 (\$0.9) each week for emergency expenses. Women were strongly encouraged to only withdraw money from their labeled M-PESA account in the event of an emergency or when they reached their savings goal. There were no other restrictions on the labeled M-PESA account, and we thus see this account as a soft commitment device for savings.

The study was carried out in multiple stages (see Figure 2). Stage 1 involved the treatment intervention and Stage 2 was a 12 week period where weekly SMS reminders were sent and transaction fees for the labeled M-PESA account were eliminated. Also during Stage 2, everyone in the study (control and treatment arms) was eligible for a weekly lottery. The lottery was structured to payout 50% of the time, and conditional on winning, an individual would have a 80% chance of winning one day’s worth of wages, and a 20% chance of winning

two day’s worth of wages.¹³ Each week during Stage 2, a brief survey was conducted to collect information about shocks and expenditures. After Stage 2 ended, we conducted a midline survey and the weekly lotteries, SMS reminders, and zero transaction costs were all eliminated.

Stage 3 was a 4-month period where monthly SMS reminders were randomly assigned to those in the treatment arm. This was done in order to identify the effects that the SMS reminders have on savings. Once Stage 3 ended, we conducted our endline survey and then offered labeled M-PESA accounts to everyone in the control arm.

In addition to using the baseline, midline, and endline survey to construct our dataset, we also have M-PESA administrative data for all individuals in our study. The administrative data consists of balances on all of the first M-PESA accounts for the control and treatment arms as well as balances on the labeled M-PESA account for those in the treatment group.

2.4 Balance of Characteristics between Treatment and Control

Table 2 presents a comparison of baseline statistics between the control and treatment arms. Overall, many characteristics appear similar across the arms. We do note that are significantly more divorced/separated women in the treatment arm and that while the past week’s income is not statistically significant at conventional levels, the difference is large.¹⁴ When these variables are controlled for, our results are relatively unchanged.

We now turn our attention to savings, and compare the savings balances between the control and treatment arms. Table 3 presents the various savings accounts that individuals in our study have. The first two columns show the percentage of individuals in each arm that have a positive balance in one of the listed accounts (M-PESA, Other Mobile, Own Savings, Bank Savings). Data for M-PESA is based on administrative data, while all other savings accounts rely on survey data.¹⁵

At baseline, a vast majority in both the control and treatment arm appear to be saving in their M-PESA accounts, and the balances are not trivial - average balances in the control (treatment) arm are about \$10 USD (\$6.50 USD). Working in our intervention’s favor is that very few individuals have another mobile banking account (4%). About 1 in 3 individuals have own savings (i.e. “under the mattress”). Fewer individuals are utilizing formal bank accounts as a means to save. We also look at illiquid savings in the form of ROSCAS and

¹³Given the differences in income between the rural and urban sample (see Table 1), the payout for the rural sample was 250 Ksh (1 day) and 500 Ksh (2day) and for the urban sample it was 500 Ksh (1-day) and 1000 Ksh (2-day).

¹⁴Our pre-analysis plan specified that religion would be a baseline characteristics that we would check between the control and treatment arms. At the time of this draft, we do not have data on an individual’s religion, but plan to incorporate this in future drafts.

¹⁵We compare the administrative M-PESA data to the self-reported data and find that on average, self-reported data underestimates actual administrative balances, but there appears to be no differential under-reporting between the treatment and control arms.

livestock. Both types of savings appear popular, with a majority participating in a ROSCA and holding livestock. However, we note that calculating present values of assets held in ROSCAs and livestock is difficult and measures are very noisy. We therefore do not focus on these measures in our analysis.

Our savings outcomes simply aggregate the individual accounts. M-PESA savings is simply the amounts in all M-PESA accounts, while the other savings outcomes are defined as follows:

- Mobile Savings = M-PESA Savings + Other Mobile Savings
- Liquid Savings = M-PESA Savings + Other Mobile Savings + Own Savings
- Total Savings = M-PESA Savings + Other Mobile Savings + Own Savings + Bank Savings

Overall, many of the savings measures at baseline appear to be higher in the control arm, although none of these differences is statistically significant at conventional levels. Given these differences, we control for baseline savings measures in our analysis.

2.5 Treatment Take Up

A major concern regarding savings interventions targeted at the poor are the low rates of uptake and usage (see Prina (2015)). Uptake of the labeled M-PESA account is particularly high for our intervention (~98%) which we attribute to the low time and travel costs of our intervention (individuals in the treatment arms were already participating in a group savings discussion when offered the intervention). We present usage statistics in Table 4.

The first two columns present data on the M-PESA accounts that both the control and treatment groups had before the study. Usage is measured for both Midline and Endline and we follow common usage definitions in the literature. The third and sixth columns show usage activity in the Labeled M-PESA account. Using 1 deposit in the period as a measure of usage, the Labeled M-PESA account was used by 58% of those offered the account and dips down to 42% by endline. These usage patterns are similar to other savings interventions. For example, after one year, active usage of a formal bank account in Chile was 39% (Kast and Pomeranz, 2014), of a formal bank account in Nepal 80% (Prina, 2015), and of a simple lockbox in western Kenya 71% (Dupas and Robinson, 2013b).¹⁶ Two studies that are similar to ours are both conducted in Kenya and offered formal bank savings accounts: Dupas and

¹⁶Active usage is defined differently in each of these studies. Kast and Pomeranz (2014) define active usage as depositing more than the minimum account deposit, Prina (2015) defines active usage as making at least 2 deposits in one year, and Dupas and Robinson (2013b) define usage as having a non-zero amount in a lockbox.

Robinson (2013a) offered savings accounts to entrepreneurs and document usage of 41%, while Schaner (2013) offered savings accounts to couples and finds usage rates of 22%.

One thing that is interesting to note is the deposit and withdraw activity of the Labeled M-PESA account appears similar. At midline (endline), users of the Labeled M-PESA account had an average of 5.1 (7.4) deposits and 3.0 (6.8) withdraws. Total and average amounts deposited and withdrawn are relatively similar as well. This type of savings activity is more consistent with the Labeled M-PESA account being used as a buffer for shocks as opposed to accumulating savings over time to make large investments.¹⁷

Figure 3 shows average daily balances of the Labeled M-PESA account over time. The daily mean balance was sharply growing in the beginning of the intense intervention period, and it peaked right before the end of the intense intervention period. In June 2014, mean balance was 792 KShs (\$9.31) for those that ever used the account. Even after transaction fees were reinstated and interest rates removed from the Labeled M-PESA account, users still kept positive balances in this account. About nine months after the initial intervention, average balance was 383 KShs (\$4.50).

3 Effects of Intervention on Savings

3.1 Effects of Intervention on Savings

We now examine the effects that the intervention had on savings outcomes. Figure (4) compares two savings outcomes (M-PESA balances and Total Savings Balances) between the treatment and control arms. For both M-PESA savings and Total Savings, the treatment arm starts off with lower balances at baseline - we thus will control for baseline savings balances in our formal estimations. For M-PESA savings, we see that both the treatment and control arms increase savings at midline, but the increase in the treatment arm is more pronounced. We also see declines in M-PESA savings for both arms, but the decrease for the treatment arm is at a lower rate. In fact, at endline, M-PESA balances are higher for the treatment arm compared to baseline savings - the same cannot be said for the control arm. A similar pattern is found with Total Savings as well; a relatively large increase in Total Savings at midline for the treatment arm and then a relatively lower decline by endline. We now turn to a formal estimation of the effects of the intervention on savings.

We use the following specification

$$Savings_i = \alpha + \beta_1 T_i + \beta_2 Age_i + \beta_3 Baseline Savings_i + \lambda_j + \varepsilon_i \quad (3.1)$$

¹⁷Savings activity that is consistent with the large investment scenario would involve a high number of small deposits and one or two large withdrawals.

where $Savings_i$ is a savings outcome for individual i , T_i is an indicator that the individual was assigned to the treatment arm, Age_i is baseline age, $Baseline Savings_i$ is the baseline savings outcome, λ_j are geographic cluster fixed effects, and ε_i is an individual error term. Both Age_i and λ_j are variables used for stratification, and thus T_i is randomly assigned conditional on these covariates.¹⁸ Our estimate of β_1 is an intent to treat (ITT) effect.

Our first set of results are presented in Table 5. At both midline and endline, all of the point estimates are positive, but only the estimate for Total Savings is statistically significant at the 5% level. Given that the variation in Total Savings outcome is large and that reported bank balances might be noisy, we do sensitivity analysis for these estimates. We winsorize the savings outcomes at the .5%, 1%, and 2% levels and find that the ITT estimate on total savings while still positive is no longer statistically significant (see Appendix Table A.1). Given the imprecision of these estimates, we are unable to infer that the intervention lead to increases in savings.

When women in our study were asked at baseline what constraints they faced with regards to saving, the leading response was a lack of income (see Tables 1 and 3). We attempt to relieve this constraint by conducting weekly lotteries that give women a 50/50 chance of a payout worth 1 or 2 days wages. To estimate the effects that lottery winnings have on savings, we modify equation 3.1 as follows:

$$Savings_i = \alpha + \beta_1 T_i + \beta_2 Age_i + \beta_3 Baseline Savings_i + \beta_4 LotteryTotal_i + \beta_5 (T_i \times LotteryTotal_i) + \lambda_j + \varepsilon_i \quad (3.2)$$

where $LotteryTotal_i$ is the total lottery winnings for individual i . Mean lottery winnings is 2,701 KsH (\$31 USD), which represents over a week's worth of income in both the rural and urban samples. Table 6 presents the results. We find that total lottery winnings has no statistically significant effect on any of our savings outcomes. In addition, there appears to be no differential effect of lottery winnings for those in the treatment arm. It is important to note that everyone in the study received at least one lottery payoff, and so the point estimates for $Treat$ are not meaningful. We report ITT estimates at mean lottery winnings in the last row. The lottery results are consistent with the notion that the poor have income that they can save and that this is not a binding constraint for savings (Banerjee and Duflo (2007)).

¹⁸ $Baseline Savings_i$ was not pre-specified as a control in the PAP. The PAP however did specify that baseline characteristics that were either imbalanced at baseline or predictive of the outcome would be used as controls. While we cannot reject the null that the control and treatment have the same savings outcomes at baseline at conventional levels of statistical significance (see Table 3), the differences are large enough in magnitude to warrant inclusion as a control. Baseline savings are also highly predictive of our savings at both midline and endline. The inclusion of a baseline savings outcome is also similar to specifications in Prina (2015) who examines the impact of randomized offers of formal bank accounts on savings.

We now focus our analysis at heterogenous treatment effects.

3.2 Constraints to Savings (Heterogenous Treatment Effects)

Our intervention was aimed at relaxing social appropriation and self-control/temptation constraints via the use of the labeled M-PESA account to induce mental accounting. To test whether our intervention relieved these constraints we estimate the following:

$$\begin{aligned} Savings_i = & \alpha + \beta_1 T_i + \beta_2 Age_i + \beta_3 Baseline Savings_i \\ & + \beta_4 Constraint_i + \beta_5 (T_i \times Constraint_i) + \lambda_j + \varepsilon_i \end{aligned} \quad (3.3)$$

where $Constraint_i$ is a baseline measure of either social appropriation or self-control being a constraint to savings. If our intervention relaxes either of these constraints, we expect that $\beta_1 + \beta_5 > 0$ (treatment effect for those facing the constraint). Equation 3.3 was specified in our analysis plan as were the two constraints (social appropriation and self-control).¹⁹

3.2.1 Social Appropriation

We first examine the effects that the savings intervention has on those facing a social appropriation constraint. At baseline, individuals were asked if they would like to save more, and if they said “yes”, what was preventing them from saving more. Women who stated “Friends and family ask to share” as a primary constraint are coded as having social appropriation constraints. In our sample, a relatively small proportion report this as a problem (~9% see Table 2). We present results for our analysis of social appropriation in Table 7. There is a positive and statistically significant effect for M-PESA savings at both midline and endline (Table 7), and these estimates are stable when outliers are taken into account (Appendix Table A.2). The effect on liquid and total savings are imprecisely estimated; while the point estimates for liquid savings are relatively stable, the estimates for total savings is very sensitive to outliers.

One possible explanation for why we see stronger treatment effects on M-PESA is that it is substantially easier to transfer funds to family and friends using M-PESA. Jack and Suri (2014) document that the predominant use of M-PESA has been for interpersonal remittances. Funds in an M-PESA account maybe subject to greater social pressure to

¹⁹Our specific measure of social appropriation uses the pre-specified variable in our pre-analysis plan. Our specific measure of self-control (temptation) was not pre-specified. It however follows the same variable that social appropriation comes from which is the answer to the question at baseline “What is preventing you from saving more?”. The three leading responses are lack of income, temptation spending, and social appropriation (see Table 2).

share; the provision of a 2nd M-PESA account that has a specific purpose may ease some of this pressure.

Overall, while it appears that the treatment lead to increases in M-PESA savings, its effects on other savings outcomes is unclear.

3.2.2 Temptation

We now turn to spending on temptation goods as a constraint to savings. Similar to our social appropriation measure, women at baseline who stated that “spending on temptation goods” was preventing them from saving are coded as having temptation constraints to savings. About 19% of the sample report this as a problem (Table 1). We estimate equation 3.3 where $Constraint_i$ is equal to one if a woman reports temptation goods being a constraint to savings. Table 8 presents the results.

We do see evidence that the intervention has a positive effect on savings for those with temptation constraints. Both midline and endline estimates for $\beta_2 + \beta_5$ are positive for all savings measures and, with the exception of liquid savings, statistically significant at the 10% level or better. These estimates are robust to winsorizing and the estimate for liquid savings becomes statistically significant when accounting for outliers in this way (Table 9). These estimates are also economically meaningful. Using the 1% winsorized estimates (Table 9), the treatment led to over a doubling of M-PESA balances at both midline and endline. The 630 KsH (\$7.41) increase in midline M-PESA balances represents about 38% of weekly reported income.

It is possible that the increase in savings that we see for those with temptation constraints may be crowding out other forms of savings. We explore this by estimating treatment effects for those with temptation constraints on specific savings accounts and methods (Table 10). The first three columns (1st M-PESA Account, Own Savings, and Bank Savings) are components of the main savings outcomes, while the last two columns (ROSCA and Livestock) take into account more illiquid forms of savings. If the labeled M-PESA account is crowding out other forms of savings, we expect to see lower savings balances in these other accounts. Both at midline and endline, we see no evidence for this; in fact, we actually see increases in savings balances for some of these accounts. Overall, this suggests that the increase we see in our main savings outcomes and not a result of substitution away from other forms of savings.

Finally, if funds in the labeled M-PESA account was mentally earmarked and protected from temptation spending, we should also see reductions in temptation expenditures. Using our high-frequency weekly surveys, we ask about spending on hairdressing and cosmetics - two expenditures that women in our focus groups mentioned as temptation items. Aggregating the 12-weekly surveys gives us the total amount spent on these two temptation goods.

For those with temptation constraints, we find that the intervention led to a reduction in temptation spending (Table 11). The reduction we see in temptation spending (-250 Ksh) represents about 40% of the increase we see in M-PESA savings at midline (Table 8). In addition, we see that the share of food expenditures spent on temptation goods is also reduced by about 2 percentage points.

3.3 Was it the labeled M-PESA account?

Our savings intervention involved more than a labeled M-PESA account, it also included establishing savings goals and sent weekly SMS reminders of these goals during the first 12 weeks of the study. We provide suggestive evidence that neither of these two interventions (goal setting and SMS reminders) had any substantial effect on savings.

For SMS reminders, we did randomize who would receive them in the treatment arm between midline and endline. After the midline survey, we randomly chose half of the individuals in the treatment arm to continue to receive SMS reminders - however these reminders were now issued on a monthly basis. We estimate the following:

$$Savings_i = \alpha + \beta_1 SMS_i + \beta_2 Age_i + \beta_3 Baseline Savings_i + \lambda_j + \varepsilon_i \quad (3.4)$$

where β_1 is the effect of receiving SMS reminders on savings. We find that the the SMS reminders might have had slight positive effect on M-PESA, Mobile, and Liquid Savings, although the estimates are not statistically significant (Table 12). These results are relatively similar to those found by Karlan et al. (2014) who find that monthly text messages and letters about savings goals increased savings by 6%. Using the 1% winsorized sample, we see that at endline, liquid savings increased by a statistically significant 1116 Ksh for those with temptation constraints (Table 9), while the SMS reminders increased savings by 140 Ksh (Table 12) and this estimate is not statistically significant. This suggests that even if SMS reminders had an effect on savings, it is relatively small component of the treatment effect.

With regards to setting savings goals, we note that many of the savings goals established involved very large amounts (Table 13). For example, the most common savings goal was educational expenses and the average goal amount was 22,437 Ksh. If the goals acted as a commitment device then we would expect the amounts withdrawn from the labeled M-PESA account to be similar to the goals. However, the average amounts withdrawn from the labeled M-PESA account (1021 Ksh and 1207 Ksh at midline and endline respectively) are much smaller than the average amounts for any of the savings goals. In fact, the withdrawn amounts are much closer to the amounts set aside weekly for emergency (103 Ksh) which amounts to 1236 Ksh over the first 12 weeks of the study. While we do not have data on what the withdrawals were used for in the labeled M-PESA account, the activity suggests that the account was used for emergency expenses as opposed to being used for the reported

savings goals.

Finally, we survey women in the treatment arm about their experiences with the labeled M-PESA account. We find that a majority report that the labeled M-PESA account helped them save more, and the top reasons given were that it minimized temptation spending and restricted access to funds (Table 14). Recall that at midline, there were no withdrawal or transfer fees on the labeled account and the funds were very easy to access. The user responses suggest that some form of mental accounting was being used to restrict access to balances in the labeled account.

4 Conclusion

We find that providing a labeled M-PESA account without any formal withdrawal restrictions was able to increase savings. While the results for the full sample are not precisely estimated, the results for those who faced a temptation constraint are statistically significant. We also note that people tend to make small withdraws from their labeled M-PESA account; this activity is more consistent with using the funds as a buffer for shocks instead of making large purchases. Future work will examine whether those who see increases in savings as a result of the intervention are able to better cope with shocks.

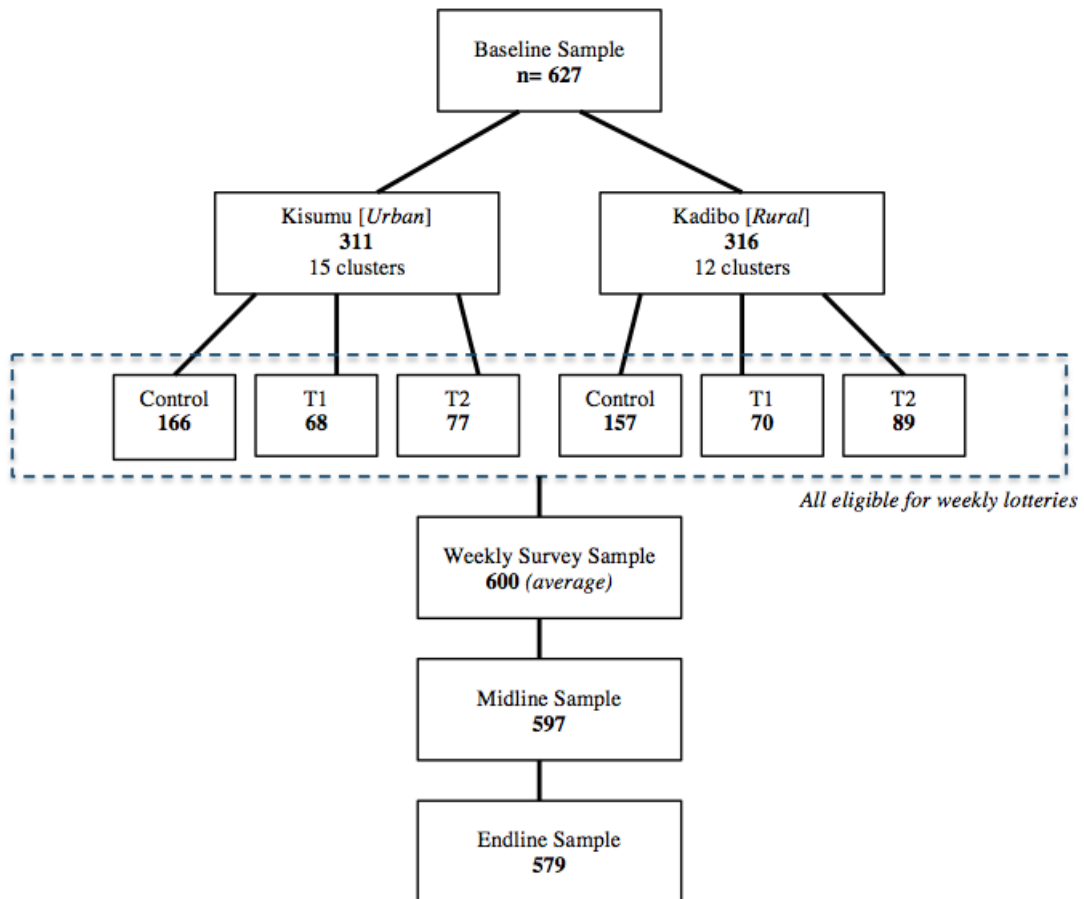
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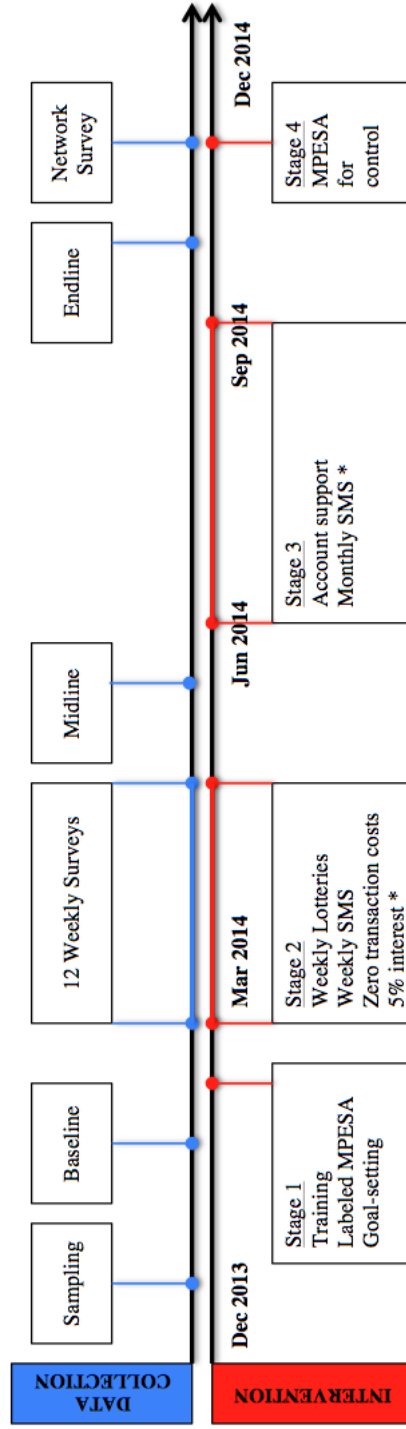
Figures

Figure 1: Sample Structure



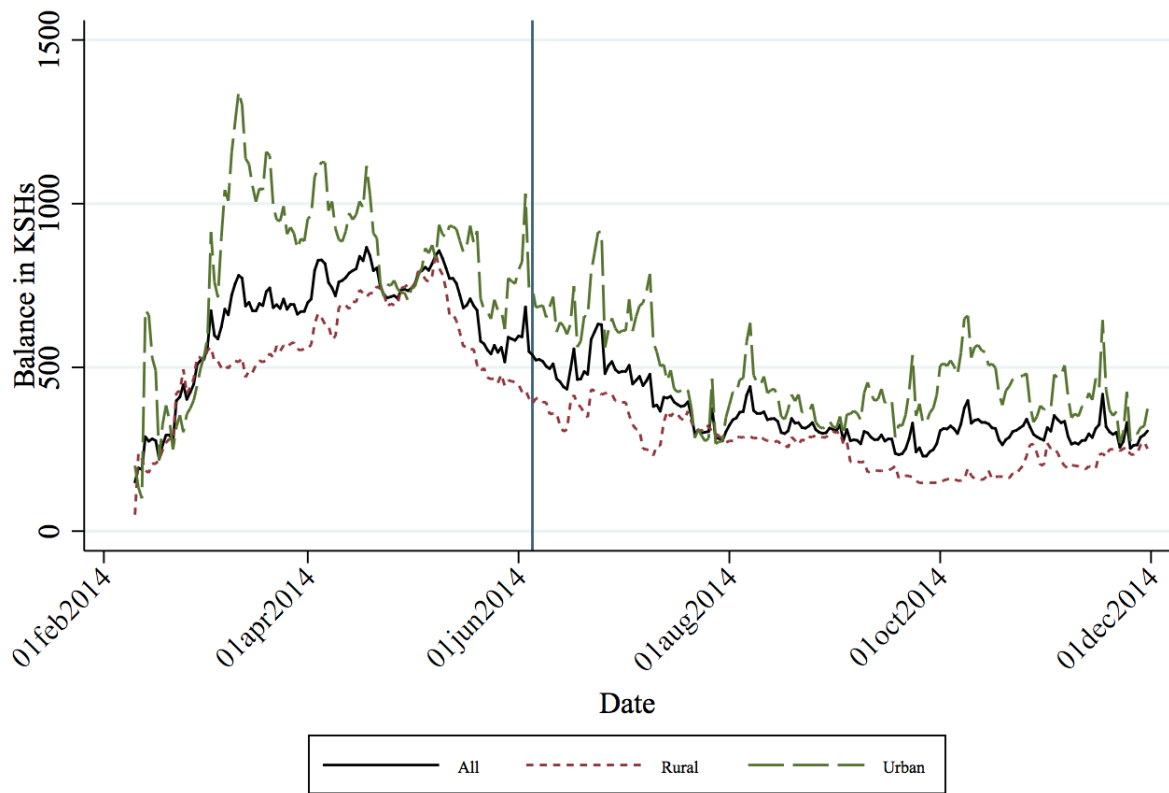
*Each cluster is either control-T1 OR control-T2
*Re-randomization, balanced by age

Figure 2: Study Timeline



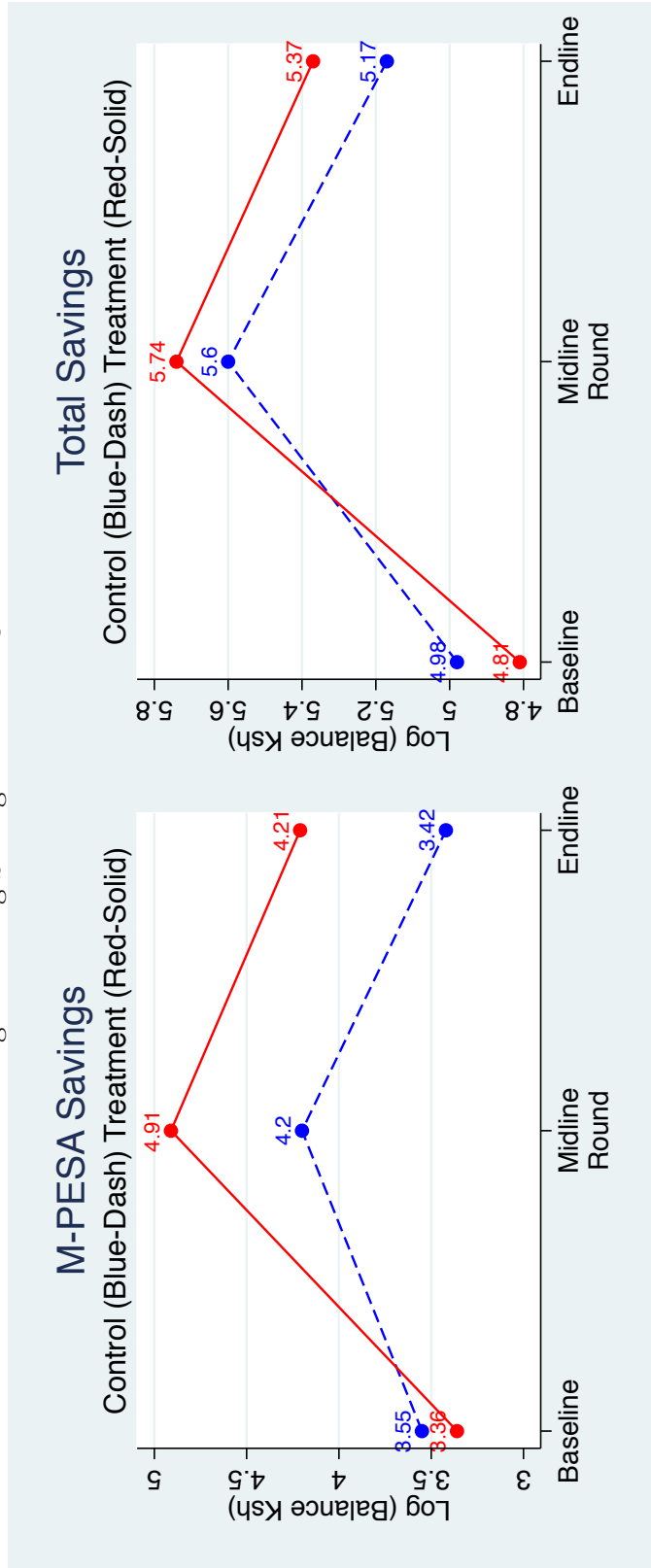
* Note: intervention arms provided to only a subsample of treatment group

Figure 3: Labeled M-PESA Account: Balances Over Time



Note: We take the end of day balance as the daily balance for a day for a given individual, which gives us an individual by day dataset. Then, we take the mean balance across subsets of individuals for each day, and these daily means are presented here.

Figure 4: Log Savings Balances Over Time



Tables

Table 1: Baseline Descriptive Statistics

	Full Sample	Rural (Kadibo)	Urban (Kisumu)
Demographics			
Age	28.55	27.18	29.95
HH Size	3.52	4.20	2.84
Single	0.27	0.15	0.39
Widowed	0.37	0.56	0.17
Divorced/Separated	0.33	0.29	0.37
Education: More than Primary Sch	0.39	0.32	0.46
Income and Expenses			
Income in past 7 days	1,648	1,441	1,858
Primary Income Source: Sex Work	0.43	0.00	0.86
Primary Income Source: Shop Keeper/Trading	0.42	0.47	0.36
Primary Income Source: Agriculture	0.19	0.37	0.01
Spending on temptation goods in past 7 days	408	207	612
Spending on non-food expenses in past 30 days	1,386	816	1,966
Severe Food Insecurity: HFIAS Scale	0.66	0.73	0.59
Food Insecurity: Insufficient Intake	0.85	0.91	0.79
Savings Goals and Constraints			
Have Savings Goal	0.40	0.21	0.59
Savings Goal: Unexpected Expense	0.55	0.42	0.60
Savings Goal: Education	0.16	0.10	0.22
Savings Goal: Business	0.08	0.12	0.07
Constraint: Income	0.90	0.95	0.85
Constraint: Temptation Goods	0.19	0.15	0.23
Constraint: Social Appropriation	0.09	0.07	0.11
Observations	627	316	311

*Temptation goods include jewelry, perfume, cosmetics, clothing, hairdressing, snacks, air-time, meals outside the home, cigarettes, alcohol and recreational drugs. Other non-food expenses include car battery, wedding and social events, funeral, health, expenses, family planning, electronics, household assets and home improvement. Values are reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study.

Table 2: Baseline Balance

	Control mean	Treat mean	p-value differences
Demographics			
Age	28.70	28.39	0.50
HH Size	3.55	3.49	0.69
Single	0.28	0.26	0.59
Widowed	0.38	0.35	0.36
Divorced/Separated	0.29	0.37	0.04
Education: More than Primary Sch	0.40	0.37	0.43
Income and Expenses			
Income in past 7 days	2,122	1,143	0.12
Primary Income Source: Sex Work	0.44	0.41	0.58
Primary Income Source: Shop Keeper/Trading	0.43	0.40	0.37
Primary Income Source: Agriculture	0.19	0.19	0.97
Spending on temptation goods in past 7 days	405	410	0.95
Spending on non-food expenses in past 30 days	1,554	1,209	0.10
Food Insecurity: Anxious Past Month	0.76	0.77	0.89
Food Insecurity: Insufficient Intake	0.84	0.86	0.49
Savings Goals and Constraints			
Have Savings Goal	0.41	0.39	0.60
Savings Goal: Unexpected Expense	0.59	0.50	0.15
Savings Goal: Education	0.16	0.16	0.82
Savings Goal: Business	0.10	0.06	0.26
Constraint: Income	0.90	0.90	0.80
Constraint: Temptation Goods	0.21	0.17	0.25
Constraint: Social Appropriation	0.09	0.09	0.92
Observations	323	304	

*Temptation goods include jewelry, perfume, cosmetics, clothing, hairdressing, snacks, air-time, meals outside the home, cigarettes, alcohol and recreational drugs. Other non-food expenses include car battery, wedding and social events, funeral, health, expenses, family planning, electronics, household assets and home improvement. Values are reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study.

Table 3: Baseline Savings

	Control Mean	Treat Mean	p-value difference	Control Mean	Control SD	Treat Mean	Treat SD	Difference T-C	p-value
Individual Accounts									
M-Pesa Acct	0.88	0.87	0.69	879	4,366	553	3,602	-326	0.31
Other Mobile Acct	0.04	0.04	0.79	548	1,893	310	857	-238	0.52
Own Savings (Under Mattress)	0.29	0.28	0.76	1,162	2,447	1,509	3,351	347	0.40
Bank Savings	0.18	0.13	0.10	5,678	15,599	6,319	20,510	641	0.83
ROSCA	0.67	0.68	0.75	3,527	7,228	3,828	7,854	301	0.68
Livestock	0.56	0.52	0.27	12,973	33,243	9,362	22,405	-3,612	0.11
Outcomes									
M-Pesa Savings				879	4,366	553	3,602	-326	0.31
Mobile Savings				939	4,405	586	3,612	-353	0.28
Liquid Savings				1,339	4,713	1,048	4,077	-291	0.41
Total Savings				2,804	9,643	2,417	10,778	-386	0.64
Total Monetary Assets				5,346	11,919	5,669	15,205	324	0.77
Total Assets				18,294	34,680	14,645	27,084	-3,648	0.15

*Total Monetary Assets are the sum of Total Savings + ROSCA. Total Assets are the sum of Total Monetary Assets + Livestock

Table 4: M-PESA Usage

	Midline			Endline		
	M-PESA Control Mean	Treat Mean	Labeled M-PESA Treat Only	M-PESA Control	Treat	Labeled M-PESA Treat Only
Usage (1 deposit)	0.93	0.93	0.58	0.93	0.89	0.42
Usage (2 deposits)	0.86	0.86	0.45	0.86	0.85	0.27
Usage (Positive Balance)	0.92	0.85	0.57	0.83	0.84	0.56
Balance	862	817	792	675	560	383
Number of Deposits	9.0	8.6	5.1	14.1	13.0	7.4
Total Amt Deposited	16,961	12,966	3,968	28,532	23,120	12,088
Avg Deposit Amt	1,515	1,265	684	1,731	1,370	1,252
Number of Withdraws	10.7	11.2	3.0	12.3	11.6	6.8
Total Amt Withdrawn	17,746	14,168	3,341	24,974	20,016	11,363
Avg Withdrawn Amt	1,456	1,150	1,021	1,534	1,344	1,207

Table 5: ITT Results

Midline				
	MPESA	Mobile	Liquid Savings	Total Savings
Treat	404	290	317	1,884**
	(295)	(316)	(370)	(929)
Number of observations	616	591	591	591
Control Mean	1,185	1,429	1,775	2,903
Endline				
	MPESA	Mobile	Liquid Savings	Total Savings
Treat	26	8	1,374	3,615**
	(141)	(187)	(1,620)	(1,835)
Number of observations	554	521	521	521
Control Mean	712	891	1,565	2,887

Robust standard errors reported in parenthesis. Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 6: Savings Constraint: Not enough money

	Midline			
	MPESA	Mobile	Liquid	Total Savings
Linear combination	235	187	-96	-220
Treat + Treat X Lottery	(672)	(685)	(761)	(1,354)
Treat X Lottery	0.07 (0.31)	0.04 (0.32)	0.16 (0.37)	0.78 (0.60)
Total Lottery Winnings	0.26 (0.21)	0.30 (0.22)	0.33 (0.24)	-0.41 (0.63)
Treat	235 (672)	187 (685)	-96 (761)	-221 (1,355)
Number of observations	616	591	591	591
Mean Lottery Winnings	2,701	2,701	2,701	2,701
Treatment at Mean Lottery Winnings	412	301	331	1,885

*Robust standard errors reported in parenthesis. Total Monetary Assets are the sum of Total Savings + ROSCA. Total Assets are the sum of Total Monetary Assets + Livestock Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** p<0.01, ** p<0.05, * p<0.10

Table 7: Savings Constraint: Social Appropriation

	Midline			
	MPESA	Mobile	Liquid Savings	Total Savings
Linear combination	905**	677	425	-3,132
Treat+(Treat X Social Approp.)	(391)	(477)	(570)	(2,373)
Treat X Social Appropriation	550 (557)	421 (663)	115 (790)	-5,533* (2,865)
Social Appropriation	-713 (445)	-802* (469)	-727 (525)	1,343 (1,499)
Treat	354 (330)	255 (357)	311 (418)	2,401** (1,059)
Number of observations	616	591	591	591
Control Mean	1,280	1,540	1,883	2,997
	Endline			
	MPESA	Mobile	Liquid Savings	Total Savings
Linear combination	331*	403*	170	-3,826
Treat+(Treat X Social Approp.)	(192)	(224)	(596)	(3,100)
Treat X Social Appropriation	338 (261)	436 (321)	-1,320 (1,968)	-8,165* (4,581)
Social Appropriation	-398** (174)	-455** (201)	346 (943)	3,659 (3,026)
Treat	-6 (157)	-33 (207)	1,489 (1,789)	4,339** (2,154)
Number of observations	554	521	521	521
Control Mean	769	969	1,610	2,984

*Robust standard errors reported in parenthesis. Total Monetary Assets are the sum of Total Savings + ROSCA. Total Assets are the sum of Total Monetary Assets + Livestock. Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** p<0.01, ** p<0.05, * p<0.10

Table 8: Savings Constraint: Temptation

	Midline			
	MPESA	Mobile	Liquid Savings	Total Savings
Linear combination	593*	779*	474	6,214**
Treat + Treat X Temptation	(341)	(426)	(437)	(2,739)
Treat X Temptation	224 (522)	591 (595)	199 (690)	5,171** (2,597)
Temptation	118 (336)	-79 (347)	-202 (410)	685 (1,232)
Treat	370 (366)	188 (388)	275 (466)	1,043 (829)
Number of observations	616	591	591	591
Control Mean (with Temptation)	564	694	945	2,069
	Endline			
	MPESA	Mobile	Liquid Savings	Total Savings
Linear combination	308**	654*	7,300	10,976**
Treat + Treat X Temptation	(127)	(378)	(5,929)	(4,678)
Treat X Temptation	369* (207)	812** (391)	7,224 (5,288)	8,881** (4,069)
Temptation	-524*** (188)	-563*** (218)	-162 (1,234)	1,806 (2,545)
Treat	-62 (173)	-158 (203)	76 (789)	2,094 (1,547)
Number of observations	554	521	521	521
Control Mean (with Temptation)	125	150	641	1,893

*Robust standard errors reported in parenthesis. Total Monetary Assets are the sum of Total Savings + ROSCA. Total Assets are the sum of Total Monetary Assets + Livestock. Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** p<0.01, ** p<0.05, * p<0.10

Table 9: Sensitivity Analysis: Temptation

Midline				
Treat+(Treat X Temptation)	MPESA	Mobile	Liquid Savings	Total Savings
Full Sample	593*	779*	474	6,214**
	(341)	(426)	(437)	(2,739)
.5% Winsorize	649*	843**	606	2,976*
	(334)	(418)	(412)	(1,638)
1% Winsorize	630**	821**	662*	1,566
	(319)	(404)	(400)	(1,065)
2% Winsorize	622**	756**	681*	1,348
	(313)	(372)	(396)	(992)
Number of observations	616	591	591	591
Control Mean (with Temptation)	564	694	945	2,069
Endline				
Treat+(Treat X Temptation)	MPESA	Mobile	Liquid Savings	Total Savings
Full Sample	308**	654*	7,300	10,976**
	(127)	(378)	(5,929)	(4,678)
.5% Winsorize	311**	634*	1,773*	2,964*
	(127)	(357)	(942)	(1,692)
1% Winsorize	315**	589*	1,116**	2,211
	(126)	(316)	(553)	(1,370)
2% Winsorize	321**	459**	917**	1,432
	(122)	(201)	(445)	(1,032)
Number of observations	554	521	521	521
Control Mean (with Temptation)	125	150	641	1,893

*Robust standard errors reported in parenthesis. Total Monetary Assets are the sum of Total Savings + ROSCA. Total Assets are the sum of Total Monetary Assets + Livestock. Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** p<0.01, ** p<0.05, * p<0.10

Table 10: Effects of Intervention on Other Savings Accounts

Midline					
Treat + (Treat X Temptation)	1st MPESA Account	Own Savings	Bank Savings	ROSCA	Livestock
Full Sample	30 (471)	-138 (255)	4,951** (2,489)	-524 (1,044)	23,924 (15,392)
.5% Winsorize	3 (255)	-62 (163)	1,511 (1,059)	-446 (855)	14,831** (6,139)
1% Winsorize	-15 (228)	-60 (157)	1,145 (946)	-410 (849)	13,636** (5,516)
2% Winsorize	-16 (225)	-85 (131)	677 (820)	-321 (827)	10,799** (4,496)
Number of observations	616	591	591	591	591
Control Mean	564	251	1,124	2,597	9,412
Endline					
Treat + (Treat X Temptation)	1st MPESA Account	Own Savings	Bank Savings	ROSCA	Livestock
Full Sample	497** (195)	6,515 (4,981)	5,215** (2,520)	174 (1,255)	15,744* (8,904)
.5% Winsorize	199* (119)	1,585* (956)	1,615 (1,153)	-963 (1,133)	16,510** (8,209)
1% Winsorize	203* (119)	632 (410)	1,069 (1,014)	-832 (1,077)	12,122** (5,850)
2% Winsorize	210* (115)	339 (290)	879 (941)	-477 (929)	9,451** (4,603)
Number of observations	554	521	521	521	521
Control Mean	125	491	1,252	3,044	5,053

Robust standard errors reported in parenthesis. Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** p<0.01, ** p<0.05, * p<0.10

Table 11: Midline Temptation Expenses

	Temptation Spending		Share of Food Exp on Temptation Goods	
Treat	-215*	-250**	-0.02*	-0.02*
	(128)	(124)	(0.01)	(0.01)
Control: Baseline Temptation Spending	Yes	Yes	Yes	Yes
Control: Baseline Total Savings	No	Yes	No	Yes
Number of observations	111	111	111	111
Control Mean	461		0.03	

Robust standard errors reported in parenthesis. Temptation Spending aggregates all spending on hairdressing and cosmetics from 12 weekly surveys conducted between baseline and midline. Share of Food Exp on Temptation Goods takes Temptation Spending and divides this by all food expenditures from the 12 weekly surveys. Baseline temptation spending is included as a control in all specifications. Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 12: SMS Reminders

	MPESA	Mobile	Liquid	Total Savings
SMS Reminders	147 (134)	175 (155)	2,157 (1,841)	-156 (1,319)
.5% Winsorize	149 (132)	147 (147)	373 (280)	-85 (692)
1% Winsorize	137 (127)	140 (143)	237 (224)	508 (549)
2% Winsorize	126 (123)	112 (134)	194 (205)	629 (516)
Number of observations	267	250	250	250
Control Mean	712	891	1,565	2,887

Table 13: Savings Goals

	Proportion with Goal	Mean Amount
Education	0.26	22,437
Business	0.24	14,609
Durable Goods	0.05	27,847
Home Improvements	0.04	57,304
Set Aside Weekly for Emergency	0.99	103

Table 14: User Experience Labeled M-PESA Account

	Midline	Endline
Labeled M-PESA Account Helped to Save	0.67	0.71
Reasons Labeled M-PESA Helped:		
Minimize Temptation Spending	0.31	0.23
Restricted Access to Funds	0.27	0.23
Restricted Sharing with Others	0.07	0.10
Safe Place to Store Money	0.17	0.24
No Transaction Fees	0.04	
Pays Interest	0.08	

A Appendix

Table A.1: Sensitivity Analysis: Winsorized Sample

Midline				
Treat	MPESA	Mobile	Liquid	Total Savings
Full Sample	404 (295)	290 (316)	317 (370)	1,884** (929)
.5% Winsorize	126 (205)	-8 (230)	25 (274)	851 (624)
1% Winsorize	144 (160)	11 (189)	27 (224)	114 (481)
2% Winsorize	156 (145)	-12 (163)	-21 (197)	29 (426)
Number of observations	616	591	591	591
Control Mean	1,185	1,429	1,775	2,903
hline				
Endline				
Treat	MPESA	Mobile	Liquid	Total Savings
Full Sample	26 (141)	8 (187)	1,374 (1,620)	3,615** (1,835)
.5% Winsorize	40 (136)	12 (181)	-47 (297)	264 (554)
1% Winsorize	80 (126)	20 (170)	-111 (217)	68 (513)
2% Winsorize	148 (100)	94 (127)	-69 (187)	-67 (405)
Number of observations	554	521	521	521
Control Mean	712	891	1,565	2,887

Robust standard errors reported in parenthesis. Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A.2: Sensitivity Analysis: Treatment Effects on Social Appropriation Sample

	Midline			
	Midline			
Linear combination Treat+(Treat X Social Approp.)	MPESA	Mobile	Liquid	Total Savings
Full Sample	905** (391)	677 (477)	425 (570)	-3,132 (2,373)
.5% Winsorize	849** (362)	707* (424)	519 (496)	-1,446 (1,367)
1% Winsorize	732** (314)	599* (353)	492 (422)	-698 (1,071)
2% Winsorize	709** (308)	581* (334)	485 (403)	-494 (981)
Number of observations	616	591	591	591
Control Mean	238	295	665	1,942

	Endline			
	MPESA	Mobile	Liquid	Total Savings
Linear combination Treat+(Treat X Social Approp.)	MPESA	Mobile	Liquid	Total Savings
Full Sample	331* (192)	403* (224)	170 (596)	-3,826 (3,100)
.5% Winsorize	325* (191)	403* (224)	153 (518)	-86 (1,241)
1% Winsorize	306 (186)	392* (221)	153 (483)	79 (1,271)
2% Winsorize	293* (175)	379* (209)	160 (476)	121 (1,205)
Number of observations	554	521	521	521
Control Mean	181	174	1,145	1,991

Robust standard errors reported in parenthesis. Values reported in Kenyan Shillings, 85 Shillings = 1 USD at the time of the study. Included as regressors but not shown: age, dummies to account for 27 study clusters, and baseline savings outcome. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$