Endowment Effects and Usage of Financial Products: Evidence from Malawi*

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PRELIMINARY AND INCOMPLETE

Abstract

Savings account holders are significantly less likely to switch to another, cheaper account, compared to new clients given a choice between the two accounts. While 42 percent of account holders retained their original, expensive accounts, none of the new clients chose the expensive accounts. We exploit previous experimental variation in account usage and find that account holders that used their account more frequently are more likely to switch. This suggests that induced familiarity with the account can mitigate the endowment effect.

Keywords: Savings, Endowment effect, field experiment, experience.
JEL Codes: D14, C93, G21, O16.

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1 Introduction

Consumers of products in many markets typically have (or perceive to have) costs of switching to another product (Klemperer, 1995). For example, consumers incur transaction costs, such as the activation fees for switching from one cellular service provider to another, or learning costs of switching from Windows to Apple operating systems.

In addition to these financial and effort costs (Burnham et al., 2003), there are also psychological switching costs. Individuals tend to value more products that they already own, than those that are not part of their *endowment*. The existence of this bias, known as the "endowment effect", can be explained by loss aversion, one of the pillars of prospect theory Kahneman and Tversky (1979), and has been documented both in the lab and in the field using different goods ranging from mugs, chocolate bars and sports cards to stock market investments, and houses (Knetsch, 1989; Weber and Camerer, 1998; Kahneman et al., 1990; Genesove and Mayer, 2001; List, 2003, 2004).

In Knetsch (1989), for example, 89 percent of students originally endowed with a mug chose to keep it (instead of trading it for a chocolate bar), and 90 percent of those endowed with a chocolate bar decided to keep it (instead of trading it for a mug).

Examining trading rates of sports memorabilia in an actual marketplace, List (2003) also observed an inefficiently low number of trades by novice traders but among experienced traders the endowment effect disappeared. As List (2004) notes, however, experienced traders may have planned on reselling the good all along instead of keeping it, and thus the data does not provide a clean test of prospect theory. List (2004) uses a similar sample of novice and experienced traders in the sports card market and finds that when randomly presented with mugs and chocolate bars of equivalent value, novice traders exchange their endowment far less than experienced traders, indicating that previous market interaction and arbitrage opportunities may have taught experienced traders to treat the dispossession of a good as an opportunity cost rather than a loss. This is however less evidence on whether experienced traders are unique or novice traders can behave as experienced ones if induced to interact in the market long enough.

In this paper, we test for an endowment effect in a financial product and exploit experimental variation in account usage (akin to market interaction in the context of List, 2004) to assess if it mitigates the effect. In particular, we study the propensity of owners of a savings accounts to switch to another, cheaper account once fees are introduced in their hitherto free account, compared to a sample of new clients that are presented with the same choice between the two accounts.

Consistent with the literature, we find strong evidence of an endowment effect. While 46 percent of previous account holders who did not close their accounts also failed to switch to

the cheaper account, all new clients who opened accounts chose the cheaper account. More importantly, we exploit the design of an earlier field experiment where a random subsample of the account owners were given a large transfer that induced account usage and find that these individuals that used the account more frequently are more likely to switch.

As governments the world over try to broaden financial inclusion by providing transfers directly into the accounts of beneficiaries, there is a concern that individuals may not be familiar with the accounts or may end up contracting products that are not well suited to their needs. In short, financial consumers may not necessarily choose the most cost-effective product (see for example, Gross and Souleles, 2002; Choi et al., 2011; Duarte and Hastings, 2012; Hastings et al., 2012; Agarwal et al., 2013, 2015 and Campbell et al., 2011; DellaVigna, 2009 for reviews). Our results suggest that financial inclusion may be beneficial if it induces individuals to use financial products, as this familiarity may lead to improved financial decision-making.

The remainder of the paper is organized as follows. Sections 2 and 3 describe the experimental design and data, respectively. Section 4 describes the empirical strategy and reports the results. Section 5 tests the endowment mechanism using IV specifications, and Section 6 concludes.

2 Experimental Design

To study the existence of an endowment effect in a financial product, we use a sample of individuals that were offered a savings account with fees fully subsidized and study their behavior once subsidies are removed. In what follows, we first describe how the sample was chosen and free accounts were offered. We later described a field experiment with a subsample of these individuals that induced account usage. Finally, we describe how we complement this sample with individuals that were never offered the account and the experimental design we employ to test for the endowment effect.

2.1 Old subjects

In July 2012, we randomly selected and interviewed 872 households from ten villages located within 6 kilometers of a local branch of NBS, a Malawian bank. These households were offered assistance with opening a basic savings account at NBS and received financial assistance to cover the account fees so that no fee was charged.[1] Since the bank did not charge for

[1]The research team provided MK 500 (USD 1.34) minimum balance required to open account and subsidized the MK 400 monthly maintenance fee until told otherwise.

transactions, the subsidies made the accounts offered in the study free.[2] Of the 742 households that opened these subsidized accounts in 2012, we were able to contact 594 households in 2016 and constitute the sample for this experiment.

Of the 742 households that opened subsidized accounts, 600 were randomly chosen to participate in a field experiment in April 2015. That experiment varied whether households received a large (MK 25,000, or about $US 67) windfall transfer, and whether the transfer was made in cash or via a direct deposit into subjects' accounts (Brune et al., 2016). The large transfer increased the number of transactions that participants made at NBS. Account holders who received large transfers had the same number of bank transactions in the month preceding the windfall transfers. However, recipients of large transfers made significantly more transactions with their accounts after they received the windfall payments. The increased usage began in the month following the transfers and persisted, with cumulative average of 1.5 more deposits 12 months after the transfers. Thus, the large transfer treatment provides random variation in subjects' experience using their bank accounts.

In March and April 2016, we implemented an experiment that removed the subsidy for the recurring monthly maintenance fees while offering the possibility to close the account and open a new account without maintenance fees called "Pafupi" to which the balance would be transferred. All households with subsidized accounts were visited. During the one-on-one visits, the team explained that after more than three years (since July 2012), the subsidies would end as of May 2016 and three options were presented:

1. Households could keep their existing savings accounts. In this case, monthly maintenance fees of MK 400 would be deducted beginning in May 2016. If account balances became negative, accounts would be suspended. We used examples to show households how their balances would change each month, if no additional deposits were made. This is the *default option* for households with a savings account from NBS at the time of the experiment.

2. Households could close their accounts. They would then receive the full account balance (including the MK 500 initially deposited by the research team) in cash, but would no longer have an NBS account. Accounts closed by the end of April would not accrue any monthly charges.

3. Households could transfer the balance to a Pafupi account without monthly fees but with a fee of MK 150 for each withdrawal. In addition, to open a Pafupi account customers were required to purchase an ATM card for MK 1300 (USD 3.50).

[2]Like most basic savings accounts offered by banks in Malawi, these accounts did not pay interest, so even without monthly fees, the real rate of return to saving at the bank was negative as the inflation rate was above 20% throughout the study.

Because NBS required households to come to the bank to close the account, we asked each household to notify us of their decision and to complete any necessary paperwork by coming to the bank branch by the end of May 2016.[3]

All households received the same information. However, we varied two conditions related to their decision. First, we randomized the value of a show-up reward for coming to the bank branch. Households were either offered no payment, MK 500, or MK 1,000. We were explicit that this show-up payment was independent of their decision regarding the savings account and that it would be paid as long as the account-holder came to the branch. The payment was calibrated to cover the cost of round-trip bicycle taxi transportation to the branch, although the vast majority of customers in the sample choose to walk rather than pay for transport. The purpose of the show-up fee was twofold. It provided an incentive for households who chose to keep their existing NBS accounts to come to the branch and report their decisions, enabling us to distinguish between those who deliberately chose to keep the account open and those who forgot to make a decision. It also provided an instrument for the probability of coming to the branch that is orthogonal to the household's valuation of the savings account.

Second, we varied when households were asked to come to the branch to tell us their intentions about the existing NBS account. Among those offered a positive show-up fee, half were asked to come within the following week, and the other half were asked to come after three weeks. Households had to come to the bank within their scheduled window in order to receive their show-up fee, and this was framed as a strategy for managing the flow of visitors. The length of the window was set at one-week and was the same in both cases. The delay was designed to measure the salience of the decision, as forgetful or inattentive customers might not remember to show up after a three week delay. This sort of inattentiveness to bank accounts is one possible explanation for the large number of dormant accounts whose balances are entirely depleted by monthly fees (Karlan and Aishwarya Ratan, 2014).

This cross-cutting randomization resulted in five treatment groups: a no-fee and no-date group, and four groups who could receive cash for coming to the bank within a designated window. The treatment groups are illustrated in Figure 1. This randomization was conducted by computer, stratified by village and previous treatment assignment. Assignment to one of the five conditions was made before household visits began, though it was not visible to the field team until information about account options had been delivered.

A final treatment was implemented at the bank branch. Some households were randomly selected to be offered MK 1,500 (USD 2.21), an amount higher than the promised show-up fee. MK 1,500 was enough to pay for the MK 1,300 ATM card fee required to open a

[3]During the home visit households were not asked about their planned course of action.

Pafupi account. Because the amount is different, it relaxed a possible liquidity constraint to cover the the ATM card fee but it did not contain an implicit suggestion about how the money was to be used. As with other treatment conditions, assignment to this extra cash was randomized by computer and stratified by village and original five-group treatment status. Since customers did not know about the extra cash until they arrived at the branch, it could not possibly have affected the decision to come to the branch, although it could have affected their decisions about the existing account. All show-up fees were paid in cash, before participants were asked whether they wanted to keep, close, or switch to a Pafupi account.

2.2 New subjects

The final aspect of the experimental design is the recruitment of new subjects who had not been offered subsidized accounts. Using the same household listing conducted prior to the July 2012 intervention, we randomly selected 216 households from those not offered subsidized accounts. In March and April 2016 these households were given the choice of opening either an unsubsidized account or a Pafupi account. They were surveyed at the same time as households who already had accounts (old subjects) and given very similar information:

1. Households could open regular NBS accounts, which required an MK 500 opening balance fee and a recurring maintenance monthly fee of MK 400.

2. Households could open a Pafupi accounts. These accounts also required a MK 500 minimum balance fee and the purchase of an ATM cards for MK 1,300. There were no monthly maintenance fees, but withdrawals cost MK 150.

3. Households could decide not open any account. This is the *default option* for new subjects that were not offered subsidized accounts in July 2012.

Note that while the choice set for both new and old subjects is similar, their default option is different. For existing account-holders (old subjects), the default is owning an ordinary account, while for the new subjects, the default is opening any NBS account. The sample of old subjects is however selected as it is limited to the 85 percent of households who agreed to open a subsidied NBS account when offered in July 2012.

For both old and new subjects, owning a Pafupi account requires an active choice, completing the required account opening forms, and purchasing the ATM card.

New subjects were also randomly assigned to one of the five treatment groups related to show-up fees and timing of the bank visit. Just as the old subjects did not have to close the account to receive the show-up fee, new subjects did not have to open one. They only had to come to the branch during the indicated window. A subset of new subjects were randomly

selected to receive the extra cash when they came to the bank. The total numbers of old and new subjects assigned to each of the treatment groups is reported in Figure 1.

3 Data

We use data from three sources. Baseline data come from the household survey administered to all households in March and April 2016.[4] Outcome data come from records collected by our field team stationed at the NBS branch during the intervention, and from NBS administrative data.

In Table 1 we compare existing account-holders to new subjects using data from the March/April 2016 household survey. As expected, there are some differences in the characteristics of these two samples. Account holders are more likely to be male and are older than new subjects, reflecting a tendency for men to control household finances. They also have higher indices of housing quality, assets owned, and animals owned, though the values of the latter two proxies are measured less precisely and are not significantly different across the two samples. Account-holders own more land, though the difference is again not statistically significant.

Account holders express a greater willingness to pay for an NBS account. As expected, they use more formal savings products. While the higher mean savings in the sample of new subjects is driven by a single outlier who reports MK 700,000 in savings, the account-holders have higher median savings and a higher percent have positive savings (not shown). This increase in savings does not represent substitution away from informal savings as account-holders have also accumulated more savings outside the NBS account.

Experience with accounts seems to have tempered subjects' enthusiasm about usage: existing account-holders anticipate fewer and smaller transactions than hypothesized by new subjects. Therefore, while all subjects would pay lower fees with Pafupi accounts, existing account-holders could save MK 1,067 given their expected use in the next three months by switching to Pafupi accounts, while new subjects could save MK 909.

Table 2 compares the baseline characteristics of existing account-holders who were assigned to four different treatments in the windfall income experiment: a control group or a small cash payment (Column 1), a large cash payment (Column 2), or a large direct deposit payment (Column 3). We report the p-value for the test of equal means across all five categories in Column 4. Owing to the randomization we do not expect (and do not observe) differences in household characteristics such as age, gender of the respondent, or size of the household.

[4] Survey data from 2012 and 2013 are also available for old subjects, but are not used because no comparable data were collected for the new subjects.

The windfall treatment could have affected asset ownership but it does not appear to have done so, aside from a difference in the index for animal ownership. There are however some interesting patterns in the responses to questions about willingness to pay for and use of the accounts. Respondents who received large transfers via direct deposit expressed greater willingness to pay for savings accounts (MK 4,662) than their peers.

Finally, Table 3 reports the balancing tests for the treatments that are the subject of this study. Unlike the previous tables, these are true balancing tests, since they represent tests of variables measured before the treatments were implemented. There are no statistically significant differences across any of the variables, indicating that the randomization of the show-up fee and timing of the bank visit were successful.

4 Empirical strategy and results

Because the various treatments are assigned randomly, the impact of the 2012 and 2016 treatment on the main outcomes of interest can be estimated via the following regression equation:

$$\begin{aligned} Y_{iv} &= \alpha + \beta_O \text{Old}_{iv} + \beta_T \text{T}_{iv} + \beta_{DD} \text{DD}_{iv} + \\ &\quad \beta_{LF} \text{LF}_{iv} + \beta_{HF} \text{HF}_{iv} + \beta_D \text{D}_{iv} + \beta_C \text{C}_{iv} + X_{iv}\prime\gamma + \delta_v + \epsilon_{iv}, \end{aligned} \tag{1}$$

where Y_{iv} are the outcomes of interest for individual i in village v; Old is a dummy that takes value 1 if the individual is an existing NBS account holder; T is a dummy that takes value 1 if the individual received the large transfer treatment in 2012; DD is a dummy if the large transfer was directly deposited into the account; LF (HF) is a dummy that takes value 1 if the individual was promised a show-up fee of MK 500 (MK 1,000) for visiting the bank; D is a dummy that takes value 1 if the one-week window to visit the bank was delayed by three weeks and C is a dummy that takes value 1 if the individual received the extra cash during the branch visit. The vector X_i contains individual-level covariates measured during the 2016 survey, and δ_v are fixed village effects. The variable ϵ_{iv} is a mean-zero error term. Even though treatment assignment is done at the individual level, we cluster standard errors at the village level to account for any spatial unobserved correlation among individuals from the same village.

We consider two main outcomes of interest Y_{iv}: whether participants visited the bank and whether they took up the new, cheaper, Pafupi account. These outcomes are chosen because they are not the default choice of either sample. Overall, 72 percent visited the bank, and 51 percent took up Pafupi accounts.

The coefficient β_O on the Old dummy variable captures the endowment effect when the

outcome is opening (or switching to) a Pafupi account. The coefficient β_T on the large transfer and $\beta_D D$ on whether the large transfer was deposited directly into the account capture the attenuating effect of account usage. When the outcome is opening a Pafupi account, we expect $\beta_O < 0$ indicating a lower probability of opening the cheaper Pafupi account, that is, an endowment effect. In addition, we expect $\beta_T > 0$ because induced account usage should make individuals treat the account as an opportunity cost rather than a loss.

Due to the randomization of treatments, the inclusion of covariates X_{iv} is not strictly necessary, but useful in our context because, as discussed above, there are differences between new and old subjects that could affect the estimated treatment effects.

Table 4 analyzes the determinants of visiting the bank branch within the required time window. Visiting is both a necessary condition for opening a Pafupi account and an indicator of attentiveness for old subjects towards what to do with the existing NBS account. In Column 1, we see that old subjects are 9.4 percentage points more likely to visit the bank branch. However, as reported in Column 2, this result is driven by existing account holders who received the large windfall transfer in the 2012 experiment, and in particular for those who received the large transfer via direct deposit. The p-value for the test that old subjects that received the large transfer in cash visit the branch with the same probability as new subjects is 0.08. The p-value comparing account holding households who received transfers via direct deposit to new subjects is 0.00.

Both old and new subjects respond to financial incentives. Those who are offered the MK 500 show-up fee for visiting the branch during the pre-specified one-week window are 26 percentage points more likely to visit it than customers who are neither incentivized nor prompted to visit during a specific week.[5] The effect of a large payment (MK 1,000) relative to the small payment is statistically significant, but only one-third as large.

There is no significant effect of delaying the visit window by three weeks, which indicates that at least in the short run, inattentiveness to accounts does not explain respondents' choices or why so many accounts at NBS and other banks become dormant (Karlan and Aishwarya Ratan, 2014). As expected, the extra cash offered at the branch has no effect on the probability of visiting the branch. Despite the baseline differences discussed in Section 3 between new and old subjects, controlling for baseline characteristics as in column (3) does not affect the results.

Next, we analyze the decision to open a Pafupi account. Column 1 of Table 5 shows that old subjects, that is, existing NBS account owners with the now expensive account, are 7.4 percentage points less likely to open Pafupi accounts. This difference is much larger when we control for the 2012 and 2016 treatments in columns 2 to 5. Existing account holders

[5] All customers, including those who did not receive a show-up fee, were asked to visit the branch by the end of May 2016.

are 19 percentage points less likely to switch to the cheaper Pafupi account. However, this difference is driven by the behavior of the account holders who did *not* receive large transfers in 2012. Having received a large transfer in 2012 offsets the endowment effect by increasing the probability of switching to a Pafupi account by 13.8 percentage points. Existing account holders who received large transfers are not significantly less likely to switch to a Pafupi accounts than new households (p=0.28, reported in the second to last row of Table 5). The effect of direct deposit of the 2012 transfer is not statistically significant, and the p-value for the comparison between account holders who received their transfer via direct deposit and new customers is 0.80.

A high show-up fee also increases the probability of opening a Pafupi account, but this effect apparently operates through increasing the probability of visiting the bank rather than relaxing a binding liquidity constraint. The large cash bonus does not affect the probability of opening a Pafupi account, even though the purchase of an ATM card is required.

The endowment effect experienced by existing account holders and the offsetting effect of the large windfall transfer in 2012 persist when baseline characteristics are introduced, as shown in Column 3. Existing account holders that did not receive windfall payments in 2012 are nearly 16 percentage points less likely than new customers to open Pafupi accounts. The difference is only 1.8 points (p=0.76) for existing account holders who received large transfers, and those who received those large transfers via direct deposit are somewhat more likely (by 8.6 percentage points, p=0.38) than new customers to open Pafupi accounts.

Column 4 limits the sample to customers who visited the bank branch. We note that visiting the branch is an endogenous decision, so this specification is included only to explore the mechanism for the endowment and treatment effects. Among customers who visited the branch, existing account holders were 27.6 percentage points less likely to open Pafupi accounts than new customers. The endowment effect is partially offset by the large windfall transfer, though the total endowment effect is still negative and marginally significant. Among this subsample, those who were induced to come to the branch by a cash show-up fee were less likely to open Pafupi accounts. This is an expected finding, since customers who responded to the show-up fee were more motivated by the cash than by the bank accounts.

To confirm, the final column of Table 5 reports results from an IV specification, where we instrument for visiting the bank with the show-up fee, high show-up fee, and delayed visit treatments. The first stage F-statistic is 6.03. Accounting for endogeneity in the probability of visiting the branch, existing account holders are 19.3 percentage points less likely to take up Pafupi accounts, and the large windfall offsets about half of the endowment effect, by increasing take up by 9.8 percentage points. Finally, we explore the relationship between subjective valuation of NBS bank accounts and take up of the Pafupi product. Columns (1) and (2) of Table 6 consider the number of withdrawals that customers anticipate in the next

three months.[6] Expected withdrawals are important because they determine the relative benefits of the Pafupi account compared to the ordinary account. Since the Pafupi account charges per withdrawal, customers who anticipate more withdrawals would be better-served by the Pafupi account than those who anticipate fewer withdrawals. We see no evidence of any such correlation; the coefficient on the measure of expected withdrawals in column (1) is -0.007. The relationship is no different for existing account holders, as show by the inclusion of the interaction term in column (2).

Columns (3) and (4) use the measure of willingness to pay for an NBS account elicited at baseline. Recall that existing account holders had greater willingness to pay at baseline. This does not translate into a greater probability of taking up a Pafupi account (though customers with negative willingness to pay are somewhat less likely to open a Pafupi account).

5 Mechanisms

The previous section documents a gap in the probability of opening a Pafupi account between old and new subjects and shows that this gap is closed when we consider old subjects induced to transact in the bank. This section establishes a causal relationship between account usage and tendency to switch to the Pafupi account. Because only existing customers were included in the windfall experiment, this analysis is limited to existing customers, and explores the extent to which experience using accounts counters the endowment effect these customers are otherwise subject to.

We use receipt of a large transfer in 2012 as instrument for account usage. The first stage is

$$\begin{aligned} \text{Number of transactions}_{iv} = \\ \alpha + \beta_T \mathrm{T}_{iv} + \epsilon_{iv} \end{aligned} \tag{2}$$

We measure deposits starting one week after the windfall, to avoid capturing any mechanical effect of directly deposited payments. We report estimates of this first stage for two different time periods: six months and 12 months after the windfall payments.[7] First stage results are reported in columns (1) and (3) of Table 7. Large windfall payments significantly increase the number of transactions with NBS accounts in both intervals; the effect is cumulative,

[6] This survey question was asked of both existing account holders and respondents without accounts; the latter were asked, "if you had an account, then how many withdrawals do you think you would make in the next three months?"

[7] For the 147 households in the sample that were not included in the 2012 cash drop experiment, the date of windfall payment was imputed as the average payment date for households in their village that were included in the windfall experiment.

and results in an average of 1.5 additional transactions 12 months after the transfer. This increase is large relative to 1.0 transfers in the control group, and is equivalent to 0.33 SD.[8] However, the effect becomes less precise over time, and the F-statistic for the first stage regression exceeds the rule-of-thumb threshold for the six month period (F=11.14) but not the 12 month period (F=6.16). Because village fixed effects do not explain the variation in the outcome, including them in the first stage weakens the instrument.

Our IV specifications estimate the probability of switching to a Pafupi account as a function of the number of deposits following the windfall experiment:

$$\mathrm{Y}_{iv} = \gamma + \omega \text{Number of transactions}_{iv} + \epsilon_{iv} \tag{3}$$

To isolate the effect of experimentally-induced transfers on account usage and avoid the problem of weak instruments, our preferred specification in Table 7 considers cumulative deposits six months after windfall payments (column 2 of Table 7) as the endogenous variable; we report the first stage and IV estimates for the effect of transactions in a 12 month period as well. The IV results reported in column (2) indicate that each additional induced transaction in the six months following the large cash transfer increased the probability of switching to a Pafupi account by 18 percentage points.

To address concerns about the possibility of bias due to weak instruments, we also report results using Limited Information Maximum Likelihood estimation, which is thought to be more robust to the presence of weak instruments (Imbens and Wooldridge, 2007). In addition to regressions corresponding to those in Table 7, Table 8 includes specifications with village fixed effects and incorporating the direct deposit treatment as an additional instrument. The LIML point estimates are nearly identical to those obtained with 2SLS, and except for column (6), the Anderson-Rubin confidence intervals are bounded and exclude zero.

The strong relationship between induced account use and the tendency to switch to the Pafupi account is important because it demonstrates that experience can overcome endowment effects.

6 Conclusion

Standard neoclassical theories predict that in the absence of transactions costs to open and close savings accounts, the decision to open a new account should not depend on whether the individual already holds a more expensive account that could be closed.

Data from the behavior of individuals in rural Malawi contradict this hypothesis. We

[8] The effect of the large transfer on the number of transactions is monotonically increasing as measured one, six, 12, 18, and 24 months after the transfer. Results available upon request.

find that while 46 percent of previous account holders failed to switch to a new and cheaper account, all individuals without a prior account that opened one chose the cheaper account. In addition, the gap in the probability to open the cheaper account is closed when we consider previous account holders that were experimentally induced to use the account. Because previous account holders and individuals without an account are comparable and subject to the same protocols, alternative explanations based on inertia, transaction costs, etc are unlikely to drive the results.

Our results suggest that financial inclusion by providing transfers directly into the accounts of beneficiaries may be beneficial as it induces individuals to use financial products, and that this familiarity may raise financial awareness and improve financial decision-making.

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Figures

Figure 1: Experimental design: 2016 treatment groups

No show-up fee	AC-0 125 old subjects 44 new subjects	
	Bank appointment window	
	Immediate	Delayed
MK 500	AC-1 81 old 28 new	AC-3 147 old 58 new
MK 1000	AC-2 78 old 28 new	AC-4 163 old 58 new

Tables

Table 1: Summary statistics: old vs. new respondents

	(1) New	(2) Old	(3) p-value from joint orthogonality test of treatment arms
Male	0.231	0.596	0.000
	(0.029)	(0.020)	
Household size	5.306	5.076	0.163
	(0.142)	(0.085)	
Age	43.169	46.276	0.017
	(1.158)	(0.661)	
Education	1.381	1.529	0.117
	(0.076)	(0.049)	
Housing quality score	-0.097	0.035	0.115
	(0.066)	(0.044)	
Asset score	-0.701	0.254	0.000
	(0.157)	(0.144)	
Value of assets	1.58e+05	1.38e+07	0.425
	(56801.465)	(1.03e+07)	
Animal score	-0.148	0.054	0.023
	(0.041)	(0.051)	
Value of animals	82183.148	3.48e+06	0.364
	(18610.335)	(2.26e+06)	
Acres owned	7.303	8.647	0.486
	(1.493)	(1.027)	
Willingness to pay (MK)	3494.792	4397.222	0.000
	(185.543)	(97.951)	
Positive willingness to pay	0.644	0.788	0.000
	(0.033)	(0.017)	
Negative willingness to pay	0.259	0.160	0.001
	(0.030)	(0.015)	
Number of informal savings strategies	0.681	0.899	0.002
	(0.055)	(0.038)	
Total value of informal savings	10992.130	13011.052	0.560
	(2507.573)	(1876.253)	
Number of deposits to informal savings (previous month)	1.120	1.539	0.009
	(0.120)	(0.087)	
Number of formal savings accounts	0.222	1.000	0.000
	(0.032)	(0.024)	
Total value of formal savings	7523.148	5623.155	0.492
	(3570.635)	(1043.800)	
Number of deposits to formal savings (previous month)	0.083	0.155	0.121
	(0.024)	(0.026)	
Owns an NBS account	0.247	0.993	0.000
	(0.029)	(0.003)	
Number of deposits in the last month (self reported)	0.381	0.055	0.000
	(0.146)	(0.013)	
Number of withdrawals expected in the next 3 months	1.940	0.886	0.000
	(0.128)	(0.056)	
Number of withdrawals expected in the next lean season	1.676	1.241	0.000
	(0.083)	(0.049)	
Number of withdrawals expected in the next lean season	1.676	1.241	0.000
	(0.083)	(0.049)	
Expected fees, based on expected use in the next 3 months	290.972	132.828	0.000
	(19.242)	(8.459)	
Cost for ordinary account relative to pafupi	909.028	1067.172	0.000
	(19.242)	(8.459)	
Observations	216	594	

Table 2: Summary statistics: existing account holders

	(1) Old-Control	(2) Old-Cash	(3) Old-DD	(4) p-value from joint orthogonality test of treatment arms
Male	0.556	0.582	0.646	0.174
	(0.036)	(0.035)	(0.033)	
Household size	5.043	5.080	5.102	0.960
	(0.147)	(0.143)	(0.151)	
Age	46.059	47.020	45.746	0.711
	(1.206)	(1.115)	(1.124)	
Education	1.460	1.473	1.646	0.224
	(0.087)	(0.085)	(0.084)	
Housing quality score	0.005	0.023	0.074	0.803
	(0.073)	(0.075)	(0.081)	
Asset score	0.351	0.151	0.266	0.853
	(0.308)	(0.223)	(0.218)	
Value of assets	2.92e+05	1.11e+07	2.86e+07	0.525
	(80380.605)	(9.97e+06)	(2.80e+07)	
Animal score	0.214	0.020	-0.059	0.084
	(0.128)	(0.075)	(0.053)	
Value of animals	3.28e+05	9.32e+06	6.53e+05	0.180
	(1.61e+05)	(6.64e+06)	(5.11e+05)	
Acres owned	9.712	8.069	8.241	0.779
	(1.933)	(1.651)	(1.764)	
Willingness to pay (MK)	4186.765	4322.015	4661.650	0.124
	(184.043)	(170.676)	(154.384)	
Positive willingness to pay	0.754	0.781	0.825	0.217
	(0.032)	(0.029)	(0.027)	
Negative willingness to pay	0.171	0.169	0.141	0.650
	(0.028)	(0.027)	(0.024)	
Number of informal savings strategies	0.925	0.886	0.888	0.896
	(0.069)	(0.061)	(0.067)	
Total value of informal savings	15390.455	12089.552	11750.243	0.690
	(3768.670)	(1996.028)	(3719.641)	
Number of deposits to informal savings (previous month)	1.476	1.572	1.563	0.886
	(0.148)	(0.159)	(0.143)	
Number of formal savings accounts	0.963	1.040	0.995	0.417
	(0.042)	(0.043)	(0.039)	
Total value of formal savings	5059.893	8051.841	3764.728	0.221
	(1247.617)	(2757.641)	(721.339)	
Number of deposits to formal savings (previous month)	0.193	0.154	0.121	0.550
	(0.055)	(0.050)	(0.030)	
Owns an NBS account	1.000	0.980	1.000	0.019
	(0.000)	(0.010)	(0.000)	
Number of deposits in the last month (self reported)	0.081	0.041	0.044	0.361
	(0.030)	(0.016)	(0.019)	
Expected withdrawals (next 3 months)	0.904	0.995	0.762	0.227
	(0.103)	(0.111)	(0.078)	
Number of withdrawals expected in the next lean season	1.230	1.323	1.170	0.424
	(0.090)	(0.089)	(0.075)	
Number of withdrawals expected in the next lean season	1.230	1.323	1.170	0.424
	(0.090)	(0.089)	(0.075)	
Expected fees, based on expected use in the next 3 months	135.561	149.254	114.320	0.227
	(15.393)	(16.577)	(11.709)	
Cost for ordinary account relative to pafupi	1064.439	1050.746	1085.680	0.227
	(15.393)	(16.577)	(11.709)	
Observations	187	201	206	

Table 3: Balancing tests: 2016 treatments

	(1) Control	(2) One Week Low Fee	(3) One Week High Fee	(4) One Month Low Fee	(5) One Month High Fee	(6) p-value from joint orthogonality test of treatment arms
Male	0.491	0.523	0.481	0.463	0.534	0.638
	(0.039)	(0.048)	(0.049)	(0.035)	(0.034)	
Household size	5.077	5.229	4.858	5.161	5.249	0.569
	(0.163)	(0.194)	(0.182)	(0.138)	(0.150)	
Age	44.935	46.009	45.067	45.208	45.982	0.960
	(1.293)	(1.594)	(1.590)	(1.172)	(1.061)	
Education	1.533	1.679	1.429	1.463	1.416	0.373
	(0.094)	(0.120)	(0.116)	(0.079)	(0.077)	
Housing quality score	-0.017	-0.030	-0.170	0.093	0.022	0.332
	(0.084)	(0.112)	(0.090)	(0.072)	(0.069)	
Asset score	0.182	-0.021	-0.149	-0.118	0.051	0.899
	(0.256)	(0.244)	(0.276)	(0.205)	(0.266)	
Value of assets	3.48e+07	2.14e+05	2.02e+05	1.03e+06	9.37e+06	0.546
	(3.41e+07)	(47124.883)	(59266.748)	(7.46e+05)	(9.05e+06)	
Animal score	-0.074	-0.030	-0.077	0.115	0.001	0.477
	(0.058)	(0.091)	(0.075)	(0.106)	(0.075)	
Value of animals	2.85e+05	84442.661	1.07e+07	4.16e+06	1.92e+05	0.324
	(1.72e+05)	(20119.267)	(1.06e+07)	(3.56e+06)	(53059.371)	
Acres owned	7.822	9.859	7.151	9.104	7.660	0.889
	(1.938)	(2.507)	(2.098)	(1.737)	(1.562)	
Willingness to pay (MK)	4164.053	4276.376	3813.679	3931.829	4464.706	0.126
	(193.855)	(233.663)	(254.469)	(184.289)	(157.833)	
Positive willingness to pay	0.751	0.780	0.708	0.702	0.796	0.163
	(0.033)	(0.040)	(0.044)	(0.032)	(0.027)	
Negative willingness to pay	0.195	0.156	0.208	0.220	0.154	0.395
	(0.031)	(0.035)	(0.040)	(0.029)	(0.024)	
Number of informal savings strategies	0.817	0.872	0.764	0.888	0.837	0.813
	(0.070)	(0.092)	(0.089)	(0.061)	(0.059)	
Total value of informal savings	14912.515	12126.606	19660.377	8993.902	10557.014	0.271
	(4036.839)	(3565.586)	(7626.931)	(1398.391)	(1931.166)	
Number of deposits to informal savings (previous month)	1.592	1.376	1.179	1.390	1.480	0.563
	(0.187)	(0.175)	(0.183)	(0.136)	(0.130)	
Number of formal savings accounts	0.846	0.835	0.717	0.737	0.819	0.294
	(0.056)	(0.058)	(0.061)	(0.044)	(0.042)	
Total value of formal savings	4980.976	10878.899	1519.528	6256.044	6760.226	0.385
	(1522.508)	(6593.835)	(400.052)	(2521.920)	(1609.822)	
Number of deposits to formal savings (previous month)	0.130	0.147	0.066	0.151	0.154	0.748
	(0.037)	(0.052)	(0.028)	(0.049)	(0.043)	
Owns an NBS account	0.799	0.817	0.800	0.790	0.783	0.967
	(0.031)	(0.037)	(0.039)	(0.029)	(0.028)	
Number of deposits in the last month (self reported)	0.048	0.047	0.051	0.079	0.084	0.810
	(0.019)	(0.029)	(0.031)	(0.033)	(0.029)	
Trust NBS	0.959	0.926	0.961	0.958	0.932	0.654
	(0.018)	(0.029)	(0.022)	(0.017)	(0.020)	
Self-report: fees for subsidized account	213.359	118.947	150.000	200.478	184.048	0.201
	(31.947)	(20.784)	(34.635)	(23.106)	(24.706)	
Does not know fees now	0.488	0.531	0.590	0.531	0.481	0.550
	(0.045)	(0.056)	(0.056)	(0.041)	(0.039)	
Self-report correct, subsidized fees	0.216	0.210	0.205	0.150	0.216	0.585
	(0.037)	(0.046)	(0.046)	(0.030)	(0.032)	
Self-report: fees for regular account	404.545	356.522	772.917	397.457	622.870	0.460
	(90.821)	(47.393)	(338.595)	(80.127)	(195.333)	
Does not know regular fees	0.648	0.716	0.692	0.687	0.667	0.867
	(0.043)	(0.050)	(0.053)	(0.038)	(0.037)	
Self-report correct, regular fees	0.048	0.012	0.026	0.075	0.037	0.190
	(0.019)	(0.012)	(0.018)	(0.022)	(0.015)	
Number of withdrawals expected in the next 3 months	1.325	0.972	1.142	1.156	1.163	0.506
	(0.135)	(0.119)	(0.149)	(0.108)	(0.114)	
Number of withdrawals expected in the next lean season	1.420	1.367	1.453	1.244	1.362	0.573
	(0.105)	(0.100)	(0.118)	(0.085)	(0.078)	
Number of withdrawals expected in the next lean season	1.420	1.367	1.453	1.244	1.362	0.573
	(0.105)	(0.100)	(0.118)	(0.085)	(0.078)	
Expected fees, based on expected use in the next 3 months	198.817	145.872	171.226	173.415	174.434	0.506
	(20.321)	(17.861)	(22.340)	(16.220)	(17.049)	
Cost for ordinary account relative to pafupi	1001.183	1054.128	1028.774	1026.585	1025.566	0.506
	(20.321)	(17.861)	(22.340)	(16.220)	(17.049)	
Current balance (NBS administrative data)	2135.221	2638.559	1225.044	4074.308	1935.343	0.409
	(463.418)	(1379.526)	(211.446)	(1636.434)	(436.588)	
Error in self-reported balance	-5033.696	-2536.801	-3665.772	-5703.284	-5105.182	0.893
	(1908.462)	(1899.923)	(1681.238)	(2704.520)	(1629.002)	
Observations	169	109	106	205	221	

Table 4: Determinants of visiting the NBS branch

	(1)	(2)	(3)
Old subject (2012 account holder)	0.094**	0.005	0.024
	(0.037)	(0.045)	(0.054)
Large windfall transfer (2012)		0.073*	0.069
		(0.043)	(0.044)
Direct deposit (2012)		0.118**	0.117**
		(0.038)	(0.039)
Show-up fee (2016)		0.261***	0.247***
		(0.052)	(0.053)
High show-up fee (2016)		0.083**	0.094**
		(0.032)	(0.032)
Delayed visit (2016)		-0.018	-0.026
		(0.034)	(0.035)
Cash bonus at branch (2016)		-0.021	-0.009
		(0.032)	(0.033)
Covariates			X
Observations	810	810	802
R-squared	0.03	0.13	0.14
P-value: total effect of show-up fee		0.00	0.00
P-value: zero effect for old subjects that received large transfers		0.08	0.08
P-value: zero effect for old subjects that received large transfers via DD		0.00	0.00

Notes: Dependent variable equals 1 for respondents who visited the NBS branch and 0 otherwise. All specifications include village fixed effects. When indicated, covariates are male, HH size, age, education of HH head, housing quality score, asset score, animal score, acres owned, number of informal savings strategies, total value of informal savings, number of deposits into informal savings, number of formal savings accounts, total value of formal savings accounts, and number of deposits into formal savings accounts. OLS regressions. Robust standard errors clustered at the village level. * p<0.10, ** p<0.05, *** p<0.001.

Table 5: Determinants of owning a Pafupi account

	(1)	(2)	(3)	(4)
Old subject (2012 account holder)	-0.074*	-0.190***	-0.158**	-0.193***
	(0.039)	(0.048)	(0.057)	(0.036)
Large windfall transfer (2012)		0.138**	0.140**	0.098**
		(0.049)	(0.049)	(0.041)
Direct deposit (2012)		0.064	0.068	-0.003
		(0.049)	(0.049)	(0.043)
Show-up fee (2016)		0.081	0.064	
		(0.057)	(0.058)	
High show-up fee (2016)		0.088**	0.106**	
		(0.039)	(0.039)	
Delayed visit (2016)		0.042	0.021	
		(0.042)	(0.042)	
Cash bonus at branch (2016)		-0.036	-0.026	-0.028
		(0.039)	(0.040)	(0.031)
Covariates			X	
Observations	810	810	802	810
R-squared	0.03	0.07	0.10	0.41
P-value: endowment effect on HHs that received large transfers		0.28	0.76	0.00
P-value: endowment effect on HHs that received large transfers via DD		0.80	0.38	0.00

Notes: Dependent variable equals 1 for respondents who opened Pafupi accounts and 0 otherwise. All specifications include village fixed effects. When indicated, covariates are male, HH size, age, education of HH head, housing quality score, asset score, animal score, acres owned, number of informal savings strategies, total value of informal savings, number of deposits into informal savings, number of formal savings accounts, total value of formal savings accounts, and number of deposits into formal savings accounts. Columns(1)-(3) are OLS regressions. Column (4) is a 2SLS regression, using 2016 treatments as instruments for visiting the bank branch. Robust standard errors clustered at the village level. * $p<0.10$, ** $p<0.05$, *** $p<0.001$.

Table 6: Relationship between subjective valuation of NBS accounts and take-up of Pafupi accounts

	(1)	(2)	(3)	(4)
Old subject (2012 account holder)	-0.198***	-0.166**	-0.205***	-0.229**
	(0.050)	(0.061)	(0.048)	(0.074)
Large windfall transfer (2012)	0.139**	0.140**	0.136**	0.136**
	(0.049)	(0.049)	(0.048)	(0.048)
Direct deposit (2012)	0.063	0.061	0.058	0.058
	(0.049)	(0.049)	(0.049)	(0.049)
Show-up fee (2016)	0.079	0.079	0.080	0.081
	(0.057)	(0.057)	(0.057)	(0.057)
High show-up fee (2016)	0.088**	0.090**	0.084**	0.084**
	(0.039)	(0.039)	(0.039)	(0.039)
Delayed visit (2016)	0.042	0.041	0.039	0.039
	(0.042)	(0.042)	(0.042)	(0.042)
Cash bonus at branch (2016)	-0.036	-0.036	-0.028	-0.029
	(0.039)	(0.039)	(0.039)	(0.039)
Expected withdrawals (next 3 months)	-0.007	0.005		
	(0.012)	(0.018)		
Existing account-holder * expected withdrawals		-0.021		
		(0.023)		
Willingness to pay (MK)			0.000	0.000
			(0.000)	(0.000)
Negative willingness to pay			-0.054	-0.054
			(0.072)	(0.072)
Existing account-holder * WTP				0.000
				(0.000)
Observations	810	810	810	810
R-squared	0.07	0.07	0.08	0.08

Notes: Dependent variable equals 1 for respondents who opened Pafupi accounts and 0 otherwise. All specifications include village fixed effects. OLS regressions. Robust standard errors clustered at the village level. * p<0.10, ** p<0.05, *** p<0.001.

Table 7: Effect of induced account usage on take-up of Paufpi accounts (2SLS)

	(1) First stage	(2) IV	(3) First stage	(4) IV
Large windfall transfer (2012)	0.944**		1.513**	
	(0.283)		(0.610)	
Number of transactions (6 months)		0.181**		
		(0.068)		
Number of transactions (12 months)				0.113**
				(0.048)
Observations	594	594	594	594
R-squared	0.01		0.01	
F-statistic	11.14		6.16	

Notes: Columns (1) and (3) report first stage (OLS) regressions where the dependent variable is the total number of transactions in the customer's NBS account in the six (column 1) or 12 (column 3) months following the windfall transfer. See text for a discussion of how a counterfactual transfer date is constructed for the control group. Columns (2) and (4) report IV results, instrumenting for the number of transactions six (column 2) or 12 (column 4) months following the transfer with an indicator for receiving the transfer. The dependent variable equals 1 for respondents who opened Pafupi accounts and 0 otherwise. Robust standard errors clustered at the village level. * p<0.10, ** p<0.05, *** p<0.001.

Table 8: Effect of induced account usage on take-up of Paufpi accounts (LIML)

	(1)	(2)	(3)	(4)	(5)	(6)
Number of transactions (6 months)	0.181**	0.181**	0.195**			
	(0.081)	(0.081)	(0.087)			
Number of transactions (12 months)				0.113**	0.111**	0.125**
				(0.058)	(0.058)	(0.067)
Instruments:						
Large windfall transfer (2012)	X	X	X	X	X	X
Direct deposit (2012)			X			X
Observations	594	594	594	594	594	594
Village fixed effects		X	X		X	X
F-stat (first stage)	11.14	10.90	5.67	6.16	5.73	2.93
Anderson-Rubin	[0.076,	[0.073,	[0.065,	[0.044,	[0.042,	[-∞
confidence interval	0.664]	0.694]	1.948]	0.889]	0.940]	∞]

Notes: Dependent variable equals 1 for respondents who opened Pafupi accounts and 0 otherwise. LIML regressions. Robust standard errors clustered at the village level. Anderson-Rubin confidence intervals calculated from condivreg in Stata 14. * p<0.10, ** p<0.05, *** p<0.001.