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

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Abstract

When offered a choice between two savings accounts, prior account holders are significantly less likely to switch to a cheaper account, compared with new subjects without a prior account. While 49 percent of account holders retained their original, expensive accounts, none of the new subjects who opened an account chose the expensive one. This finding is consistent with the "endowment effect." Exploiting previous experimental variation in account usage among prior account holders, the paper finds that the endowment effect disappears among those with higher induced usage. This finding suggests that familiarity with the account can mitigate behavioral anomalies and improve financial decision-making.

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1 Introduction

In many markets, consumers of a given product incur costs of switching to another product (Klemperer, 1995). For example, subscribers to one cellular service who switch to another provider will typically pay activation fees, and users switching from one computer operating system to another will face learning costs.

In addition to these financial and effort costs that may lead to inaction (Burnham et al., 2003; Madrian and Shea, 2001), there are also switching costs that are psychological in nature. Individuals tend to value more items that they possess, compared to those that are not part of their *endowment*. The existence of this gap between the willingness-to-accept and the willingness-to-pay is known as the "endowment effect," and can be explained by loss aversion, that is, the idea that losses loom larger than equally-sized gains (Kahneman and Tversky, 1979). This empirical phenomenon has been documented both in the lab and in the field using goods ranging from mugs, chocolate bars and sports memorabilia to houses and stock market investments (Kahneman et al., 1990; Weber and Camerer, 1998; Genesove and Mayer, 2001; Anagol et al., Forthcoming; see Ericson and Fuster, 2014 for a review).

The endowment effect is important because it represents a rejection of the assumption that preferences are independent from endowments. In addition, this behavioral anomaly may be welfare reducing if individuals stick to sub-optimal consumption bundles (Samuelson and Zeckhauser, 1988). Studying trading rates of sports memorabilia in an actual marketplace, List (2003) observed an inefficiently low number of trades by novice traders. In contrast, the endowment effect disappeared among experienced traders. List (2004) used a similar sample of novice and experienced traders in the sports card market and found that when randomly presented with mugs and chocolate bars of equivalent value, novice traders exchanged their endowment far less often than experienced traders, indicating that previous market interaction and arbitrage opportunities might have taught experienced traders to treat the dispossession of a good as an opportunity cost rather than a loss. One problem with List (2003, 2004) is that market experience is endogenous and so it is unclear whether experienced traders are unique, or if on the contrary, novice traders can behave as those experienced if induced to gain experience in the market. List (2011) exogenously induces a random sample of subjects to gain experience by making trades in a sports card market and finds that the collectors who were induced to trade as part of the experiment are more likely to trade subsequently.

In this paper, we study the propensity of account holders to switch to a different, cheaper savings account once fees are introduced in their hitherto free account, compared to a sample of new subjects without a prior account who are presented with the same choice between the two accounts.

In 2012, households from 14 villages in southern Malawi were randomly chosen to be offered fully-subsidized savings accounts with a local bank. In 2016, we selected additional households from the 2012 household listing that had not been offered the account, creating a sample with random variation in whether or not households were endowed with a basic savings account.

In 2015, among the households that opened the subsidized account, some were randomly chosen to receive a MK 25,000 (USD 67) windfall payment (see Brune et al., 2017 for details). These transfers did not have persistent effects on savings or spending, but did increase the number of transactions at the bank branch. The random allocation of these transfers thus created variation in the experience that households had in using their accounts. In 2016, the subsidies for the basic accounts ended. Starting in May 2016, individuals with a basic account had to pay a monthly maintenance fee of MK 400. At the same time, the bank introduced a new account called Pafupi that had no monthly fee, but charged a withdrawal fee of MK 150. In addition, the Pafupi account required the purchase of an ATM card for MK 1,300.

In March and April 2016, 594 households that had opened the basic account in 2012 ("old" subjects) and the 216 households that had not been offered the account from the 2012 household listing ("new" subjects) were visited at home and asked to come to the bank branch to make a choice about their savings accounts. Old subjects could keep their basic account and start paying monthly fees, could close the account, or could transfer the balance to a Pafupi account with the purchase of an ATM card. New subjects could open a basic or Pafupi account, or could decline to open either account. It is important to note that while the Pafupi account was cheaper than the basic account given the past account usage of all "old" subjects, the choice of accounts was presented in a neutral way, without favoring one choice or account over another. During the home visits, enumerators varied randomly two elements of the decision. First, the payment for coming to the branch to encourage individuals to actively make a decision; and second, the timing of the visit to the branch, which was either immediate or with a two-week delay, to assess whether salience played a role in the decision. Additionally, some respondents received an unexpected payment upon visiting the branch, to test whether liquidity constraints prevented individuals from purchasing the ATM card required to open the Pafupi account.

This design replicates important features of laboratory experiments that study the endowment effect. First, the cost of trading in laboratory experiments is zero. In our setting, given the monetary costs of switching to the Pafupi account, such as time and travel costs to the branch, we carefully vary the payment to come to the branch to fully compensate some individuals for these transactions costs. Second, subjects in laboratory experiments are explicitly prompted about whether they would like to trade. In our setting, enumerators

present the different choices regarding the accounts and present individuals with the opportunity to make a decision. We introduce a delay in the timing of the visit to the branch to assess the possibility that costs associated with paying attention may trigger forgetfulness and individuals keeping the status quo, even in the absence of an endowment effect (Samuelson and Zeckhauser, 1988).

Our setting also has important advantages over laboratory experiments that may suffer from potential experimental confounds. Plott and Zeiler (2005, 2007) argue that when endowing subjects with an actual object, such as a mug, using visual or physical cues, subjects may view the object as a gift and be unwilling to trade it, thus leading to a spurious, demand-induced endowment effect. In our context, it is unlikely that old subjects viewed the basic accounts as a gift in 2016, because four years ago they only received technical assistance to open them. In addition, individuals have a longer time period to consider their potential decisions regarding the account, ranging from one day to four weeks. In contrast, subjects in laboratory experiments typically consider these choices for no more than a few minutes.

Consistent with the literature, we find strong evidence of an endowment effect. While 49 percent of previous account holders switched to the Pafupi account, all of the 56 percent of new clients who opened accounts chose the Pafupi account. More importantly, we exploit the design of an earlier field experiment where a random subsample of account owners were given a transfer that induced account usage and find that the endowment effect disappears: among these experienced account holders, 60 percent switched to the Pafupi account. Using the transfer as an instrument, we show that higher induced usage of the account leads to not only a higher rate of opening of Pafupi accounts, but also to higher trust in the bank and to better knowledge of the features of the basic account.

Of course, an alternative explanation for the results is that account holders who received the transfer switched to the Pafupi account as they believed that doing so increased the chances of receiving another transfer. There are two arguments against this interpretation. First, enumerators told individuals that the reason why subsidies were no longer paid was because the research project that had been paying for them was ending. It is thus unlikely that they were expecting future transfers. Second, the choice of accounts was presented in a neutral manner, so that the probability of a transfer should only depend on keeping an account open, regardless of whether it was a basic or a Pafupi account. While only 9 percent of old subjects closed the basic account, those who received the transfer are not less likely to close it compared to those who did not receive it (the p-value of test that probability of closing the account is the same in both groups is 0.990).

These results contribute to the literature on the endowment effect in the field (see, for example, Anagol et al., Forthcoming) and in particular, on the extent to which experience can attenuate it (List, 2003, 2004; Feng and Seasholes, 2005; Dhar and Zhu, 2006; Gächter

et al., 2009; Greenwood and Nagel, 2009; Seru et al., 2010; Engelmann and Hollard, 2010; List, 2011; Anagol et al., Forthcoming). Engelmann and Hollard (2010) designed a laboratory experiment to study how market experience helps overcome the lack of trading and make the interesting distinction between choice and trade uncertainty. Choice uncertainty refers to the trader's uncertainty about his or her preferences regarding the item being traded. But traders may also face uncertainty about the trading process itself, as individuals may overestimate the cost or risk associated with market transactions. Engelmann and Hollard (2010) find that subjects forced to trade in an initial stage of the experiment do not exhibit an endowment effect in the subsequent stage. In contrast, when trading during the initial stage is voluntary, an endowment effect appears later on. The authors conclude that in their experiment, the endowment effect is largely driven by trade uncertainty. In our context, however, account holders do not engage in trading but rather learn about the features of the account by transacting with it. Consistent with this hypothesis, at the time the decision about the accounts was made, account holders who had been induced to make more transactions were two-thirds more likely to correctly report the fees associated with the basic account without the subsidy. As a result, induced experience with the account reduced choice uncertainty.

Anagol et al. (Forthcoming) cleverly exploit a natural experiment in which Indian initial public offering (IPO) shares are allocated to investors using a lottery. They find that winners of the lottery are significantly more likely to hold the shares than lottery losers even 24 months after the lottery. This endowment effect is partially mitigated by how actively investors trade in the market, although market experience in their context is endogenous. Using a different financial product, namely a savings account, our results are therefore consistent with Anagol et al.'s (Forthcoming) study of IPO shares.

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 (see for example, Gross and Souleles, 2002; Choi et al., 2011; Duarte and Hastings, 2012; Hastings et al., 2012; Agarwal et al., 2013, 2015; Giné and Mazer, 2018 and Campbell et al., 2011; DellaVigna, 2009 for reviews). Some advocate financial literacy interventions, but they are often ineffective in changing financial decision-making (see Cole et al., 2011 and Miller et al., 2014; Hastings et al., 2013 for reviews). Our results suggest that financial inclusion, that is, the opening of bank accounts may be beneficial if it induces individuals to actively use them, 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

The experiment uses two samples of individuals drawn from a sampling framework created in 2012. The first sample was randomly selected to be offered a fully subsidized savings account, while the second were never offered the account. In what follows, we describe in detail the two samples and a field experiment conducted in 2015 that induced account usage among individuals who opened the account.

2.1 Old subjects

In July 2012, we randomly selected and interviewed 872 households from 14 villages surrounding the Mulanje market in southern Malawi.[1] All these villages are located within 6 kilometers of the local NBS branch.[2] These households were offered assistance with opening a basic savings account at NBS and received financial assistance to cover the required minimum balance of MK 500 (USD 1.34) and the MK 400 monthly maintenance fees. This minimum balance was enforced in the sense that the bank would deny any withdrawal that would bring the balance below MK 500. This means that the account balance was always higher than or equal to MK 500. Because the bank did not charge for transactions, the basic account offered in the study was free to customers.[3]

Of the 742 households that opened subsidized accounts, 600 were randomly chosen in April 2015 to participate in another field experiment designed to induce account usage. In particular, the experiment varied whether households received a large (MK 25,000, or about USD 67) transfer, and whether the transfer was made in cash or directly deposited into the subjects' accounts (see Brune et al., 2017). The transfer increased the number of transactions that participants made at NBS. Account holders who received transfers had the same number of bank transactions as those who did not receive the transfer in the month preceding the transfers. However, recipients of transfers made significantly more transactions with their accounts after they received the transfers. 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 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

[1] Malawi is a country in eastern Africa with relatively low levels of financial inclusion. According to the 2017 Global Findex database (Demirguç-Kunt et al., 2018) 34% of adults have bank accounts but only 9% have formal savings.

[2] The NBS Bank, formerly known as New Building Society, was established in 1964 and obtained the commercial banking license in 2004. It is one of the 10 commercial banks operating in Malawi with a network of 36 branches throughout the country.

[3] Similar to other basic savings accounts in Malawi, the account did not pay interest, and because throughout the study the inflation rate was above 20%, the real rate of return was negative.

the recurring monthly maintenance fees of the basic account while offering the possibility to either close the account or transfer the balance to a new type of account without maintenance fees called the "Pafupi" account. Of the 742 households that opened the subsidized accounts in 2012, we were able to contact and visit 594 households in 2016, and these households constitute the sample for this experiment. During the one-on-one home visits, the enumerator explained that after more than three years (since July 2012), the research project was closing and that the subsidies would end as of May 2016. The following three options were presented:

1. Households could keep their existing savings accounts. In this case, monthly maintenance fees of MK 400 would be deducted from the balance by NBS beginning in May 2016. If account balances fell below the minimum balance of MK 500, the accounts would be suspended by NBS. 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 current account holders at the time of the experiment.

2. Households could close their accounts and receive the full account balance, which at least included the minimum balance of MK 500 initially deposited by the research team, in cash. In this case, however, households would no longer have an NBS account. Accounts closed by the end of April 2016 would not accrue any monthly charges.

3. Households could transfer their balance to a Pafupi account without monthly fees but with a withdrawal fee of MK 150. To open a Pafupi account, customers would be required to purchase an ATM card for MK 1,300 (USD 3.50).

Enumerators presented this choice using a neutral frame, without favoring a particular choice over another. Figure 2 shows the features of the basic and Pafupi accounts, before and after May 2016. Because NBS required households to visit the branch to close the account or transfer the balance to a Pafupi account, the field team did not ask households about their decision during the home visit but rather asked them to come to the branch by the end of May 2016 to report their decision and to complete any necessary paperwork.

All households received the same information but we experimentally varied two conditions related to this decision. First, we addressed the status quo bias (Samuelson and Zeckhauser, 1988) by incentivizing individuals to visit the branch by offering households either 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 MK 500 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 chose to walk rather than pay for transport.

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 show-up bonus, 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 bonus, 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 (Bordalo et al., 2012). This potential inattentiveness to bank accounts is consistent with the large number of dormant accounts whose balances are entirely depleted by monthly fees (Karlan et al., 2014).

This cross-cutting randomization resulted in five treatment groups: a no-bonus 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), instead of the promised show-up bonus. This larger amount was enough to pay for the MK 1,300 ATM card fee required to open the Pafupi account and it relaxed a possible liquidity constraint. The offer, however, did not contain any implicit suggestion about how to use the money. In fact, the show-up bonus was paid in cash before participants were asked about their decision regarding the accounts. Similar to 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 have possibly affected the decision to come to the branch.

2.2 New subjects

The second sample used in the experimental design includes additional subjects who had not been offered subsidized accounts. Using the same household listing conducted for the July 2012 intervention, we randomly selected 216 households from those not offered subsidized accounts. In March and April 2016 these households were visited at home and given information about opening either a basic (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 a basic NBS savings account, which required a minimum balance

of MK 500 and a recurring monthly maintenance fee of MK 400. See Figure 2 for a description of the features of the basic and Pafupi accounts.

2. Households could open a Pafupi account. These accounts also required a MK 500 minimum balance 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 to open an account. This is the *default option* for new subjects who were not offered subsidized accounts in July 2012.

We note that by timing the home visits days before the visit to the branch, they constitute a teachable moment, as subjects received information about account fees when they needed it to make an informed decision. In addition, the default option for both new and old subjects is different, although their choice set is similar. For existing account holders (old subjects), the default was owning a basic account, while for the new subjects, the default was not opening an NBS account. Related, old subjects may have had more of an incentive to visit the branch as they could close the account and collect the 500MK minimum balance.

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

New subjects were also randomly assigned to one of the five treatment groups related to show-up bonuses and timing of the bank visit. Just as the old subjects did not have to close the account to receive the show-up bonus, new subjects did not have to open one. They only had to come to the branch during the indicated time 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 are reported in Figure 1.

3 Data

We use three sources of data. 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.

Table 1 compares existing new subjects in (column 1) to account holders in (column 2) using data from the March/April 2016 household survey in Panels A and B and reports administrative outcomes for account holders in Panel C. Column 3 reports the p-value of the t-test of equal means. As expected, Panel A reports some differences in the individual

[4]Survey data from 2012 and 2013 are also available for old subjects, but are not used because comparable data are missing for new subjects.

characteristics of these two samples. Account holders are more likely to be male and 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 for wealth are measured less precisely and are not significantly different across the two samples at conventional levels. Account holders own more land, though the difference is again not statistically significant. Besides significant differences in some characteristics, the sample of old subjects only includes individuals who agreed to open a subsidized account in 2012. The take-up rate of accounts was 85 percent. Panel B reports characteristics related to savings behavior. Account holders express a greater willingness to pay for an NBS account compared to new subjects. By design, account holders are also more likely to have an NBS account and, as a result, to have higher formal savings balances, although the difference with new subjects is not statistically significant. Experience with accounts seems to have tempered subjects' enthusiasm about usage as existing account holders anticipate fewer and smaller transactions than predicted by new subjects. Past and predicted usage is still too limited to make the basic account worthwhile. In fact, all subjects would pay lower fees with a Pafupi account if they planned to keep it for four months or more. According to their expected use in the three months after the baseline survey, new subjects would save MK 909 by switching to a Pafupi account, while existing account holders would save MK 1,067, even after taking into account the cost of the ATM card. Table 1 also reports the p-value of the F-test that all variables are jointly zero in a regression with "new subject" as dependent variable. In both panels A and B the p-value is 0.00, suggesting that the samples of new and old subjects are different, as expected.

Columns 4-7 of Table 1 compare the baseline characteristics of existing account holders who were assigned to the three different treatments in the transfer experiment: a control group (column 4), a transfer in cash (column 2), or a transfer directly deposited into the individual's account (column 3). We report the p-value of the joint test of equal means across all three categories in column 7. 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. The transfer treatment could have affected asset ownership but it does not appear to have done so. The p-value of the F-test that all characteristics in Panel A are jointly zero is 0.882 and confirms that the experimental groups in the transfer experiment are comparable. In Panel B, respondents who received transfers via direct deposit expressed greater willingness to pay for savings accounts (column 6), although the joint test is not statistically significant at conventional levels (p-value is 0.124). Households that received the transfer do not expect more withdrawals in the next three months compared to those who did not receive the transfer. The p-value of the F-test is 0.145. In Panel C, households that received the transfer made more transactions in the six months following the transfer.

Table 2 reports the balancing tests for the treatments designed for 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 bonus and timing of the bank visit were successful. Panel C includes measures for the sample of old subjects only such as trust in NBS and savings balances at the time of the home visit. The p-values of the F-test that all variables in each panel are jointly zero confirm that the five experimental groups are balanced on observable characteristics.

4 Empirical strategy and results

Because the various treatments were assigned randomly, the impact of the 2012, 2015 and 2016 treatments on the main outcomes of interest can be estimated via the following regression equation:

$$\begin{aligned} Y_{iv} &= \alpha + \beta_O \text{Old}_{iv} + \beta_T \text{T}_{iv} + \beta_{DD} \text{DD}_{iv} + \\ &\quad \beta_B \text{B}_{iv} + \beta_{HB} \text{HB}_{iv} + \beta_D \text{D}_{iv} + \beta_{AB} \text{AB}_{iv} + X_{iv}\prime\gamma + \epsilon_{iv}, \end{aligned} \tag{1}$$

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 transfer treatment in 2015; DD is a dummy if the transfer was directly deposited into the account; B is a dummy that takes value 1 if the individual was promised a show-up bonus (of either MK 500 or MK 1,000) for visiting the bank; HB is a dummy that takes value 1 if the individual was promised a show-up bonus of MK 1,000. D is a dummy that takes value 1 if the one-week window to visit the bank was delayed by three weeks and AB is a dummy that takes value 1 if the individual received the extra cash during the branch visit. The vector X_{iv} contains individual-level covariates measured during the 2016 survey to soak up variance and control for pre-existing differences and ϵ_{iv} is a mean-zero error term.[5] Since treatment assignment is done at the individual level, we report robust standard errors.

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

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

[5]The inclusion of village fixed effects, while soaking up additional variation does not affect the results significantly.

outcome is opening of a Pafupi account. The coefficient β_T on the transfer and $\beta_D D$ on whether the transfer was deposited directly into the account capture the attenuating effects of the transfer and whether it was directly deposited into the account. When the outcome is opening a Pafupi account, $\beta_O < 0$, a lower probability of switching to a cheaper Pafupi account, is evidence of an endowment effect. In addition, $\beta_T > 0$ indicates that induced account usage makes individuals treat the account as an opportunity cost rather than a loss, and therefore mitigates the endowment effect.

In some specifications we include the vector of covariates X_{iv} because, as discussed above, there are differences between new and old subjects that could affect the estimated treatment effects.

Table 3 analyzes the determinants of visiting the NBS branch during the required time window. Visiting the branch is a necessary condition for opening a Pafupi account for both samples. For old subjects it is also a proxy for attentiveness towards the decision about the basic account. In column 1, old subjects are 9 percentage points more likely to visit the bank branch from a base of 66 percent among new subjects. In column 2, we see that this result is driven by existing account holders who received the transfer in the 2015 experiment, and in particular for those who received the transfer via direct deposit. The p-value of the t-test that old subjects with the transfer in cash have the same probability of visiting the branch as new subjects is 0.10. The p-value of the t-test comparing account holders who received transfers via direct deposit to new subjects is 0.00. Note that Panel C of Table 2 shows that all prior account holders have roughly the same balance in the account, and therefore the same amount could potentially be depleted by monthly maintenance fees, regardless of whether they received the transfer in 2015. The balance of at least MK 500 could be collected by coming to the branch and closing the account.

Offering a show-up bonus of MK 500 for visiting the branch during the pre-specified one-week window increased the probability of visiting the branch by 26 percentage points.[6] The marginal effect of the higher show-up bonus of MK 1,000 relative to the MK 500 show-up bonus is statistically significant, but only one-third as large. This status quo bias is as prevalent in subjects that received the transfer in 2015 as those who did not. When we interact the show-up bonus dummy B with the transfer dummy T, the coefficient is negative and not statistically significant (results not shown).

We find no evidence of inattentiveness, as delaying the window to visit the branch by two weeks has no impact on the respondent's probability of visiting the branch. As expected, the extra cash offered at the branch also has no effect on the probability of visiting the branch. Despite the baseline differences between new and old subjects reported in Table 1,

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

the inclusion of baseline characteristics in column 3 does not affect the results.

Table 4 analyzes the decision to open a Pafupi account. Column 1 shows that basic account owners (old subjects) are 6.9 percentage points less likely to switch to a Pafupi account compared to new subjects. In columns 2-5, this difference is much larger when we control for the 2015 and 2016 experimental treatments. In column 2, existing account holders are 18.8 percentage points less likely to switch to the cheaper Pafupi account. This difference, however, is driven by the behavior of account holders who did *not* receive transfers. The transfer of 2015 offsets the endowment effect by increasing the probability of switching to a Pafupi account by 13.9 percentage points. Existing account holders who received transfers are equally likely to open a Pafupi account compared to new subjects (p-value is 0.31).[7,8] A high show-up bonus also increases the probability of opening a Pafupi account, but this effect operates through increasing the probability of visiting the bank rather than relaxing a binding liquidity constraint. The additional cash bonus at the branch does not affect the probability of opening a Pafupi account, even though the purchase of an ATM card is required.

The endowment effect displayed by existing account holders and the offsetting effect of the transfer in 2015 persist when baseline characteristics are included in the regression, as shown in column 3. Existing account holders who did not receive transfers in 2015 are nearly 14.7 percentage points less likely than new subjects to open Pafupi accounts. The difference compared to new subjects is only 0.7 points (p=0.90) for existing account holders who received transfers. Those who received the transfer via direct deposit are somewhat more likely (by 7.6 percentage points, p=0.23) than new customers to open Pafupi accounts. We conclude that the transfer eliminates the endowment effect.

Column 4 restricts the sample to subjects who visited the NBS branch. We note that visiting the branch is an endogenous decision, so this specification is included only as suggestive evidence. Existing account holders are 25.4 percentage points less likely to open Pafupi accounts than new subjects. In this specification, the endowment effect is only partially mitigated by the transfer. The intuition for why the endowment effect is still present is that in this selected sample, a significant number of individuals who visited the branch may have been more interested in collecting the show-up bonus than by the decision about the accounts.

Alternatively, in column 5 of Table 4 we present results from an IV specification, where the instruments for visiting the branch are indicators for the show-up bonus, high show-up bonus,

[7]Interestingly, new subjects who opened an NBS account on their own are as likely as those without a prior account to open a new Pafupi account. This suggests that new subjects do not exhibit an endowment effect. Perhaps their experience and use of the unsubsidized NBS accounts prior to the home visit led them to make the right choice regarding the Pafupi account. See Section 5 for a discussion of why the transfer mitigates the endowment effect.

[8]The effect of direct deposit of the 2015 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 0.68.

and delayed visit treatments. Accounting for endogeneity in the probability of visiting the branch, existing account holders are 16.8 percentage points less likely to switch to a Pafupi accounts, and the transfer offsets about half of the endowment effect, by increasing take-up by 10.5 percentage points.

Table 5 explores the relationship between anticipated use and subjective valuation of basic accounts, and take-up of the Pafupi account. Columns 1 and 2 consider the number of withdrawals that subjects anticipate to make in the three months following the survey.[9] We focus on anticipated use because it determines the relative benefits of the Pafupi account compared to the basic account. Since the Pafupi account charges a fee of MK 150 per withdrawal, customers who anticipate more withdrawals would be better-served by the basic 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 shown by the inclusion of the interaction term in column 2. Columns 3 and 4 use the measure of willingness to pay for a basic account elicited at baseline. In column 4, we see that individuals who opened the Pafupi account are willing to pay around 220 MK more for a basic NBS account. Table 1 reports that prior account holders have greater willingness to pay on average, column 5 suggests that those more likely to open a Pafupi account are the existing account holders with higher willingness to pay (the p-value that willingness to pay + Old subject x WTP = 0 is 0.003).

5 Mechanisms

The previous section documents a gap in the willingness to open a Pafupi account between old and new subjects, and shows that this gap is closed when old subjects are induced to use the account. This section establishes a causal relationship between account usage and tendency to adopt the Pafupi account. In this analysis we restrict the sample to old subjects because only they were included in the transfer experiment.

We use receipt of the transfer in 2015 as an instrument for account usage. The first stage is

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

The measure of transactions includes deposits and withdrawals made one week after the transfer was made, to avoid capturing any mechanical effect of directly deposited amounts into the account. We report estimates of the first stage in (2) for six and 12 months after

[9] This survey question was asked of both existing account holders and respondents without accounts. See Appendix Table A1 for details.

the transfers were made.[10] First stage results are reported in columns 1 and 5 of Table 6. The transfer significantly increased the number of transactions using basic accounts in both time periods; the effect is cumulative, and result is an average increase of 1.5 transactions 12 months after the transfer, or 47 percent relative to the 3.2 transactions in the control group. The effect of the transfer on the number of transactions, while monotonically increasing, becomes less precise estimated over time. The F-statistic for the first stage regression exceeds the rule-of-thumb threshold for the six month period (F-stat is 10.57) but not the 12 month period (F-stat is 7.42).

We run the following IV specification:

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

where Y_{iv} is a dummy that takes value 1 if individual i in village v switches to a Pafupi account, trusts the NBS branch or knows the maintenance fees of the basic account.

Our preferred specification in Table 6 considers cumulative transactions six months after the transfer (columns 2-4 of Table 6) as the endogenous variable, as the 12 month period (columns 6-8) may suffer from a weak instruments problem. 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. Column 3 shows that each additional transaction increases the probability that the individual trusts the branch by 5.6 percentage points. In column 4, each additional transaction increases the probability of correctly recalling the monthly maintenance fees of a basic account by 3.9 percentage points from a base of 6.4 percent in the control group. Columns 5-8 report the first stage and IV estimates for the effect of transactions in the 12 month period. The results are similar to those in columns 1-4 but somewhat weaker.

Table 7 addresses concerns about the possibility of bias due to weak instruments reporting results using Limited Information Maximum Likelihood estimation, which is thought to be more robust to the presence of weak instruments (Imbens and Wooldridge, 2007). The specification in even-numbered columns of Table 7 include the direct deposit treatment as an additional instrument. The LIML point estimates are nearly identical to those obtained with 2SLS, and except for Panel C, the Anderson-Rubin confidence intervals are bounded and exclude zero.

[10]For the 147 old subjects in the sample who did not receive the transfer, the date used to compute transactions was imputed as the average transfer date for subjects in their village who did receive the transfer.

5.1 Discussion

The results presented above are consistent with the endowment effect and the strong relationship between induced account use and the tendency to switch to the Pafupi account demonstrates that experience can overcome it. However, there may be alternative explanations for both the endowment effect and the disappearance of that effect among customers induced to use their accounts. For example, account holders who received the transfer may have switched to the Pafupi account out of belief that doing so would increase the chance of receiving another transfer. As mentioned before, we find this unlikely because enumerators explained to all subjects that the research project was ending and as a result, all account subsidies were being terminated. Alternatively, account holders who received the transfer may have switched to the Pafupi account because they expected to make *fewer* withdrawals and thus correctly identified the Pafupi account as being better suited to their needs. In fact, Panel B of Table 1 shows that account holders who received the transfer expected to make a similar number of withdrawals in the three months following the survey as those who did not receive the transfer; there was no difference in expected use correlated with receipt of the transfer. Moreover, using subjects' own expectations, the Pafupi account would be less expensive than the ordinary account for *all* subjects in the sample, if they maintained the account for at least six months after the end of subsidies. Thus, even if subjects had different expectations about future account use, expectations could not explain why old subjects who did not receive the transfer preferred the basic account to the Pafupi account.

Our results are also not consistent with the predictions of other theories that are compatible with the endowment effect. Beggan (1992) develops a theory that suggests that there is no special "loss" for giving up an endowed item. Instead, ownership creates an endowment effect by changing the perceived utility it generates. Similarly, Carmon et al. (2003) argue that close consideration of the features of an item can induce an attachment generated by psychological proximity or by how long or intensely one thinks about its features. The endowment effect arises because people dislike breaking attachments. According to these theories, high-use (experienced) account holders would be more attached to the account and have higher willingness to pay for it compared to low-use account holders. As a result, they would be less likely to switch accounts, which is the opposite of what we find. Bordalo et al. (2012) suggest that the endowment effect is based on salience. In their model, ownership of an item makes individuals focus on its attributes which then become salient in the owner's mind. This explanation is not consistent with the design or results of our study. First, we were careful to incentivize everyone to think about the financial decision so the product was salient for everyone. Second, we find no effect of delaying the visit to the branch by two weeks. Finally, inaction induced by the status quo bias (Samuelson and Zeckhauser, 1988)

cannot explain the results because we explicitly prompt for a decision about the accounts from all study participants.

6 Conclusion

According to standard economic theory, preferences are independent from endowments, and therefore, the decision to open a new type of savings account should not depend on whether the individual already holds a different, more expensive account.

The behavior of account holders in rural Malawi contradicts this prediction: while 42 percent of prior account holders fail to switch to a cheaper account, none of the individuals without a prior account chose to open the expensive account. This endowment effect disappears among prior account holders who were experimentally induced to use the account. Alternative explanations based on inertia, differences between the samples or the expectation of future transfers if they switch are unlikely to drive the results.

Policy makers tasked with enhancing financial inclusion can devote resources to financial literacy campaigns or to subsidize accounts, at least initially. Our results suggest that providing transfers directly into the accounts of beneficiaries may be beneficial as direct deposits induce account holders to transact, and the resulting familiarity with the account raises financial awareness and improves financial decision-making.

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Figures and Tables

Figure 1: Experimental design: 2016 treatment groups

No show-up bonus	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

Figure 2: Characteristics of Basic and Pafupi accounts

	Basic		Pafupi
	Before May 2016	After May 2016	After May 2016
Minimum balance	500 MK	500 MK	500 MK
Monthly Maintenance fee	0 MK	400 MK	0 MK
Withdrawal Fee	0 MK	0 MK	150 MK
ATM Card required	No	No	Yes

Table 1: Summary statistics: old vs. new respondents

	(1) New	(2) Old	(3) p-value	(4) Old-Control	(5) Old-Cash	(6) Old-DD	(7) p-value
Panel A: Individual characteristics							
Male	0.231	0.596	0.000	0.556	0.582	0.646	0.174
	(0.029)	(0.020)		(0.036)	(0.035)	(0.033)	
Age	42.6	46.0	0.011	45.6	46.8	45.5	0.685
	(1.2)	(0.7)		(1.2)	(1.1)	(1.1)	
Education	1.4	1.5	0.102	1.5	1.5	1.6	0.224
	(0.1)	(0.0)		(0.1)	(0.1)	(0.1)	
Household size	5.3	5.1	0.163	5.0	5.1	5.1	0.960
	(0.1)	(0.1)		(0.1)	(0.1)	(0.2)	
Housing quality score	-0.096	0.035	0.115	0.005	0.023	0.074	0.803
	(0.066)	(0.044)		(0.073)	(0.075)	(0.081)	
Value of assets (000s)	111.7	214.1	0.000	201.7	228.8	211.0	0.783
	(15.5)	(15.9)		(26.4)	(29.4)	(26.8)	
Value of animals (000s)	73.4	124.3	0.010	120.9	137.7	114.3	0.657
	(13.2)	(10.9)		(19.8)	(19.6)	(17.2)	
Acres owned	7.3	8.6	0.478	9.7	8.1	8.2	0.774
	(1.5)	(1.0)		(1.9)	(1.7)	(1.8)	
p-value of F-test that all variables are jointly zero	0.000			0.920	0.901	0.449	0.882
Panel B: Savings-related behavior							
Willingness to pay (MK)	3494.8	4397.2	0.000	4186.8	4322.0	4661.7	0.124
	(185.5)	(98.0)		(184.0)	(170.7)	(154.4)	
Owns an NBS account	0.247	1.000	0.000	1.000	1.000	1.000	1.000
	(0.029)	(0.000)		(0.000)	(0.000)	(0.000)	
Total value of formal savings	4302.3	5623.2	0.492	5059.9	8051.8	3764.7	0.221
	(1548.5)	(1043.8)		(1247.6)	(2757.6)	(721.3)	
Total value of informal savings	10992.1	13011.1	0.560	15390.5	12089.6	11750.2	0.690
	(2507.6)	(1876.3)		(3768.7)	(1996.0)	(3719.6)	
Expected withdrawals (next 3 months)	1.940	0.886	0.000	0.904	0.995	0.762	0.227
	(0.128)	(0.056)		(0.103)	(0.111)	(0.078)	
Savings of holding Pafupi relative to basic account	909.0	1067.2	0.000	1064.4	1050.7	1085.7	0.227
	(19.2)	(8.5)		(15.4)	(16.6)	(11.7)	
p-value of F-test that all variables are jointly zero	0.000			0.540	0.216	0.067	0.145
Panel C: Savings-related behavior, only old subjects							
Number of transactions (6 months)				1.0	1.9	2.0	0.022
				(0.20)	(0.36)	(0.24)	
p-value of F-test that all variables are jointly zero				0.006	0.322	0.092	0.005
Observations	216	594		187	201	206	

Notes: This table compares existing account holders to new subjects using data from the March/April 2016 household survey. Column 1 shows summary statistics for new subjects and Column shows the same statistics for existing account holders. Column 3 shows the p-value of the mean comparison of means in Columns 1 and 2. In Column 4 we present summary statistics of existing account holders in the control group, while Columns 5 and 6 show the numbers for existing account holders who received the windfall transfer in cash and direct deposit, respectively. In column 7, we show the p-values of a joint null test when regressing the relevant variable against dummies for each of the 3 groups of account holders (control, cash and direct deposit). Panel A has summary statistics for individual characteristics, while in Panel B we show means and SDs of variables that capture individual savings behavior. At the end of each panel, we show a p-value of joint orthogonality tests. In Columns 1 and 2, We regress a dummy for new clients against all the characteristics in each panel and report the p-value of a joint F-test that all coefficients are equal to zero. In Column 7, the last row corresponds to the p-value of a similar test for a multinomial logit aggregating all 3 groups of existing account holders. See Appendix Table A1 for definition of each variable.

Table 2: Balancing tests: 2016 treatments

	(1) Control	(2) One Week Low Bonus	(3) One Week High Bonus	(4) One Month Low Bonus	(5) One Month High Bonus	(6) p-value
Panel A: Individual characteristics						
Male	0.491	0.523	0.481	0.463	0.534	0.638
	(0.039)	(0.048)	(0.049)	(0.035)	(0.034)	
Age	44.7	45.6	44.6	44.5	45.8	0.931
	(1.3)	(1.6)	(1.6)	(1.2)	(1.1)	
Education	1.5	1.7	1.4	1.5	1.4	0.356
	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	
Household size	5.1	5.2	4.9	5.2	5.2	0.569
	(0.2)	(0.2)	(0.2)	(0.1)	(0.2)	
Housing quality score	-0.017	-0.030	-0.169	0.093	0.022	0.334
	(0.084)	(0.112)	(0.090)	(0.072)	(0.069)	
Value of assets (000s)	216.3	190.2	164.5	172.9	186.1	0.755
	(31.8)	(34.3)	(27.2)	(22.2)	(25.1)	
Value of animals (000s)	105.1	84.3	96.8	124.4	122.1	0.606
	(18.3)	(20.1)	(23.1)	(18.5)	(17.8)	
Acres owned	7.8	9.9	7.1	9.1	7.7	0.888
	(1.9)	(2.5)	(2.1)	(1.7)	(1.6)	
p-value of F-test that all variables are jointly zero	0.939	0.425	0.689	0.521	0.691	0.852
Panel B: Savings-related behavior						
Willingness to pay (MK)	4164.1	4276.4	3813.7	3931.8	4464.7	0.126
	(193.9)	(233.7)	(254.5)	(184.3)	(157.8)	
Total value of formal savings	4981.0	4498.2	1519.5	6256.0	6760.2	0.450
	(1522.5)	(1678.2)	(400.1)	(2521.9)	(1609.8)	
Total value of informal savings	14912.5	12126.6	19660.4	8993.9	10557.0	0.271
	(4036.8)	(3565.6)	(7626.9)	(1398.4)	(1931.2)	
Owns an NBS account	0.811	0.817	0.810	0.795	0.783	0.939
	(0.030)	(0.037)	(0.039)	(0.028)	(0.028)	
Self-report correct, regular fees	0.047	0.028	0.028	0.063	0.032	0.393
	(0.023)	(0.029)	(0.019)	(0.020)	(0.017)	
Expected withdrawals (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)	
Savings of holding Pafupi relative to basic account	1001.2	1054.1	1028.8	1026.6	1025.6	0.506
	(20.3)	(17.9)	(22.3)	(16.2)	(17.0)	
p-value of F-test that all variables are jointly zero	0.749	0.672	0.115	0.224	0.233	0.111
Panel C: Savings-related behavior, only old subjects						
Number of transactions (6 months)	2.0	1.4	1.7	1.7	1.5	0.813
	(0.37)	(0.39)	(0.70)	(0.28)	(0.22)	
Trust NBS	0.936	0.926	0.949	0.939	0.926	0.966
	(0.022)	(0.029)	(0.025)	(0.020)	(0.021)	
Current balance (NBS administrative data)	2135.2	2638.6	1225.0	4074.3	1935.3	0.409
	(463.4)	(1379.5)	(211.4)	(1636.4)	(436.6)	
Error in self-reported balance	-5033.7	-2536.8	-3665.8	-5703.3	-5105.2	0.893
	(1908.5)	(1899.9)	(1681.2)	(2704.5)	(1629.0)	
p-value of F-test that all variables are jointly zero	0.821	0.856	0.878	0.447	0.871	0.929
Observations	169	109	106	205	221	

Notes: This is a balance table that compares individual characteristics across experimental groups. Column 1 shows summary statistics for the control group and Columns 2-5 show the means and SDs for the 4 treatment arms. In column 7, we show the p-values of a joint null test when regressing the relevant variable against dummies for each of the 5 experimental groups. Panel A has summary statistics for individual characteristics, while in Panel B we show means and SDs of variables that capture individual savings behavior. In Column 7, the last row corresponds to the p-value of a similar test for a multinomial logit aggregating all 5 groups of existing account holders. See Appendix Table A1 for definition of each variable.

Table 3: Determinants of visiting the NBS branch

	(1)	(2)	(3)
	Visit to NBS branch (1=Yes)		
Old subject (2012 account holder) (*Old*)	0.090**	0.005	0.033
	(0.037)	(0.045)	(0.053)
Transfer (2015) (*T*)		0.067	0.064
		(0.043)	(0.044)
Direct deposit (2015)(*DD*)		0.116**	0.117**
		(0.039)	(0.039)
Show-up bonus (2016) (*B*)		0.265***	0.257***
		(0.052)	(0.053)
High show-up bonus (2016) (*HB*)		0.083**	0.094**
		(0.032)	(0.032)
Delayed visit (2016) (*D*)		-0.014	-0.021
		(0.034)	(0.035)
Additional bonus at branch (2016) (*AB*)		-0.018	-0.015
		(0.032)	(0.032)
Covariates	No	No	Yes
Observations	810	810	810
R-squared	0.01	0.11	0.13
Mean dep. var. control group	0.50	0.50	0.50
SD dep. var. control group	0.50	0.50	0.50
P-value of t-test: Old + T = 0		0.10	0.07
P-value of t-test: Old + T + DD = 0		0.00	0.00

Notes: In this table we show estimates of the following specification: $Y_{iv} = \alpha + \beta_O \text{Old}_{iv} + \beta_T \text{T}_{iv} + \beta_{DD} \text{DD}_{iv} + \beta_B \text{B}_{iv} + \beta_{HB} \text{HB}_{iv} + \beta_D \text{D}_{iv} + \beta_{AB} \text{AB}_{iv} + X_{iv}\prime\gamma + \epsilon_{iv}$, where 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 transfer treatment in 2012; DD is a dummy if the transfer was directly deposited into the account; B (HB) is a dummy that takes value 1 if the individual was promised a show-up bonus 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 AB 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. The variable ϵ_{iv} is a mean-zero error term. Dependent variable equals 1 for respondents who visited the NBS branch and 0 otherwise. 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. * p<0.10, ** p<0.05, *** p<0.01. Control group corresponds to new subjects offered no show-up bonus.

Table 4: Determinants of owning a Pafupi account

	(1)	(2)	(3)	(4)	(5)
	Opened Pafupi account (1=Yes)				
Old subject (2012 account holder) (*Old*)	-0.069*	-0.188***	-0.147**	-0.254***	-0.168***
	(0.040)	(0.049)	(0.057)	(0.064)	(0.043)
Transfer (2012) (T)		0.139**	0.140**	0.149**	0.105**
		(0.049)	(0.049)	(0.059)	(0.041)
Direct deposit (2015) (DD)		0.069	0.076	-0.017	0.005
		(0.049)	(0.049)	(0.052)	(0.043)
Show-up bonus (2016) (B)		0.085	0.076		
		(0.057)	(0.057)		
High show-up bonus (2016) (HB)		0.088**	0.110**		
		(0.039)	(0.039)		
Delayed visit (2016) (D)		0.042	0.016		
		(0.042)	(0.042)		
Additional bonus at branch (2016) (AB)		-0.035	-0.038	-0.051	-0.037
		(0.039)	(0.039)	(0.038)	(0.031)
Covariates	No	No	Yes	Yes	Yes
Observations	810	810	810	590	810
R-squared	0.00	0.05	0.08	0.09	0.41
Mean dep. var. control group	0.40	0.40	0.40	0.80	0.40
SD dep. var. control group	0.49	0.49	0.49	0.40	0.49
P-value of t-test: Old + T = 0		0.31	0.90	0.08	0.161
P-value of t-test: Old + T + DD = 0		0.68	0.23	0.03	0.256

Notes: In this table we show estimates of the following specification: $Y_{iv} = \alpha + \beta_O \text{Old}_{iv} + \beta_T \text{T}_{iv} + \beta_{DD} \text{DD}_{iv} + \beta_B \text{B}_{iv} + \beta_{HB} \text{HB}_{iv} + \beta_D \text{D}_{iv} + \beta_{AB} \text{AB}_{iv} + X_{iv}\prime\gamma + \epsilon_{iv}$, where 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 transfer treatment in 2012; DD is a dummy if the transfer was directly deposited into the account; B (HB) is a dummy that takes value 1 if the individual was promised a show-up bonus 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 AB 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. The variable ϵ_{iv} is a mean-zero error term.Dependent variable equals 1 for respondents who visited the NBS branch and 0 otherwise. Dependent variable equals 1 for respondents who opened Pafupi accounts and 0 otherwise. 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 1-4 are OLS regressions. In column 4, the sample is restricted to individuals who made a visit to the branch. Column 5 is a 2SLS regression, using 2016 treatments as instruments for visiting the bank branch. Robust standard errors. * p<0.10, ** p<0.05, *** p<0.01. Control group corresponds to new subjects offered no show-up bonus.

Table 5: Relationship between subjective valuation of NBS accounts and take-up of Pafupi accounts

	(1)	(2)	(3)	(4)
	Opened Pafupi account (1=Yes)			
Old subject (2012 account holder) (*Old*)	-0.153**	-0.127*	-0.157**	-0.198**
	(0.058)	(0.070)	(0.057)	(0.081)
Transfer (2012) (T)	0.141**	0.142**	0.137**	0.137**
	(0.049)	(0.049)	(0.049)	(0.049)
Direct deposit (2015) (DD)	0.074	0.073	0.070	0.069
	(0.049)	(0.049)	(0.049)	(0.049)
Show-up bonus (2016) (B)	0.074	0.073	0.076	0.078
	(0.058)	(0.058)	(0.057)	(0.057)
High show-up bonus (2016) (HB)	0.110**	0.111**	0.105**	0.105**
	(0.039)	(0.039)	(0.039)	(0.039)
Delayed visit (2016) (D)	0.017	0.016	0.013	0.013
	(0.042)	(0.042)	(0.042)	(0.042)
Additional bonus at branch (2016) (AB)	-0.038	-0.037	-0.029	-0.030
	(0.039)	(0.039)	(0.039)	(0.039)
Expected withdrawals (next 3 months)	-0.007	0.002		
	(0.012)	(0.018)		
Old subject * expected withdrawals		-0.016		
		(0.024)		
Willingness to pay (MK 1000s)			0.022**	0.015
			(0.007)	(0.013)
Old subject * WTP				0.011
				(0.015)
Covariates	Yes	Yes	Yes	Yes
Observations	810	810	810	810
R-squared	0.08	0.08	0.09	0.09
Mean dep. var. control group	0.40	0.40	0.40	0.40
SD dep. var. control group	0.49	0.49	0.49	0.49
P-value of t-test: Old + T = 0	0.84	0.84	0.72	0.45
P-value of t-test: Old + T + DD = 0	0.28	0.20	0.38	0.92

Notes: In this table we show estimates of the following specification: $Y_{iv} = \alpha + \beta_O \text{Old}_{iv} + \beta_T \text{T}_{iv} + \beta_{DD} \text{DD}_{iv} + \beta_B \text{B}_{iv} + \beta_{HB} \text{HB}_{iv} + \beta_D \text{D}_{iv} + \beta_{AB} \text{AB}_{iv} + X_{iv}\prime\gamma + \epsilon_{iv}$, where 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; B (HB) is a dummy that takes value 1 if the individual was promised a show-up bonus 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 AB 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. The variable ϵ_{iv} is a mean-zero error term. Dependent variable equals 1 for respondents who opened Pafupi accounts and 0 otherwise. In Column 1, we also include EW_{iv}, the number of withdrawals a individual expects to make in the following 3 months. In Column 2, we include EW_{iv} and its interaction with Old. In Column 3 we include individual willingness to pay for a NBS account in MK 1,000s (WTP). Finally, in Column 4 we include the WTP and the interaction between the WTP and Old subject. OLS regressions. Robust standard errors. * p<0.10, ** p<0.05, *** p<0.01. Control group corresponds to new subjects offered no show-up bonus. See Appendix Table A1 for definition of each variable.

Table 6: Effect of induced account usage on take-up of Pafupi accounts, trust and knowledge (2SLS)

	(1) First Stage	(2)	(3) IV	(4)	(5) First Stage	(6)	(7) IV	(8)
		Take-up	Trust	Knowledge		Take-up	Trust	Knowledge
Transfer (2015) (T)	0.944***				1.513**			
	(0.290)				(0.556)			
Number of transactions (6 months)		0.181**	0.056*	0.039*				
		(0.073)	(0.030)	(0.022)				
Number of transactions (12 months)						0.113**	0.035*	0.024*
						(0.051)	(0.020)	(0.014)
Observations	594	594	594	594	594	594	594	594
R-squared	0.01				0.01			
Mean dep. var. control group	2.01	0.34	0.94	0.06	3.18	0.34	0.94	0.06
SD dep. var. control group	4.18	0.48	0.25	0.25	6.85	0.48	0.25	0.25
F-statistic	10.57				7.42			

Notes: In this table we show IV estimates of the following specification: $Y_{iv} = \gamma + \omega \text{Number of transactions}_{iv} + \epsilon_{iv}$, where the number of transactions made by a existing account holder is instrumented with the large windfall transfer made in 2012. Columns (1) and (5) 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 5) months following the windfall transfer. See text for a discussion of how a counterfactual transfer date is constructed for the control group. Columns (2)-(4) and (6)-(8) report IV results, instrumenting for the number of transactions six (columns 2-4) or 12 (columns 6-8) months following the transfer with an indicator for receiving the transfer. In columns (2) and (6), the dependent variable equals 1 for respondents who opened Pafupi accounts and 0 otherwise. In columns (3) and (7), the dependent variable equals 1 for respondents who reported trusting NBS and 0 otherwise. In columns (4) and (8), the dependent variable equals 1 for respondents who correctly reported that regular fees are between MK 350 and MK 450 and 0 otherwise. Robust standard errors. * p<0.10, ** p<0.05, *** p<0.01. Control group corresponds to new subjects offered no show-up bonus. See Appendix Table A1 for definition of each variable.

Table 7: Effect of induced account usage on take-up of Pafupi accounts, trust in NBS and knowledge of regular fees (LIML)

	(1)	(2)	(3)	(4)
Panel A: Take-up				
Number of transactions (6 months)	0.181**	0.195**		
	(0.073)	(0.076)		
Number of transactions (12 months)			0.113**	0.126**
			(0.051)	(0.061)
Mean dep. var. control group	0.34	0.34	0.34	0.34
SD dep. var. control group	0.48	0.48	0.48	0.48
Anderson-Rubin	[0.076,	[0.068,	[0.044,	$[-\infty,$
confidence interval	0.664]	1.643]	0.889]	$\infty]$
Panel B: Trust				
Number of transactions (6 months)	0.056*	0.057*		
	(0.030)	(0.033)		
Number of transactions (12 months)			0.035*	0.037*
			(0.020)	(0.022)
Mean dep. var. control group	0.94	0.94	0.94	0.94
SD dep. var. control group	0.25	0.25	0.25	0.25
Anderson-Rubin	[0.010,	[0.002,	[0.006,	$[-\infty,$
confidence interval	0.210]	0.450]	0.267]	$\infty]$
Panel C: Knowledge				
Number of transactions (6 months)	0.039*	0.044		
	(0.022)	(0.029)		
Number of transactions (12 months)			0.024*	0.030
			(0.014)	(0.020)
Mean dep. var. control group	0.06	0.06	0.06	0.06
SD dep. var. control group	0.25	0.25	0.25	0.25
Anderson-Rubin	[-0.004,	[-0.007,	[-0.003,	$[-\infty,$
confidence interval	0.157]	0.297]	0.188]	$\infty]$
Observations	594	594	594	594
F-stat (first stage)	10.67	6.08	7.40	4.19

Notes: In this table we show LIML estimates of the following specification: $Y_{iv} = \gamma + \omega \text{Number of transactions}_{iv} + \epsilon_{iv}$, where the number of transactions made by a existing account holder in Columns 1 and 3 is instrumented with the large windfall transfer made in 2012, while in Columns 2 and 4 we also use the direct deposit as instrument. In Panel A, the dependent variable equals 1 for respondents who opened Pafupi accounts and 0 otherwise. In Panel B, the dependent variable equals 1 for respondents who reported trusting NBS and 0 otherwise. In Panel C, the dependent variable equals 1 for respondents who correctly reported that regular fees are between MK 350 and MK 450 per month, and 0 otherwise. 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<0.01. See Appendix Table A1 for definition of each variable.

Appendix Table A1: Description of variables

Variable	Description
Individual characteristics	
Male	Equal to 1 if respondent is male, 0 if female
Household size	Number of household members at baseline
Age	Age of respondent at baseline
Education	Years of schooling of respondent at baseline
Housing quality score	PCA score on house quality at baseline, based on answers to the following questions: (i) Do you own the house you currently live in?; (ii) How many rooms does your house / compound have?; (iii) Does your house have a working connection to electricity?; (iv) Does your house have running water in the house?
Asset value (MK 000s)	Total value of household assets at baseline (thousands of MK)
Animal value (MK 000s)	Total value of household animals at baseline (thousands of MK)
Acres owned	Total acres of land owned by household at baseline
Savings-related behavior	
Willingness to pay (MK 000s)	Willingness to pay (thousands of MK) for a basic NBS account based on individual answers to 6 hypothetical questions with two options, A and B. By choosing option A, the respondent prefers a fully subsidized NBS account for 6 months and the following amounts deposited to the account: MK 6,600, MK 4,950, MK 3,300, MK 1,650 and MK 825. By choosing option B, the respondent prefers receiving MK 6,600 in cash rather than having an NBS account.
Total value of informal savings	Total value of household informal savings (MK) at baseline
Total value of formal savings	Total value of household formal savings (MK) at baseline
Owns an NBS account	Equal to 1 if individual owns any NBS account at baseline, 0 otherwise
Trust NBS	Equal to 1 if individual trusts NBS branch he or she visits at baseline, 0 otherwise
Self-reported correct, regular fees	Equal to 1 if individual correctly reported at baseline that monthly fee for basic account ranges between MK 350 and MK 450, 0 otherwise. The correct answer is MK 400.
Expected withdrawals (in the next 3 months)	Number of withdrawals an individual is expected to make in the 3 months following the baseline interview. For individuals without an account, the questions was framed in a hypothetical way (e.g. if you had an account, how many transactions would you make…?)
Total amount in fees, based on expected use in the next 3 months	Total amount in fees based on expected use in the next 3 months after baseline interview if individual holds a Pafupi account (MK 150 per transaction)
Savings of holding Pafupi relative to basic account	Difference in total cost of transactions expected to be made in the 3 months following the baseline interview if individual holds a basic account (MK 150 per transaction) relative to a regular account (monthly maintenance fee of MK 400)
Current balance (NBS administrative data)	Account balance (MK) at baseline
Error in self-reported balance	Difference between self-reported account balance and actual account balance at baseline (MK)
Number of deposits to formal savings (previous month)	Number of deposits made to any formal savings account or instrument in the month prior to baseline interview
Number of transactions (6 months, administrative data)	Total number of transactions made by an individual in the 6 months following the windfall transfer (starting one week after the transfer)
Number of transactions (12 months, administrative data)	Total number of transactions made by an individual in the 12 months following the windfall transfer (starting one week after the transfer)