

# The Cost of Convenience? Transaction Costs, Bargaining Power, and Savings Account Use in Kenya\*

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## Abstract

Individuals across the world use high-transaction-cost savings devices, even when lower-cost technologies are available. High costs may help savers protect resources from the demands of others. I investigate this hypothesis by randomly assigning ATM cards to 1,100 newly-opened bank accounts in rural Kenya. These cards reduced withdrawal fees by 50 percent. While the cards increased overall account use, the positive treatment effect is entirely driven by joint and male-owned accounts. I find evidence that these differences are driven by intrahousehold issues: household bargaining power is a key mediator of the ATM treatment effect.

*Keywords:* saving; intra-household bargaining; transaction costs

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# 1 Introduction

In spite of notable progress towards financial inclusion, two billion people worldwide remain unbanked (Demirgüç-Kunt et al. 2015). This does not reflect an inability or unwillingness to save; low-income households in developing countries use numerous informal and semi-formal savings devices despite the often-high costs involved (Collins et al. 2009). Thus, most efforts to increase formal financial access have focused on reducing transaction costs, e.g. via “no frills” accounts, agency banking, or mobile money. Yet lowering transaction costs may not always help, especially for certain vulnerable groups. For example, when individuals face inter-personal constraints to saving, accounts that are costly to access could help preserve savings in the face of transfer requests from spouses, extended family, or others (Anderson and Baland 2002; Schaner 2015; Baland et al. 2007; Jakiela and Ozier 2016). In such a context, lowering fees and increasing liquidity could theoretically reduce the use of formal accounts, but we have limited evidence on how important this is in practice.

I conducted a field experiment in rural Kenya to test whether intrahousehold constraints hamper demand for reduced-cost savings products. In the experiment, a subset of 1,114 newly-opened bank accounts owned by 749 married couples were randomly selected to receive ATM cards free of charge. Without the ATM cards, the bank accounts featured an over-the-counter withdrawal fee of \$0.78, which was substantial in the experimental context. The ATM cards reduced this fee by 50 percent and also let card holders make withdrawals outside of bank hours.<sup>1</sup> Traditional savings models predict that the ATM treatment should increase formal account use. However, if individuals face inter-personal pressure to share savings, this need not be true. If pressure to share comes from spouses, these concerns could be especially pressing for low-bargaining-power individuals.

Consider the following example: suppose a husband and a wife disagree about how to spend their income. The wife knows that if she saves her money at home, her husband (who is the primary financial decision-maker) will simply take her savings and purchase goods that she does not want. Instead, she deposits her savings into a secure, individual bank account. When the husband asks for a transfer, she can refuse him, since traveling to the bank is costly and a withdrawal incurs a fee. Suppose that she receives an ATM card for her account and, as in the experiment, her husband knows this – refusing her husband’s requests may become more difficult, since the withdrawal cost is now lower and her husband could even use her card to make the transaction himself. This could make saving at the bank less attractive to her.

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<sup>1</sup>While ATM cards were available to account-holders in the control group, these individuals had to pay a \$3.75 fee to get one. Given this, the intervention increased ATM card takeup by 86 percentage points.

In practice, the ATM treatment increased overall account use, especially on the intensive margin – ATM cards increased the total number of transactions by over 60 percent in both the short and long run. But, decomposing treatment effects by account type reveals important heterogeneity: the ATM treatment had large impacts on joint and male-owned accounts, but had no impact on female-owned accounts. This is consistent with the idea that intra-household pressures drove some women to stop using their accounts when an ATM card was made available.

In order to test this hypothesis more directly, I proxy the relative bargaining power of husbands and wives using within-couple differences in baseline age, education, literacy, and income. The assumption is that this proxy is positively correlated with within-couple differences in outside options, which in turn determine bargaining power in the marriage (Browning et al. 2011). I find that both men and women with below-median bargaining power use their new bank accounts less when an ATM card is provided for free, while both men and women with above-median power use accounts more. The negative treatment effect for low-bargaining-power individuals suggests that the ATM card was actually a disamenity for this group. These findings are robust to allowing for heterogeneous treatment effects with respect to individual age, education, literacy, and income, thereby identifying the bargaining power effect solely with within-couple differences. Results are also robust to allowing for heterogeneity with respect to time inconsistency, as well as other demographic characteristics. Hence, I find no evidence that the results are driven by self control problems, rather than inter-personal savings constraints.

It is not possible to completely rule out the possibility that the results are driven by some unobservable factor correlated with the bargaining power proxy. However, the experimental design affords a novel specification check: all study accounts were randomly assigned a temporary interest rate ranging from 0 to 20 percent. Like the ATM treatment, higher interest rates significantly increased account use. Unlike the ATM treatment, the interest rates had no impact on transaction costs or account security. The bargaining power hypothesis therefore implies that heterogeneous effects with respect to account use should only be present for the ATM treatment. In practice, this is what I find.

There are two other potential caveats to the results. First, I rely on a rough (though commonly used) proxy of household decision making power. During the endline survey, I conducted an experimental decision-making game to help validate several proxies of bargaining power available at baseline. My preferred proxy based on spousal demographic differences robustly predicts financial choices at endline. It does not predict experimental choices conditional on gender, but to the extent that the demographic proxy provides a noisy measure of bargaining power, this should simply attenuate the results. Second, the results are estimated

off a sample that expressed *ex-ante* demand for a high-cost savings product; and the experiment was specifically designed so that husbands and wives directly observed one another's ATM treatment status. While this setting is well-suited for studying intrahousehold issues, it also means that the results may overstate the importance of intrahousehold constraints in more general populations. Additional research is needed to understand how individuals may respond in less stylized settings.

My results contribute to a growing literature on how individuals utilize formal financial services. Most research has focused on either measuring the effect of giving individuals access to services (e.g. Dupas and Robinson 2013; Prina 2015; Kast and Pomeranz 2014) or on the effect of accounts (or account enhancements) meant to address *intra*-personal savings constraints like time inconsistent preferences.<sup>2</sup> I build on this by studying the implications of *inter*-personal constraints, with a focus on how they drive demand for costly savings devices. My results underscore earlier work by Anderson and Baland (2002), who find that proxied household bargaining power predicts use of rotating savings and credit associations (ROSCAs) and Schaner (2015), who finds that married couples with greater heterogeneity in savings preferences are more likely to use inefficient savings devices. Finally, most papers that study reducing bank transaction costs focus on incentives for or assistance with account opening (Cole et al. 2011; Dupas and Robinson 2013; Dupas et al. 2012). Instead, I estimate the effect of reducing transaction costs on already-available formal accounts.<sup>3</sup>

Overall, the results suggest that technologies meant to reduce the cost of formal financial services may have a perverse effect when individuals are subject to outside demands on their money. This has important implications for the design of savings products, especially since women (who are usually at a bargaining power disadvantage) are over-represented among the unbanked. The question is how to provide the right level of security and illiquidity without burdening the consumer with transaction costs. Additional research and product development that explicitly focuses on women's unique needs may be especially important for meeting this challenge.

The remainder of the paper is structured as follows: Section 2 describes the experimental design and the data, Section 3 presents the main results, Section 4 explores the roots of the heterogeneity that I observe, and Section 5 concludes.

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<sup>2</sup>For work on time inconsistency and commitment accounts see Ashraf et al. (2006b) and Brune et al. (2016). For time inconsistency and peer monitoring see Kast et al. (2013). For limited attention and reminders see Karlan et al. (2013).

<sup>3</sup>The cost reduction that I study is related to Ashraf et al. (2006a), who find that reducing deposit costs through the use of door-to-door deposit collectors increases savings balances in the Philippines. My experiment differs from this work in that the ATM treatment affected the cost of making *withdrawals* rather than deposits, which has different implications for savings accessibility and security.

## 2 Experimental Design and Data

### 2.1 Experimental Design

**Experimental Context** The experiment was conducted between July and September 2009 in Busia and Teso South districts, in communities surrounding the commercial trading center of Busia. Busia is well-served by the formal banking sector, hosting over six banks at the time of field activities. The financial partner for this study is Family Bank of Kenya. In 2009 the bank had over 600,000 customers, 50 branches, Ksh 13 billion (or \$167 million at an exchange rate of Ksh 80 per \$1) in assets, and actively targeted low- and middle-income individuals as clients. All study participants were offered a new, low-cost bank account called the *Mwananchi* (“citizen” in Swahili) Account. At the time of the experiment, traditional Kenyan bank accounts featured large minimum balances (e.g. Ksh 1,000 or \$12.50) and often charged monthly maintenance fees. In contrast, the *Mwananchi* Account had a minimum operating balance of just Ksh 100 (\$1.25) and had no fees apart from a withdrawal fee of Ksh 62 (\$0.78) over-the-counter and Ksh 30 (\$0.38) with an ATM card. Like most other current accounts, the *Mwananchi* Account did not pay any interest. The fee for an ATM card was Ksh 300 (\$3.75), which was costly for households in my sample – less than 10 percent of account-holders chose to pay this fee on their own.

The only Family Bank ATM in Busia was located outside the bank branch and did not accept deposits. Hence, the primary benefit of the ATM card was the reduction in withdrawal fees, followed by the convenience of being able to make withdrawals outside of bank hours. Although social norms in this area strongly reinforce the notion that the male is the head of the household, women are economically active and often travel unsupervised – indeed, female market vendors in Busia are often found selling their wares at night by firelight. Hence, both genders should have been able to take advantage of the “convenience” aspect of ATM cards.

**Sample Selection** Appendix Figure A1 illustrates the timeline of experimental activities. At the study outset, I identified communities surrounding 19 primary schools, which were located within 8 miles of Family Bank’s Busia branch. Trained field officers recruited married couples in these communities. With local guides, enumerators visited the homes of all co-resident married couples. These couples were asked if they currently had a Family Bank account, and if not, whether they would be interested in a *Mwananchi* Account. All co-resident couples who (a) had no pre-existing Family Bank accounts, (b) expressed interest in opening at least one account, and (c) had their national ID cards were issued an invitation

to an account opening camp the following day.<sup>4</sup>

**Phase 1 Randomization: Interest Rates** When couples arrived at the account opening session, they were registered and then participated in three independent drawings for temporary six-month interest rates: one for a joint account, one for an individual account for the husband, and one for an individual account for the wife. Joint accounts could earn 4, 12, or 20 percent interest with equal probability while individual accounts could earn 0, 4, 12, or 20 percent interest. Interest was paid on the first six months' average daily balance and accounts earned no interest thereafter. Participants were aware of the temporary nature of these interest rates from the start. Following the interest rate draws, the couples were separated for a baseline survey and were then reunited to decide which accounts they wished to open. Couples could open anywhere from zero to all three accounts. To maximize takeup, each new account was pre-funded with the Ksh 100 minimum operating balance. This could not be withdrawn by participants – it simply made opening an account costless.

**Phase 2 Randomization: ATM Cards** All told 749 couples opened 1,114 ATM-eligible accounts, with all couples opening at least one account.<sup>5</sup> Once the account opening paperwork was complete, subjects participated in another set of lotteries for free ATM cards. Here, an independent drawing was conducted for each newly-opened account.<sup>6</sup> The free ATM selection probability was 0.15 for the first 6 experimental sessions (193 accounts) and 0.25 for the remaining 27 sessions (921 accounts). Couples sat together for both the interest rate and ATM card draws, and were therefore able to observe one another's offers.

Since the majority of respondents lacked prior experience with bank accounts, enumerators explained how the accounts and ATM cards worked, as well as the fees associated with them. When an opened account was randomly chosen to receive a free ATM card, respondents were informed that the Ksh 300 card fee would be paid on their behalf, and that they could retrieve their card at the bank branch. Due to technical constraints on the part of the bank, only one ATM card was issued for joint accounts. In this case, the couple had to decide how to allocate the card between them.<sup>7</sup>

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<sup>4</sup>National ID cards are required to open a bank account. Most Kenyans have national ID cards, which are also required to register to vote, formally marry, and purchase or sell land.

<sup>5</sup>Another 30 couples opened a “both to sign” joint account. This required that both couples sign off on any withdrawal at the bank, and was therefore ineligible for an ATM card. These couples are not included in my analysis of ATM treatment effects, but are included in my analysis of interest rates.

<sup>6</sup>A subset of individual accounts was also randomly selected to be eligible for an information sharing intervention, described in Schaner (2015). I do not discuss this intervention further here, as it has no impact on the results.

<sup>7</sup>Given gender norms in this part of Kenya it is likely that men retained primary control of cards for joint and male-owned accounts, but I do not have data to verify this.

ATM cards could impact observed account use through both a direct effect (conditional on opening an account, providing a free ATM card may change patterns of account use) and a composition effect (the pool of open accounts may change). The rationale for randomizing ATM cards conditional on account opening was to isolate the direct effect. This is especially useful for studying drivers of demand for high-cost savings devices, since I begin with a sample of individuals who chose to open a high-cost account and then observe how they respond to a cost reduction.<sup>8</sup>

## 2.2 Data

I use three primary data sources in this analysis: (1) data from baseline surveys conducted during the account opening sessions, (2) administrative data from the bank, and (3) data from a follow-up survey conducted three years after the baseline. Spouses were interviewed separately at both baseline and endline.

The baseline collected basic demographic information, as well as information on household decision-making, income, savings practices, and individual discount rates and time inconsistency. The discount rate elicitation procedure warrants special mention here: as detailed in Appendix B, the baseline survey asked individuals to choose between different amounts of money at different times in order to elicit time preferences. To incentivize the questions, each respondent was given a one in five chance of winning one of his or her choices. The majority (78 percent) of respondents winning a “cash prize” chose to have it deposited into a newly-opened bank account.<sup>9</sup> As a result, cash prize selection impacted rates of account use – I therefore explicitly control for this throughout the analysis.

The endline included the same basic questions as the baseline, and more detailed modules focused on income, savings, and household decision making. The endline also incorporated an experimental module designed to measure intrahousehold bargaining power. The survey targeted all individuals who participated in the original study, as well as any new spouses of the original participants. The enumerators tracked 91 percent of the sample and interviewed at least one original spouse in 97 percent of the couples.

The administrative data from the bank include a three-year history of all transactions posted to each experimental account. I use this information to construct all measures of experimental account use. Note that the joint account transactions data do not specify who

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<sup>8</sup>A rough back-of-the-envelope calculation, detailed in Appendix A, suggests that my experimental sample is meaningfully large relative to the banked population in the study area. I estimate that at least 11 percent of married couples in the experimental catchment area opened accounts under this project. Given rates of pre-existing bank account ownership, this suggests the experiment increased rates of married couples’ formal account ownership by 38 percent or more.

<sup>9</sup>The remaining 22 percent of cash prize winners chose to pick up their winnings at the IPA field office.

performed the transaction – as a result, I do not know whether joint account transactions were conducted by husbands or wives.

## 2.3 Sample Characteristics and Randomization Verification

Table 1 presents individual-level summary statistics. Husbands average eight years of schooling, while their wives average just under six years. While most men are literate (85 percent), one third of women cannot read and write. On average, men reported earning Ksh 1,662 (about \$21) in the past week, while women reported Ksh 814 (\$10). Median reported weekly incomes are substantially lower, at Ksh 700 and Ksh 300 for husbands and wives respectively.

Ninety-eight percent of respondents reported using at least one savings device at baseline, with saving at home and saving with rotating savings and credit associations (ROSCAs) most common. Formal savings devices were less popular. Most participants did not have a bank account at baseline, and women were disproportionately unbanked. Eight percent of men and one percent of women used savings and credit co-operatives (SACCOs), which tend to be organized around higher paying professions like teaching and commercial farming.

Although gender norms in this part of Kenya position the husband as the primary decision-maker and head of household, both men and women were most likely to report that the wife did most of the household’s saving. This social norm regarding saving can be found in many developing countries (Bruce 1989). However, this does not imply that women are the primary *decision-makers* regarding how much to save – just 8 percent of men and 19 percent of women state that the wife makes most decisions about how to spend money.<sup>10</sup> Finally, about half of respondents gave time-inconsistent responses to the baseline discount factor elicitation questions, with patient now-impatient later responses somewhat more common than quasi-hyperbolic reversals. This finding has been observed in other areas of Kenya (Dupas and Robinson 2013; Dupas and Robinson 2014), Malawi (Brune et al. 2016), India (Shapiro 2010), and Mali (Dean and Sautmann 2014).

Appendix Table A1 confirms that the randomization worked well. P-values from a joint test of a relationship between the treatments and the demographic characteristics listed in Table 1 range from 0.23 to 0.94. I do note that cash prize selection is significantly (and negatively) correlated with the ATM card treatment for women’s accounts. Since the cash prize increased account use, I explicitly control for cash prize selection in the analysis.

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<sup>10</sup>The endline survey also asked about decision-making regarding how much to save. Just 13 percent of men and 18 percent of women state that the wife is the primary decision-maker, while 35 percent of men and 31 percent of women state that the husband is primary.



## 3 Overall Impacts of ATM Cards

### 3.1 Overview of Account Opening and Use

Table 2 shows that participating couples opened 1,114 ATM-eligible accounts, 486 of which were joint accounts and 628 of which were individual accounts. The most common choices were to open a single joint account (55 percent of couples) or two individual ones (30 percent of couples). All couples opened at least one account. Thus, one thing to keep in mind when interpreting treatment effects is that those couples who opened joint accounts are different from those who opened individual accounts, while those couples who opened men’s accounts are nearly the same as those who opened women’s accounts.<sup>11</sup>

Before moving on to the analysis, Table 3 summarizes account use for the free ATM control group. Column 1 shows that just 22 percent of accounts were “active” in the short term, meaning that they received at least one deposit (not including a cash prize deposit) within the first six months. I focus on the first six months as a measure of short-run activity because (a) this was the period during which most accounts could also earn promotional interest and (b) the bank classified an account as “dormant” after six months of inactivity.<sup>12</sup> In the long run many accounts were abandoned – only 7 percent of accounts were used in their third year. While some of this is exit from the formal banking sector, account abandonment may also reflect the fact that Kenyan financial services changed rapidly during this period, with growth in low-cost formal bank accounts, agency banking, and mobile money (FSD Kenya 2009; FSD Kenya 2013). Indeed, even though the vast majority of experimental accounts were abandoned, 68 percent of respondents reported that they owned a bank account at endline.

In terms of the intensive margin, accounts that were active within the first six months saw an average of 3 deposits (valued at Ksh 5,921 or \$74) in the first six months, with another 5 deposits valued at Ksh 25,726 in the next 2.5 years.<sup>13</sup> Withdrawals occurred at slightly lower, but similar rates – as a result, the average active account had a closing balance of Ksh 1,345 after six months and Ksh 1,197 after three years.

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<sup>11</sup>Appendix Table A2 shows that couples who opened a joint account live further away from the bank and have men with relatively more proxied bargaining power. Couples who opened individual accounts are better educated, less likely to be subsistence farmers, more likely to have been banked at baseline, have men with relatively less bargaining power, and live closer to the bank.

<sup>12</sup>Dormant accounts could be reactivated at no cost.

<sup>13</sup>All account use variables denominated in Kenyan shillings, as well as the number of deposits and withdrawals, are top-coded at the 99th percentile among open accounts.

### 3.2 Do ATM Cards Impact Overall Account Use?

Transaction costs could contribute to the relatively low rate of account use – I now ask whether reducing these costs through ATM cards increased account use.

For ease of exposition, the analysis focuses on two summary measures of account use: the total number of transactions and a standardized index of account use, which aggregates an indicator for account activity, the total number of deposits, the total number of withdrawals, the value of deposits, and the value of withdrawals. Here I follow Kling et al. (2007): first each index component is standardized relative to the reference group (open accounts that are neither eligible for a free ATM nor a cash prize). Then, I take the average of the components to form the index. I follow Table 3 and separately study outcomes measured in the first six months following account opening versus measures of use over the next 2.5 years. I also create one “overall summary” index, which averages the short and long-run account use indices.

Figure 1 gives a graphical overview of the impact of ATM cards. Each panel shows the CDF of the overall summary index of account use by account type and treatment group. For both joint and husband’s accounts (Panels A and B), the CDF for the treatment group is everywhere below that of the control, suggesting that the ATM card treatment increased account use. In contrast, Panel C shows that the treatment had little-to-no impact on women’s accounts.<sup>14</sup>

Table 4 tests for significance of these differences by estimating the impact of ATM cards on the number of bank transactions and the standardized use index.<sup>15</sup> All regressions are of the following form:

$$y_{ac} = \beta_0 + \text{freetm}'_{ac}\gamma + \text{acct}'_{ac}\lambda + \text{cash}'_{ac}\eta + z'_{ac}\delta + \varepsilon_{ac} \quad (1)$$

where  $y_{ac}$  is the outcome of interest for account  $a$  owned by couple  $c$ ,  $\text{freetm}_{ac}$  is a vector of treatment dummies,  $\text{acct}_{ac}$  includes account type dummy variables,  $\text{cash}_{ac}$  includes dummies for husband and wife cash prize receipt, as well as their interactions with the account type dummies, and  $z_{ac}$  includes interest rate dummies and a dummy variable for the first six experimental sessions (since ATM selection probability was lower then). All regressions are limited to open ATM-eligible accounts, since ATM cards were randomly allocated conditional on account opening.

The first column of Table 4 reports the impact of the treatment on whether or not an

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<sup>14</sup>To account for the fact that cash prize receipt is negatively correlated with the ATM treatment for women’s accounts, observations in Figure 1 are weighted so the share of cash-prize eligible accounts is balanced among the free ATM and no ATM groups.

<sup>15</sup>Appendix Table A3 shows treatment effects for index components.

account had an active ATM card. Over 90 percent of account-holders chose not to purchase a card on their own. Consequently, the treatment greatly increased ATM card ownership. I focus on the reduced-form impact of the ATM card treatment for the remainder of the analysis.

The first specification (Panel A) estimates a single pooled treatment effect for all three types of accounts. Overall, the ATM treatment led to 0.53 more transactions in the first six months (a 62 percent increase over the control group) and 2.1 more transactions over the next 2.5 years (a 68 percent increase). The standardized index shows a 0.16 and a 0.19 standard deviation increase in account use in the short and long run respectively. Appendix Table A3 shows that while the share of accounts that were active in the short run did not meaningfully increase, the treatment increased both the number and value of deposits and withdrawals. Point estimates for the amount withdrawn are very similar to those for the amount deposited. Thus the primary impact of the ATM card was not to generate new bank savings, but rather to change how frequently individuals accessed and updated these savings. These changes could reflect both welfare gains (e.g. if people were better able to time purchases and smooth consumption) and welfare losses (e.g. if people made more withdrawals than they would have liked due to self-control problems or transfer requests from others).

The next specification (Panel B) estimates the impact of the ATM treatment separately by account type. Here I interact the “free ATM” dummy with dummy variables for men’s and women’s individual accounts (hence the free ATM main effect reports the impact of ATM cards for joint accounts). Point estimates for joint and men’s accounts are positive, with estimated impacts for male accounts (insignificantly) larger in the short run and impacts for joint accounts (insignificantly) larger in the long run. In contrast, estimated impacts on accounts owned by women are negative and close to zero. To maximize power, Panel C asks whether the treatment effect for women’s accounts differs from the pooled effect for joint and men’s accounts. I reject the null of no difference at the 5 percent level for the number of transactions and the 5-10 percent level for the standardized indices. Furthermore, the estimated impacts on joint/men’s account use are always statistically significant. For example, ATM cards nearly doubled the number of deposits in both the short and the long run. Appendix Table A4 shows that the impact of the ATM cards on open accounts is remarkably similar to the impact of the 20 percent interest rate on all potential accounts.

Although the ATM cards had meaningful effects on bank account use, Appendix Table A5 finds more muted evidence that the ATM treatments impacted broader financial and economic outcomes at endline. Although I do not find any significant impacts on overall assets, debt, or income (which is unsurprising, given that these measures are very noisy), I

find some evidence that the ATM treatment reduced demand for informal savings devices (namely ROSCAs).

Overall, the results in Table 4 present a puzzle: why do women’s accounts respond to the ATM treatment differently than joint and men’s accounts? It is not the case that individual accounts simply don’t appeal to women – Table 3 shows that all three types of accounts are utilized at relatively similar rates in the control group. Another possibility is selection driven by account opening. This also seems unlikely – 86 percent of couples who opened an account for the husband also opened an account for the wife and 89 percent of couples who opened an account for the wife also opened an account for the husband. This suggests that at least some of the differences could be driven by individual characteristics, such as household bargaining power, that differ systematically between husbands and wives. The next section explores this idea.

## 4 Exploring Mechanisms

### 4.1 Bargaining Power and Account Use

Given that women in my study area tend to have less bargaining power than men, the gender difference in account use could be driven by intrahousehold concerns. To study this issue, I conjecture that the ATM treatment was especially unattractive to individuals with low bargaining power.<sup>16</sup> If this conjecture is correct, accounts owned by individuals with greater bargaining power should respond more positively to the ATM treatment. If intrahousehold concerns were especially pressing, the ATM treatment could even have a *negative* impact on individuals with low levels of bargaining power.

To test this hypothesis, I use intrahousehold differences in demographic characteristics to proxy household bargaining power. I follow the literature in assuming that demographic and economic characteristics that improve an individual’s utility outside the marriage (or in a non-cooperative equilibrium within the marriage) translate into greater household bargaining power.<sup>17</sup> I assume that having higher income, having more years of education, being more literate, and being older than a spouse correlate with greater relative bargaining power.<sup>18</sup>

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<sup>16</sup>The relative attractiveness of ATM cards need not monotonically increase with bargaining power. Women with very low bargaining power could simply forfeit control of accounts to their husbands regardless of the ATM card (for example, see Anderson and Baland (2002)). Since there is no evidence of a nonlinear relationship in my data, I focus on the distinction between high and low bargaining power to streamline the empirical work.

<sup>17</sup>Examples include Manser and Brown (1980), McElroy and Horney (1981), Lundberg and Pollak (1993), Thomas (1994), Lundberg et al. (1997), Browning and Chiappori (1998), Anderson and Baland (2002), Angrist (2002), Chiappori et al. (2002), and Lafortune (2013).

<sup>18</sup>The reasoning for the first three is clear. It is less clear that being older than a spouse should increase

I standardize each of these four variables and then proxy individual  $i$ 's relative bargaining power by the average difference between  $i$ 's values for these variables and  $i$ 's spouse's ( $-i$ ) values for these variables:

$$power_{ic} = \frac{1}{4} \sum_{x \in X} (x_{ic} - x_{-ic})$$

This proxy is missing for 13 percent of my sample (101 couples). Fifty-one of these couples had a missing response for at least one of the components in  $power_{ic}$ . The proxy is set to missing for the other couples because they may not have been married at baseline.<sup>19</sup> Appendix Table A6 shows that the treatments are uncorrelated with endline attrition, and that all treatments except “free ATM, wife’s account” are unrelated to whether a couple was confirmed to be married. In the analysis, I recode missing bargaining power values to zero and add a “missing bargaining power” dummy to all regressions. The results are robust to dropping all couples with missing bargaining power from the analysis.

Figure 2 plots the histogram of  $power_{ic}$ , or the “demographic proxy”, among the 678 confirmed couples for whom  $power_{ic}$  is non-missing. Husbands have more proxied bargaining power than wives – just 17 percent of women have greater proxied power than their husbands and the median difference between wives and husbands is -0.34 standard deviation units.

Is the demographic proxy the best available measure of baseline bargaining power? The baseline survey also directly asked individuals about who in the household made decisions about how to spend money and who did most of the saving in the household. It is not *ex-ante* obvious which proxy should be preferred – so in order to shed light on the suitability of the different baseline proxies, the endline survey included an experimental module in which couples made choices about how to divide a cash endowment both individually and jointly.

Comparing choices made in private to those made jointly allows me to separately identify bargaining power from altruism under the admittedly restrictive assumption that individuals have log utility over cash winnings in the game. Another limitation is that the experimental proxy is only identified for 443 of the 559 still-married, still-cohabiting couples who also participated in the bargaining power game.<sup>20</sup> Even so, it is instructive to correlate the

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bargaining power (for example, younger spouses may have a greater chance of meeting another high quality match if they reenter the marriage market). However, younger wives could have difficulty challenging the authority of their older husbands (Jensen and Thornton 2003). Moreover, in the 2012 Kenya Demographic and Health Survey the spousal age gap is significantly negatively correlated (-0.20) with age at first marriage, another commonly-used proxy of bargaining power.

<sup>19</sup>The survey team verified the marital status of 752 of the 779 couples who participated in the baseline sessions and found that 47 (6 percent) of these couples were not “true” couples, in that they were not married or cohabiting at the time of experimental activities. I recode  $power_{ic}$  to missing for all “unconfirmed” (not tracked at endline *or* tracked but not actually married/cohabiting at baseline) couples.

<sup>20</sup>Bargaining power is not identified when both private allocations and the joint allocation coincide. Appendix C provides additional detail on how the experimental proxy was constructed.

experimental proxy with the baseline bargaining power proxies. In general, the demographic proxy appears to be a much better predictor of the experimental proxy than self-reported decision-making power (Table 5). There are multiple reasons for why this could be the case. For example, self-reported decision-making power could conflate actual bargaining power with intra-household alignment of preferences. Self reports are also more likely to be influenced by social desirability bias, which could be important in a context like Kenya where gender norms are strong.

That said, I caveat that the correlation between the experimental and demographic proxy is not robust to conditioning on gender (see Table 5, column 5 versus 6). This means that the demographic proxy captures the fact that men have higher experimental proxies than women, but the demographic proxy does not strongly correlate with the experimental proxy when limiting attention to a given gender. This is not ideal, especially for identifying high versus low bargaining power individuals within gender. Even so, Table 5 still suggests that the demographic proxy is the best available baseline proxy and measurement error in the bargaining power proxy should work to attenuate my results. I therefore use the demographic proxy as my primary indicator of bargaining power.

## 4.2 Empirical Evidence

Testing the bargaining power hypothesis amounts to estimating heterogeneous treatment effects with respect to the demographic proxy. To do this, I limit the sample to opened individual accounts and run the following regression:

$$y_{ic} = \beta_0 + \beta_1 \text{freeatm}_{ic} + \beta_2 \text{adv}_{ic} + \beta_3 (\text{freeatm} \times \text{adv})_{ic} + \text{het}'_{ic} \lambda + (\text{freeatm} \times \text{het})'_{ic} \delta + z'_{ic} \gamma + \varepsilon_{ic} \quad (2)$$

where  $y_{ic}$  is a measure of account use,  $\text{freeatm}_{ic}$  is the free ATM dummy for the individual account owned by spouse  $i$ , and  $\text{adv}_{ic}$  is a dummy variable equal to one if spouse  $i$  is “relatively advantaged”/has above-median bargaining power for their gender. I use an above/below median split to ensure that I have variation in bargaining power for both genders, since 83 percent of men are “absolutely advantaged”, in that the value of their bargaining power index is greater than zero.<sup>21</sup> I also allow treatment effects to vary with respect to other demographic characteristics of account holder  $i$ .<sup>22</sup> These variables are in the vector  $\text{het}_{ic}$ ,

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<sup>21</sup>Moreover, it is not obvious that a proxy value of zero should correspond to a household welfare weight of 0.5 given conditions on the Kenyan marriage market.

<sup>22</sup>When a covariate has missing values, I recode the missing values to zero and include separate missing dummies (and associated interaction terms, when relevant) in all regressions.

and  $z_{ic}$  is a vector including controls for own and spousal cash prize selection, a dummy for the first 6 experimental sessions, and interest rate dummy variables.

Table 6 presents the results when all accounts are pooled (Panel A) and for men’s and women’s accounts separately (Panels B and C). Here I focus on the standardized measure of account use that includes both short and long run measures of account activity. The first column of Table 6 focuses exclusively on bargaining power. Here the vector  $het_{ac}$  only includes a dummy variable to identify female-owned accounts (Panel A), a “missing bargaining power” dummy, and a dummy for unconfirmed couples. This way, the coefficient on the relatively advantaged interaction is only identified using the behavior of confirmed couples.

The coefficient on the ATM main effect is negative – in other words, individuals with less proxied bargaining power use their accounts less when given an ATM card. The interaction between the ATM main effect and the “relatively advantaged” indicator is positive and significant both overall and for men. Moreover, the coefficient on the interaction term is always larger in magnitude than the coefficient on the main effect, which implies that individuals with more bargaining power value the ATM cards (I can reject that the net impact for relatively advantaged individuals is equal to zero at the 10 percent level both overall and for men). Importantly, the bargaining power proxy is not simply standing in for the overall match quality of a couple – in fact, if one spouse in a couple is classified as “advantaged”, the other spouse is classified as “disadvantaged”. Put another way, the results in Table 6 suggest that there is important within-couple heterogeneity in which spouse responded to the ATM treatment. Finally, note that the coefficient on the “advantaged” dummy is always negative and usually statistically significant. This suggests that low-bargaining-power individuals have excess demand for high-cost savings devices.

A key concern with the results in column 1 is that the heterogeneous treatment effect is not driven by bargaining power, but rather by some other characteristic correlated with bargaining power. To address this, I add age, income, literacy, and education to  $het_{ic}$  in column 2. This way, heterogeneity with respect to bargaining power is identified by within-couple differences in demographics. In order to keep the interpretation of the ATM main effect consistent, these newly-added controls are demeaned (separately by account type) *before* being interacted with the ATM dummy.<sup>23</sup> This way the ATM main effect can always be interpreted as the treatment effect for accounts owned by an individual with below-median bargaining power and average values of all other variables in  $het_{ic}$ . The results are robust to including these additional heterogeneous treatment effects.

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<sup>23</sup>I follow the same convention for all other covariates included in  $het_{ac}$ , except for the female account dummy, which is demeaned unconditional on account type.

The third column of Table 6 adds all remaining available demographic characteristics detailed in Table 1 to  $het_{ic}$ , except savings-related variables and self-reported decision-making variables. The additions include the respondent’s number of children, a polygamous dummy, occupation dummies, distance from the bank, and dummies for patient-now and impatient-later time preferences (which could be important if self-control problems are driving the findings). Again, my results are robust to these additions.

Finally, it is possible that some of the main ATM treatment effects are driven by substitution from pre-existing formal accounts to the new experimental accounts. Since men had higher rates of formal account ownership at baseline, this could lead to differential gender effects. To address this concern, column 4 adds bank account, SACCO account, ROSCA, and home savings dummies, as well as total cash savings at baseline to  $het_{ic}$ . The bargaining power results are robust to including these controls, although it is not obvious that they should be included, since baseline account use could be an outcome of relative bargaining power. For this reason, I use the control set in column 3 as my preferred specification. These results suggest that ATM cards targeted to individuals with below-median bargaining power significantly *decreased* bank account use by 0.30 standard deviations units. In contrast, ATM cards that went to individuals with above-median bargaining power *increased* account use by 0.20 standard deviation units.

### 4.3 Robustness and Alternative Mechanisms

Although Table 6 focuses on standardized account use, Appendix Table A7 shows that these heterogeneous treatment effects are statistically significant for all measures of account use included in the standardized index, as well as a version of the use index that does not topcode deposits and withdrawals. It is also important to ask how robust my results are to considering different measures of bargaining power. Appendix Table A8 presents additional results using (1) other transformations of the demographic proxy, (2) a demographic proxy that includes individual baseline savings, (3) a principal components aggregate of the variables included in the demographic proxy, and (4) self-reported consumption and savings decision-making. Estimates of the ATM×bargaining power interaction effect are almost always positive and statistically significant for women. In contrast, the results for men are not very robust. This may be due in part to the fact that men are usually at an absolute advantage in terms of bargaining power; thus it may be difficult to reliably identify the small number of men with low bargaining power across specifications.

Bargaining power is not the only mechanism that could generate the observed effects in Table 6. When thinking about alternatives, the negative ATM effect for relatively disad-



vantaged individuals is particularly useful for winnowing down competing theories. Many mechanisms could rationalize a null effect of ATM cards, but it is more difficult to explain why the ATM card would be viewed as a *disamenity* for some group. One possibility would be if ATM cards made it difficult to guard money against people in participants' social networks more broadly.<sup>24</sup> Recall that the ATM card randomization was conducted when the couples were sitting together, so card receipt was observable to spouses, but not to others. Thus, individuals facing pressure from non-spouses could have thrown the ATM card away or kept it secret. In contrast, it may have been difficult for an individual to simply dispose of the card if it was of interest to his or her spouse.

Another possibility is that the effects are actually driven by self-control problems. I argue that this is unlikely for two reasons. First, allowing for heterogeneous treatment effects with respect to patient now-impatient later and impatient now-patient later preference reversals has no impact on my results (Table 6, column 3). One concern here is that the time inconsistency measures are imperfect proxies of self control problems. This is particularly true since I used a front-end-delay method to elicit time preferences. Thus individuals never had to contend with the possibility of receiving cash immediately, which may be a more relevant measure of time inconsistency. However, I find that individuals married to hyperbolic discounters are significantly less likely to agree with their spouse about how much to save at endline. These individuals also report less agreement about how much to spend on temptation goods for the spouse. This suggests that my baseline proxy has some ability to identify present biased individuals. Second, bargaining power is not correlated with present bias in my sample. More broadly, other work has found no evidence that women are substantially more likely to be present biased than men.<sup>25</sup>

A third important driver of heterogeneity could be financial literacy – if some respondents did not understand the benefits of the ATM card, then they would have no reason to change their behavior. It is difficult, however, to explain why less financially literate people would use a bank account *less* when offered an ATM card. Moreover, the bargaining power results are very robust to allowing for heterogeneous treatment effects with respect to education, literacy, occupation, and savings device use, which are likely correlated with financial literacy (Atkinson and Messy 2012). Given this, it is unlikely that financial literacy explains the results in Table 6.

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<sup>24</sup>Indeed, Jakiela and Ozier (2016) find that Kenyan individuals are willing to sacrifice returns from economic experiments to hide winnings from kin, and that this concern is especially pressing for women.

<sup>25</sup>For example, Giné et al. (2011) and Balakrishnan et al. (2015) find no significant relationship between present bias and gender in Malawi and Kenya respectively. Dupas and Robinson (2013) report that men are slightly more likely to be present biased (the opposite of what would be needed to rationalize my results), but significance tests are not available.

The experimental design also allows me to test another implication of the bargaining power hypothesis: heterogeneity should be apparent for innovations that change account liquidity (like ATM cards), but not necessarily for other innovations that alter the relative attractiveness of accounts. I test this prediction by exploiting the fact that individual accounts were treated with both ATM cards and interest rates. While both treatments increased account use (see Table 4 for ATM cards and Appendix Table A4 for interest rates), the interest rates did not change the security or liquidity of an account. If the bargaining proxy is simply identifying individuals who are very sensitive to improved account terms, I should therefore observe similar heterogeneous treatment effects for both interest rates and ATM cards. If I do not observe heterogeneous responses with the interest rate, this supports the bargaining power story.

Table 7 repeats the analysis in Table 6 for interest rates.<sup>26</sup> For ease of interpretation, I study a dummy variable for “high interest”, set equal to one when an account was randomly selected to receive 12 or 20 percent interest. Table 7 shows that higher interest rates on both husbands’ and wives’ accounts increased account use, but that this treatment effect does not vary with the bargaining power proxy. These results suggest that the bargaining power proxy is not simply identifying individuals who are highly elastic to changes in bank account terms.

## 5 Conclusion

Recent empirical evidence finds that access to formal financial services helps low-income individuals climb the economic ladder (Aportela 1999; Burgess and Pande 2005; Kaboski and Townsend 2005; Ashraf et al. 2006b; Bruhn and Love 2009; Dupas and Robinson 2013). Yet many individuals who have *de jure* access to formal banking services choose not to use them. In this paper, I show that an innovation as simple as an ATM card, which makes an account cheaper to use, can boost use of pre-existing formal bank accounts. However, my results underscore that financial innovation cannot come in a one-size-fits-all package. While ATM cards positively impacted accounts owned either jointly or by men, the cards had no effect on use of accounts owned by women. I present evidence that this difference is not just a black-box gender effect, but is rather driven by different intrahousehold pressures faced by

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<sup>26</sup>Since interest rates were randomized unconditional on account opening, I include all potential individual accounts in the regressions. Since accounts earning higher interest were more likely to be opened, higher interest rates are correlated with ATM card provision. To address this all regressions control for “ex-ante” ATM treatment status and a full set of associated heterogeneous treatment effects that parallel those with respect to the high interest dummy. Ex-ante ATM treatment status is equal to actual ATM treatment status for opened accounts and is randomly set to 1 or 0 according to the ATM selection probability for unopened accounts.

men and women.

The fact that ATM cards actually reduced formal account use for low bargaining power individuals is striking, and suggests that intrahousehold concerns can mediate how people save in large and meaningful ways. This insight has important implications for the design of savings products, since technologies meant to make accounts easier to access and cheaper to use could have unintended effects on groups like low bargaining power women. Developing products that offer both convenience and high levels of safety and security could be one promising way of meeting the needs of low-income savers facing intrahousehold concerns. More broadly, a range of different, potentially customizable products will likely be needed to address the varied needs of savers across the world.

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**Table 1. Baseline Characteristics of ATM-Eligible Account Holders**

	(1)	(2)	(3)	(4)
	Husbands	Wives	Difference	N
Age	44.0 [14.1]	36.9 [12.1]	7.09*** (0.283)	1498
Education	7.89 [3.70]	5.82 [3.99]	2.06*** (0.143)	1491
Literate	0.845 [0.362]	0.660 [0.474]	0.186*** (0.019)	1498
Number Children	5.83 [4.12]	4.59 [2.47]	1.24*** (0.120)	1495
Polygamous	0.230 [0.421]	0.230 [0.421]	0.000*** (0)	1488
Subsistence Farmer	0.408 [0.492]	0.404 [0.491]	0.003 (0.021)	1493
Entrepreneur	0.386 [0.487]	0.462 [0.499]	-0.076*** (0.024)	1493
Income Last Week	1662 [5474]	814 [1780]	848*** (209)	1453
Has Bank Account	0.318 [0.466]	0.120 [0.325]	0.198*** (0.019)	1498
Has SACCO Account	0.0681 [0.252]	0.0121 [0.109]	0.056*** (0.010)	1494
Participates in ROSCA	0.486 [0.500]	0.665 [0.472]	-0.179*** (0.023)	1498
Saves at Home	0.845 [0.362]	0.896 [0.306]	-0.051*** (0.018)	1496
Cash Savings (Bank+SACCO+Home)	7612 [22960]	1936 [13159]	5676*** (950)	1404
Husband Does Most Savings	0.368 [0.483]	0.276 [0.447]	0.092*** (0.023)	1490
Wife Does Most Savings	0.430 [0.495]	0.486 [0.500]	-0.056*** (0.024)	1490
Both Spouses Save	0.258 [0.592]	0.335 [0.680]	-0.077*** (0.031)	1490
Husband Decides How Money is Spent	0.492 [0.500]	0.372 [0.484]	0.120*** (0.024)	1491
Wife Decides How Money is Spent	0.0818 [0.274]	0.188 [0.391]	-0.106*** (0.017)	1491
Both Spouses Decide How Money is Spent	0.375 [0.485]	0.397 [0.490]	-0.022 (0.024)	1491
Impatient Now-Patient Later	0.211 [0.408]	0.224 [0.417]	-0.012 (0.021)	1477
Patient Now-Impatient Later	0.272 [0.445]	0.314 [0.465]	-0.042* (0.023)	1477
Distance from Bank (Miles)	3.82 [2.15]	3.82 [2.15]	-- --	1498

Notes: Standard deviations in brackets, standard errors clustered at the couple level in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.



**Table 2. Account Opening Choices**

	(1)	(2)
	Share of	N
	Couples	
Joint Account Only (ATM Ineligible)	0.039	30
Joint Account Only (ATM Eligible)	0.507	395
Two Individual Accounts	0.302	235
All Three Accounts	0.050	39
Husband's and Joint	0.042	33
Wife's and Joint	0.035	27
Husband's Account Only	0.015	12
Wife's Account Only	0.010	8
Total	1	779

**Table 3. Account Use Summary Statistics (ATM Control Group Only)**

	(1)	(2)	(3)	(4)
	Account Type			
	All	Joint	Individual - Husband	Individual - Wife
<i>Extensive Margin: All Open Control Group Accounts</i>				
Active - First 6 Months	0.222	0.265	0.192	0.186
	[0.416]	[0.442]	[0.395]	[0.390]
Active - Year 3	0.073	0.068	0.082	0.070
	[0.260]	[0.252]	[0.275]	[0.256]
N (Open Accounts)	878	381	255	242
<i>Intensive Margin: All Control Group Accounts Active in First 6 Months</i>				
<i>Short-Run (First Six Months)</i>				
Number Deposits	2.98	3.00	3.10	2.82
	[2.41]	[2.33]	[2.66]	[2.34]
Number Withdrawals	1.49	1.26	2.06	1.38
	[2.31]	[2.09]	[2.87]	[2.06]
Total Amount Deposited	5921	5399	6810	6126
	[10238]	[9735]	[10838]	[10821]
Total Amount Withdrawn	3897	3436	5433	3262
	[8534]	[8037]	[9891]	[8004]
Closing Balance - Six Months	1345	1371	1022	1638
	[2102]	[2025]	[1554]	[2707]
<i>Long-Run (Next 2.5 Years)</i>				
Number Deposits	5.16	4.11	7.37	5.13
	[8.07]	[6.37]	[10.2]	[8.59]
Number Withdrawals	5.13	4.01	8.18	4.31
	[9.77]	[7.51]	[13.7]	[8.60]
Total Amount Deposited	25726	21430	41545	18141
	[67204]	[63591]	[85218]	[49197]
Total Amount Withdrawn	25822	20676	42349	19377
	[68818]	[63333]	[89332]	[51495]
Closing Balance - Three Years	1197	1244	1058	1242
	[2411]	[2508]	[2214]	[2441]
N (Active in First 6 Months)	195	101	49	45

Note: Sample limited to open, ATM-eligible accounts not selected for a free ATM card. All variables except account activity dummies are top-coded at the 99th percentile. Standard deviations are in brackets. An account is coded as "active" if the account holder made any (non cash prize) deposit during the specified period.

**Table 4. Impact of Free ATM Cards on Account Use**

	(1)	(2)	(3)	(4)	(5)	(6)
	Has ATM	First 6 Months		Next 2.5 Years		Overall
	Card	Trans- actions	Use Index	Trans- actions	Use Index	Use Index
<i>Panel A. Pooled Impact of ATM Cards</i>						
Free ATM	0.860*** (0.013)	0.526** (0.266)	0.158* (0.084)	2.09** (0.970)	0.187** (0.087)	0.172** (0.075)
<i>Panel B. Impact of ATM Cards by Account Type</i>						
Free ATM × Joint	0.842*** (0.020)	0.705 (0.451)	0.227 (0.145)	3.94*** (1.65)	0.331** (0.146)	0.279** (0.125)
Free ATM × Husband	-0.005 (0.032)	0.260 (0.737)	0.028 (0.221)	-2.46 (2.70)	-0.191 (0.242)	-0.082 (0.204)
Free ATM × Wife	0.067*** (0.027)	-0.899* (0.521)	-0.274 (0.174)	-4.22** (1.87)	-0.328** (0.167)	-0.301** (0.149)
P-value: Husband's ATM=0	0.000***	0.099*	0.128	0.481	0.458	0.215
P-value: Wife's ATM=0	0.000***	0.455	0.620	0.768	0.971	0.793
P-value: Husband's=Wife's	0.021**	0.076*	0.119	0.449	0.518	0.229
<i>Panel C. Is Impact of ATM Cards for Wives Different?</i>						
Free ATM	0.840*** (0.016)	0.805** (0.357)	0.237** (0.110)	3.00*** (1.29)	0.258** (0.114)	0.248*** (0.098)
Free ATM×Wife	0.069*** (0.024)	-0.999** (0.449)	-0.285* (0.147)	-3.28** (1.58)	-0.255* (0.143)	-0.270** (0.129)
DV Mean (No ATM, No Cash)	0.094	0.842	0.000	3.06	0.000	0.000
N	1114	1114	1114	1114	1114	1114

Notes: Robust standard errors clustered at the couple level are in parentheses. All regressions include dummy variables for the first 6 experimental sessions, cash prize receipt for each spouse, account type dummies, and cash prize×account type interactions, as well as interest rate dummies. The number of transactions variables are topcoded at the 99th percentile. The use index averages standardized values of an account activity dummy, the number of deposits, the number of withdrawals, the value of deposits, and the value of withdrawals. All variables except the activity dummies are top-coded at the 99th percentile. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Table 5. Correlation Between the Endline Experimental Proxy of Bargaining Power and Baseline Proxies of Bargaining Power**

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.272*** (0.075)					-0.208*** (0.081)
Demographic Proxy		0.155*** (0.059)			0.139*** (0.058)	0.045 (0.070)
Spending - I Mostly Decide			0.060 (0.057)		0.052 (0.059)	0.002 (0.056)
Saving - I Mostly Save				-0.182*** (0.068)	-0.177*** (0.070)	-0.148** (0.067)
R <sup>2</sup>	0.030	0.017	0.003	0.015	0.031	0.040
DV Mean (Men)	0.636	0.636	0.636	0.636	0.636	0.636
N	866	866	866	866	866	866

Notes: The dependent variable is always the endline experimental proxy of bargaining power. See Appendix C for details on how the experimental proxy is constructed. The sample is limited to individuals in intact couples who participated in the experimental allocation game, and for whom the experimental game produced an identified estimate of bargaining power. Regressions are run at the individual level with robust standard errors clustered at the couple level in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Table 6. Impact of ATM Cards on Standardized Account Use by Household Bargaining Power**

	(1)	(2)	(3)	(4)
<i>Panel A. All Individual Accounts</i>				
Free ATM	-0.184** (0.083)	-0.274*** (0.100)	-0.290*** (0.108)	-0.374*** (0.126)
Free ATM×Advantaged	0.488*** (0.177)	0.526*** (0.155)	0.489*** (0.173)	0.500*** (0.183)
Advantaged	-0.111 (0.078)	-0.216*** (0.081)	-0.221*** (0.082)	-0.221*** (0.085)
P-value: ATM+ATM×Advantaged=0	0.061*	0.034**	0.099*	0.314
DV Mean (No ATM, Not Advantaged)	0.083	0.083	0.083	0.083
N	628	628	628	628
<i>Panel B. Men's Accounts</i>				
Free ATM	-0.287*** (0.108)	-0.292* (0.150)	-0.350* (0.183)	-0.468** (0.219)
Free ATM×Advantaged	0.805*** (0.328)	0.558** (0.284)	0.606** (0.296)	0.629* (0.361)
Advantaged	-0.052 (0.125)	-0.204* (0.119)	-0.252* (0.129)	-0.258* (0.132)
P-value: ATM+ATM×Advantaged=0	0.086*	0.268	0.222	0.520
DV Mean (No ATM, Not Advantaged)	0.085	0.085	0.085	0.085
N	319	319	319	319
<i>Panel C. Women's Accounts</i>				
Free ATM	-0.205* (0.114)	-0.350*** (0.140)	-0.406*** (0.136)	-0.481*** (0.192)
Free ATM×Advantaged	0.256 (0.164)	0.538*** (0.204)	0.530*** (0.202)	0.562*** (0.207)
Advantaged	-0.168* (0.093)	-0.242** (0.112)	-0.244** (0.112)	-0.245** (0.119)
P-value: ATM+ATM×Advantaged=0	0.682	0.181	0.360	0.561
DV Mean (No ATM, Not Advantaged)	0.081	0.081	0.081	0.081
N	309	309	309	309
Additional Heterogeneity Controls	None	+BP Comp.	+Demo.	+Savings

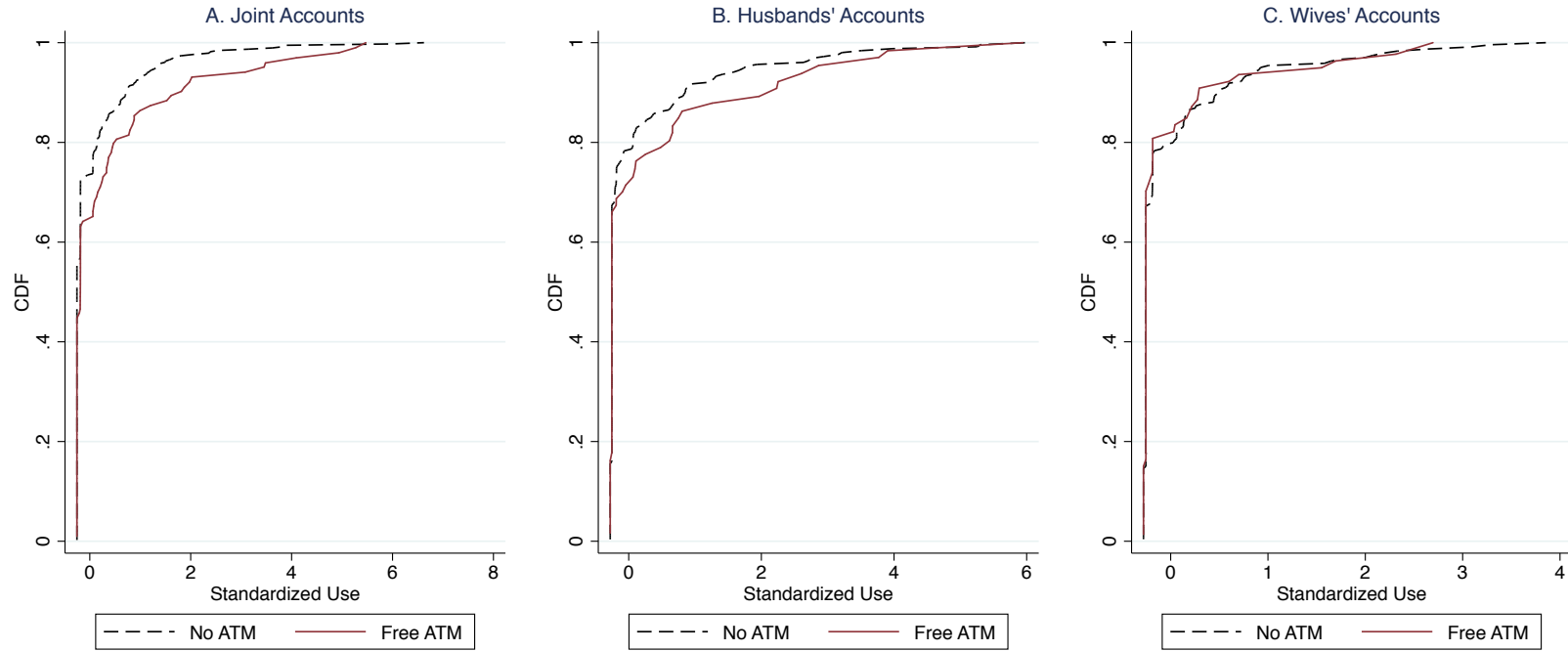
Notes: The outcome in all specifications is the overall measure of standardized account use. Robust standard errors (clustered at the couple level in Panel A) in parentheses. An individual is relatively advantaged if he or she has above-median bargaining power for his or her gender. All regressions include controls for own and spousal cash prize receipt, a dummy identifying the first 6 experimental sessions, interest rate dummies, a dummy for unconfirmed couples, and the interaction of the unconfirmed couple dummy and the ATM dummy. Panel A also includes a wife's account dummy and its interaction with the ATM dummy. The "BP Comp." control set includes age, education, literacy and income and interactions of these variables with the ATM treatment. The "Demo." controls add number of children, occupation (subsistence farmer and entrepreneur dummies), distance from the bank, a polygamous dummy, a patient now-impatient later dummy, a impatient-now patient-later dummy, and interactions of these variables with the ATM treatment. The "Savings" control set adds dummy variables for use of bank accounts, SACCO accounts, ROSCAs, home savings, as well as recorded cash savings and interactions of these variables with the ATM treatment. All variables except the bargaining power proxy and the female account dummy that are interacted with the free ATM dummy are demeaned by account type. The bargaining power proxy is not demeaned and the female account dummy is demeaned unconditional on account type. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Table 7. Robustness Check: Impact of Interest Rates on Standardized Account Use by Household Bargaining Power**

	(1)	(2)	(3)	(4)
<i>Panel A. All Individual Accounts</i>				
High Interest	0.113*** (0.037)	0.129*** (0.042)	0.132*** (0.043)	0.128*** (0.045)
High Interest×Advantaged	0.002 (0.059)	-0.045 (0.062)	-0.066 (0.061)	-0.061 (0.061)
Advantaged	-0.040 (0.033)	-0.047 (0.031)	-0.039 (0.030)	-0.035 (0.033)
P-value: ATM+ATM×Advantaged=0	0.009***	0.039**	0.078*	0.076*
DV Mean (No ATM, Not Advantaged)	-0.220	-0.220	-0.220	-0.220
N	1558	1558	1558	1558
<i>Panel B. Men's Accounts</i>				
High Interest	0.148*** (0.058)	0.152*** (0.062)	0.148** (0.068)	0.141** (0.070)
High Interest×Advantaged	0.006 (0.098)	-0.030 (0.100)	-0.066 (0.099)	-0.053 (0.096)
Advantaged	-0.030 (0.045)	-0.013 (0.039)	-0.012 (0.040)	-0.013 (0.040)
P-value: ATM+ATM×Advantaged=0	0.054*	0.108	0.204	0.179
DV Mean (No ATM, Not Advantaged)	(0.054)	(0.108)	(0.204)	(0.179)
N	-0.228	-0.228	-0.228	-0.228
<i>Panel C. Women's Accounts</i>				
High Interest	0.079* (0.043)	0.110** (0.053)	0.123*** (0.052)	0.084 (0.063)
High Interest×Advantaged	-0.013 (0.061)	-0.074 (0.073)	-0.105 (0.074)	-0.111 (0.078)
Advantaged	-0.047 (0.044)	-0.078* (0.047)	-0.068 (0.042)	-0.061 (0.046)
P-value: ATM+ATM×Advantaged=0	0.118	0.401	0.692	0.636
DV Mean (No ATM, Not Advantaged)	-0.213	-0.213	-0.213	-0.213
N	779	779	779	779
Additional Heterogeneity Controls	None	+BP Comp.	+Demo.	+Savings

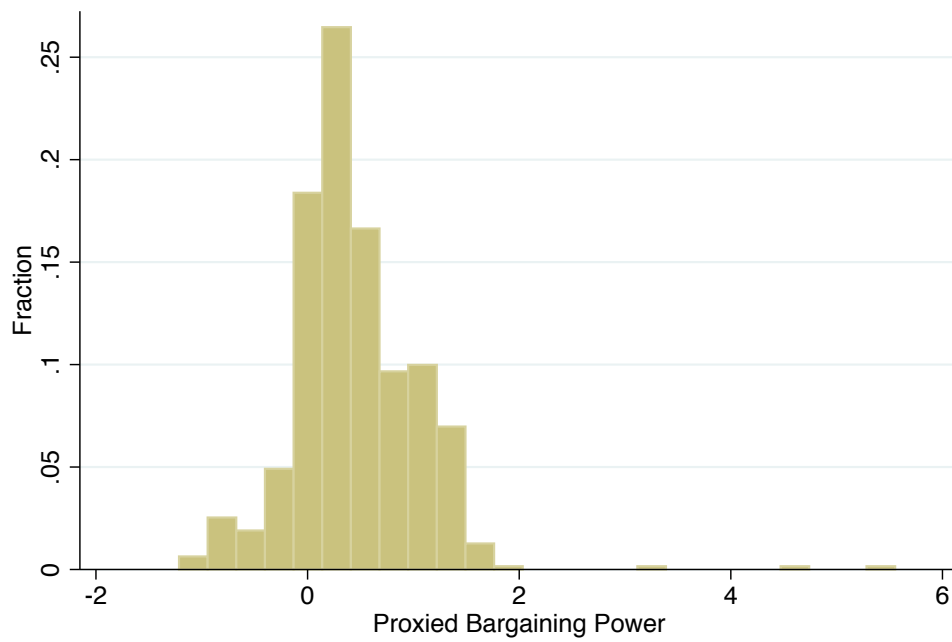
Notes: Robust standard errors (clustered at the couple level in Panel A) in parentheses. The outcome in all specifications is the overall measure of standardized account use. An account is coded as high interest if the 6-month interest rate was 12 or 20 percent. All regressions include controls for husband and wife cash prize receipt, a dummy identifying the first 6 experimental sessions, a dummy for confirmed couples, and the interaction of the confirmed couple dummy and the high interest dummy. All regressions also control for ex-ante ATM status and its interactions with the same covariates that are interacted with the high interest dummy. Panel A also includes a wife's account dummy. See notes to Table 6 for details on additional heterogeneity controls. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

Figure 1. CDFs of Overall Standardized Account Use by Account Type and ATM Treatment



Notes: Observations are weighted so the share of cash-prize eligible accounts is balanced among the Free ATM and No ATM groups.

Figure 2. Distribution of Male Relative Bargaining Power in Couples



Notes: Sample limited to N=678 confirmed couples. The bargaining power proxy is constructed by standardizing age, education, literacy, and income at the individual level and then taking the difference between the values for individual  $i$  and his or her spouse. The proxy is the average value of these standardized differences. This figure graphs male relative bargaining power. Female relative bargaining power is a mirror image of this graph by construction.

## A How Selected is the Sample Relative to the Population?

It is important to ask whether the subset of couples who participated in the experiment represent a meaningful share of all married couples. Unfortunately, the project budget could not accommodate a census of the experimental catchment areas. As a result, I am not able to precisely estimate the share of all married couples who attended the account opening camps. It is possible to conduct a rough back-of-the-envelope-calculation to obtain a lower bound estimate, however. To do this, I make use of enrollment data from the primary schools that hosted the account opening camps. The vast majority of Kenyan primary school students attend day schools within walking distance of their home.<sup>2</sup> Dividing total primary enrollment by the number of primary school enrollees per married couple can therefore provide a rough estimate of the number of married couples living in the catchment area. There are 2.29 primary school enrollees per married co-resident couple in my study districts, according to the 2009 Kenyan census. This number aligns well with my endline data, in which the average study participant reported having two children enrolled in primary school.

Appendix Table A9 illustrates baseline account opening camp attendance, primary school enrollment, and implied takeup (the share of co-resident married couples in the catchment area attending the session) by primary school. This is a lower bound on actual takeup, since field officers were given a limited amount of time in each catchment area and were therefore not able to invite all eligible married couples in the area to participate in the experiment. Overall, at least 11 percent of all married couples participated in the experiment, with takeup somewhat higher (15 percent) in the rural areas outside Busia township. While this represents a modest share of all married couples, the share is large relative to the size of the formally banked population. Twenty-two percent of individuals in my sample reported that they owned a bank account at baseline. Assuming 22 percent of *all* married couples owned bank accounts prior to the experiment, then the experiment would have increased bank account access in experimental areas to just over 30 percent, which represents a 38 percent increase.<sup>3</sup>

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<sup>2</sup>In my study districts, 94 percent of students were enrolled in a day school, 1.4 percent of students were enrolled in a boarding school, and 4.6 percent of students were enrolled in a mixed boarding and day school.

<sup>3</sup>If non-attendees had lower rates of baseline bank account access, then the implied increase in access generated by the experiment would be even larger. This seems likely, since just 17 percent of individuals aged 18 and over in Western Province owned a formal banking product in 2009 (FSD Kenya 2009).



## B Survey Questions on Rates of Time Preference

As part of the baseline, each respondent was asked to make a series of choices between different amounts of money at different times. The survey framed all questions as a choice between a smaller amount of money at a nearer time  $t$  ( $x^t$ ) and a larger amount of money at a farther time  $t + \tau$  ( $x^{t+\tau}$ ). In order to make choices salient, respondents were given a 1 in 5 chance of winning one of their choices.

In total, participants responded to 10 tables of monetary choices, with each table consisting of 5 separate choices between a smaller Ksh  $x^t \in \{290, 220, 150, 80, 10\}$  and larger  $x^{t+\tau} = \text{Ksh } 300$ . The 10  $(t, t + \tau)$  pairs were:  $(\frac{1}{7}, 1)$ ,  $(\frac{1}{7}, 2)$ ,  $(\frac{1}{7}, 3)$ ,  $(\frac{1}{7}, 4)$ ,  $(\frac{1}{7}, 8)$ ,  $(\frac{1}{7}, 12)$ ,  $(2, 3)$ ,  $(2, 4)$ ,  $(4, 8)$ , and  $(4, 12)$  weeks. I set the lowest near term  $t$  to "tomorrow" ( $\frac{1}{7}$ ) instead of "today" (0) to avoid confounding our discount factor estimates with differences in transaction costs of obtaining the funds in the near versus far term, or degrees of trust as to whether the money would be delivered (Harrison et al. 2004).

I measure preference reversals (of both the impatient-now, patient-later type as well as the patient-now, impatient-later type) by comparing responses to the last four tables of questions to their analogues that involve choices between cash tomorrow and cash at a later date. (An important drawback of using "tomorrow" instead of "today" as the nearest choice is that I cannot detect hyperbolic discounting that discounts all future consumption relative to immediate consumption – this will likely underestimate the degree of hyperbolic discounting in the sample). If a respondent won one of her choices, she had the option of having the funds deposited directly in her bank account, or picking the cash up at our field office, also located in Busia town.<sup>4</sup>

For the purposes of this study, I define an individual to have impatient-now, patient later preferences if he or she exhibited impatient-now, patient-later preference reversals on at least one out of four of the relevant pairs of tables *and* this type of preference reversal is more common than the patient-now, impatient-later reversal. Patient-now, impatient-later preferences are constructed analogously.

## C Proxying Bargaining Power at Endline

The endline experimental bargaining module was conducted with all married couples who could be present at the same place at the same time, since this was required for the experimental activities. While being interviewed alone, each spouse was told that she (he)

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<sup>4</sup>Despite the fact that the field office and Family Bank were proximately located, and that accessing cash deposited in an account would entail paying a withdrawal fee, the majority of cash winners (77 percent) chose to have their payments deposited in a bank account.

would be tasked with dividing a Ksh 700 endowment between herself (himself) and her (his) spouse. All respondents were told that they should divide the endowment according to their own true preferences. Ksh 700 represents a substantial amount of income for most study participants – the median daily income for men at endline was Ksh 173, while median daily income for women was Ksh 76.

Denote spouse  $s \in \{M, F\}$ 's choice for (without loss of generality) herself as  $x_s^s$ . Denote the remaining allocation for  $s$ 's spouse as  $700 - x_s^s = x_s^{-s}$ . After the individual decision-making phase, the spouses were brought together and asked to jointly decide how to divide the endowment. Denote the joint allocation for spouse  $s$  as  $x_j^s$ . To ensure that respondents considered the questions carefully, the choices were incentivized. The incentive structure was explained clearly (and in private) to each spouse before any decision making took place. At the outset of the exercise each spouse was given a tin. After spouse  $s$  made her private decision, her choice for herself ( $x_s^s$ ) was written on a card. This card was then placed in an opaque envelope and added to  $s$ 's tin. At the same time, the allocation for the spouse,  $x_s^{-s}$  was written on a card, put in an envelope, and placed in spouse  $-s$ 's tin. Thus, after the individual decision-making phase each spouse had two cards in his/her tin – one reflecting her or her own decision, and the other reflecting the decision of the spouse.

After joint decision making, a card with  $x_j^s$  was added to  $s$ 's tin. Finally, each spouse randomly selected an envelope from a bag that included cards marked with every possible individual allocation.<sup>5</sup> This fourth envelope was then placed in  $s$ 's tin. Each participant then randomly drew one of the four cards in her tin and was paid the cash amount on that card immediately (this was done in private, out of view of the spouse). Thus, the payment protocol was designed to (1) ensure that allocation choices had real consequences for each spouse and (2) ensure that individual, private choices were not revealed by the payment process.

To arrive at an estimate of bargaining power, I assume that spouse  $s$ 's preferences over the allocation are given by:

$$U_s(x_s^s) = \ln(x_s^s) + \gamma_s \ln(700 - x_s^s)$$

where  $\gamma_s$  is an altruism parameter. I assume that spouses take a bargaining-power-weighted average of individual choices when arriving at the joint decision. Thus, the joint decision is

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<sup>5</sup>The protocol required that spouses make choices in Ksh 50 increments. The smallest allocation for a single person was Ksh 50, while the largest was Ksh 650.

governed by:

$$\max_{x_J^M} \mu [\ln(x_J^M) + \gamma_M \ln(700 - x_J^M)] + (1 - \mu) [\ln(700 - x_J^M) + \gamma_F \ln(x_J^M)]$$

The first order conditions for these problems involve three unknown parameters  $(\mu, \gamma_M, \gamma_F)$  and three equations, so the system is exactly identified. Specifically:

$$\begin{aligned} \hat{\gamma}_s &= \frac{700 - x_s^s}{x_s^s} \\ \hat{\mu} &= \frac{x_J^M - x_J^F \hat{\gamma}_F}{(x_J^M - x_J^F \hat{\gamma}_F) + (x_J^F - x_J^M \hat{\gamma}_M)} \end{aligned}$$

I use  $\hat{\mu}$  as the “experimental proxy” of bargaining power. Note that  $\mu$  is not identified when  $x_M^M = x_F^M = x_J^M$  – in this case altruism parameters are such that the joint allocation is possible for any value of  $\mu$ . In practice, 23 percent of couples who participated in the allocation exercise chose such that  $x_M^M = x_F^M = x_J^M$ . I therefore have an identified estimate of  $\mu$  for 433 of the 559 intact couples who completed the allocation exercise.

**Appendix Table A1. Randomization Verification**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Free ATM Card						Interest Rates					
	Husband		Wife		Joint		Husband		Wife		Joint	
	Coeff.	N	Coeff.	N	Coeff.	N	Coeff.	N	Coeff.	N	Coeff.	N
<i>A. Correlations with Baseline Demographic Characteristics</i>												
Age	0.075	638	0.754	618	1.04	972	0.330	1558	-1.64	1558	2.63*	1558
Education	0.123	632	-0.292	612	0.314	971	0.590*	1551	0.206	1551	0.097	1551
Literate	0.039	638	-0.088*	618	0.031	972	0.017	1558	0.050	1558	-0.027	1558
Number Children	0.214	638	-0.163	617	-0.006	970	0.106	1555	-0.046	1555	0.758**	1555
Polygamous	0.023	634	-0.051	612	-0.009	966	-0.019	1546	-0.029	1546	0.091*	1546
Subsistence Farmer	-0.128***	635	-0.063	617	0.000	968	-0.057	1551	-0.017	1551	0.005	1551
Entrepreneur	0.090*	635	0.072	617	0.017	968	0.015	1551	0.034	1551	-0.006	1551
Income Last Week	520*	618	-274	604	22.4	942	120	1513	-86.3	1513	-4.42	1513
Has Bank Account	0.022	638	0.002	618	-0.018	972	0.051*	1558	-0.003	1558	0.024	1558
Has SACCO Account	0.023	636	-0.001	615	-0.012	970	0.022	1554	-0.029***	1554	0.009	1554
Participates in ROSCA	0.010	638	-0.059	618	-0.025	972	-0.033	1558	0.015	1558	0.095***	1558
Saves at Home	0.031	638	0.004	617	0.020	970	0.017	1556	0.044**	1556	-0.035	1556
Cash Savings	2368	596	1981	576	-106	906	3455**	1462	-2575**	1462	878	1462
Husband Does Most Savings	-0.018	634	-0.017	614	0.026	968	-0.031	1550	-0.010	1550	-0.069*	1550
Wife Does Most Savings	0.028	634	-0.006	614	-0.030	968	0.068*	1550	-0.002	1550	0.046	1550
Both Spouses Save	0.005	634	0.025	614	0.018	968	-0.032	1550	0.006	1550	0.016	1550
Spending: Husband Decides	0.000	634	-0.036	614	-0.017	969	0.005	1551	-0.063*	1551	0.002	1551
Spending: Wife Decides	0.009	634	0.015	614	0.009	969	0.006	1551	0.026	1551	-0.031	1551
Spending: Both Decide	-0.012	634	0.029	614	0.024	969	-0.032	1551	0.011	1551	0.001	1551
Impatient Now-Patient Later	0.023	626	0.030	610	-0.005	955	-0.021	1537	0.004	1537	-0.030	1537
Patient Now-Impatient Later	-0.020	626	-0.018	610	0.039	955	-0.024	1537	0.030	1537	-0.016	1537
Distance from Bank (Miles)	-0.391	638	-0.035	618	-0.168	972	0.022	1558	-0.380*	1558	0.109	1558
<i>P-value: Joint Test</i>	<i>0.698</i>		<i>0.886</i>		<i>0.935</i>		<i>0.291</i>		<i>0.233</i>		<i>0.235</i>	
<i>B. Correlations with Follow-Up and Cash Prize Selection</i>												
Not Interviewed at Endline	0.020	638	-0.029	618	0.026	972	0.029	1558	0.003	1558	0.008	1558
Cash Prize	-0.004	638	-0.075**	618	0.034	972	0.028	1558	0.016	1558	0.074***	1558

Notes: All results are from regressions where the relevant characteristic is regressed on the treatment of interest. Each coefficient estimate is derived from a separate regression. All standard errors are clustered at the couple level. Sample for ATM cards includes all individuals in a couple who opened the relevant account. All ATM regressions include a dummy identifying the first 6 experimental sessions. Sample for interest rates includes all individuals in the sample frame. For ease of interpretation, interest rates are renormalized to range from 0 to 1. The joint test is an F-test of whether the treatment of interest is equal to zero across all relevant regressions. Cash savings includes savings at home, in banks, and in SACCOs. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Appendix Table A2. Correlates of Account Opening Decisions**

	(1)	(2)	(3)
	Couple Opened:		
	Joint Account	Husband's Account	Wife's Account
Age	0.000 (0.001)	-0.002 (0.001)	-0.001 (0.001)
Education	-0.005 (0.005)	0.008* (0.005)	0.008* (0.005)
Literate	0.040 (0.038)	-0.047 (0.039)	-0.039 (0.039)
Number Children	0.005 (0.005)	-0.004 (0.005)	-0.007 (0.005)
Polygamous	-0.063 (0.042)	0.044 (0.042)	0.107*** (0.043)
Subsistence Farmer	0.032 (0.038)	-0.091** (0.040)	-0.079** (0.039)
Entrepreneur	-0.022 (0.035)	-0.033 (0.036)	-0.039 (0.036)
Income Last Week	-0.003 (0.003)	0.000 (0.002)	0.005* (0.003)
Has Bank Account	-0.009 (0.035)	0.055 (0.036)	0.069* (0.036)
Has SACCO Account	0.044 (0.078)	-0.019 (0.085)	0.043 (0.083)
Participates in ROSCA	0.004 (0.025)	-0.002 (0.026)	0.023 (0.026)
Saves at Home	0.037 (0.037)	-0.051 (0.037)	-0.019 (0.036)
Cash Savings (Bank+SACCO+Home)	0.000 (0.001)	0.000 (0.001)	-0.001 (0.001)
Husband Does Most Savings	-0.014 (0.084)	0.038 (0.089)	0.038 (0.077)
Wife Does Most Savings	0.012 (0.082)	0.005 (0.088)	0.063 (0.075)
Both Spouses Save	-0.057 (0.086)	0.051 (0.092)	0.092 (0.080)
Husband Decides How Money is Spent	-0.026 (0.064)	0.032 (0.067)	0.073 (0.061)
Wife Decides How Money is Spent	-0.059 (0.069)	0.063 (0.072)	0.087 (0.066)
Both Spouses Decide How Money is Spent	0.054 (0.066)	0.010 (0.070)	0.036 (0.064)
Impatient Now-Patient Later	0.015 (0.031)	-0.033 (0.031)	-0.023 (0.031)
Patient Now-Impatient Later	0.009 (0.028)	0.006 (0.029)	-0.005 (0.029)
Distance from Bank (Miles)	0.014* (0.008)	-0.020*** (0.008)	-0.026*** (0.008)
Husband's Relative Bargaining Power	0.062* (0.032)	-0.062** (0.030)	-0.093*** (0.033)
Surveyed at Endline	-0.124*** (0.051)	0.124*** (0.053)	0.161*** (0.051)
Confirmed Couple (Endline)	0.151 (0.094)	-0.131 (0.091)	-0.254*** (0.088)
DV Mean	0.673	0.409	0.397
N	1558	1558	1558

Notes: Robust standard errors clustered at the couple level in parentheses. Missing values of all covariates are recoded to zero and missing dummies are included in each regression. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Appendix Table A3. Impact of Free ATM Cards on Account Use - Components of the Standardized Summary Indices**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Short-Run Measures (First 6 Months)					Long-Run Measures (Next 2.5 Years)				
	Active	Number Deposits	Number Withdrawals	Value Deposits	Value Withdrawals	Active (Final Year)	Number Deposits	Number Withdrawals	Value Deposits	Value Withdrawals
<i>Panel A. Pooled Impact of ATM Cards</i>										
Free ATM	0.028 (0.032)	0.166 (0.132)	0.272** (0.129)	889* (535)	895** (451)	0.040* (0.022)	0.769* (0.402)	1.32** (0.585)	5866* (3435)	5900* (3472)
<i>Panel B. Impact of ATM Cards by Account Type</i>										
Free ATM	0.021 (0.051)	0.192 (0.214)	0.335 (0.211)	1660* (991)	1469* (835)	0.054 (0.035)	1.42** (0.642)	2.41*** (1.02)	10959* (6175)	11286* (6195)
Free ATM × Husband	0.066 (0.076)	0.287 (0.368)	0.106 (0.365)	-825 (1297)	-595 (1149)	-0.003 (0.058)	-0.692 (1.16)	-1.54 (1.60)	-8238 (9357)	-8707 (9441)
Free ATM × Wife	-0.052 (0.072)	-0.376 (0.259)	-0.329 (0.252)	-1947* (1174)	-1468 (939)	-0.047 (0.050)	-1.64** (0.766)	-2.40** (1.13)	-10099 (6788)	-10686 (6836)
P-value: Husband's ATM=0	0.125	0.108	0.142	0.320	0.271	0.267	0.446	0.470	0.691	0.711
P-value: Wife's ATM=0	0.580	0.212	0.967	0.656	1.000	0.851	0.603	0.978	0.783	0.851
P-value: Husband's=Wife's	0.120	0.047**	0.198	0.287	0.334	0.462	0.370	0.515	0.806	0.798
<i>Panel C. Is Impact of ATM Cards for Wives Different?</i>										
Free ATM	0.049 (0.039)	0.302* (0.173)	0.375** (0.174)	1344* (693)	1241** (599)	0.053* (0.028)	1.15** (0.532)	1.83*** (0.776)	7804* (4570)	7951* (4612)
Free ATM × Wife	-0.077 (0.064)	-0.486** (0.229)	-0.370 (0.226)	-1631* (937)	-1241* (738)	-0.046 (0.046)	-1.38** (0.687)	-1.81** (0.920)	-6946 (5459)	-7353 (5533)
DV Mean (No ATM, No Cash)	0.199	0.555	0.284	1232	760	0.067	1.82	1.19	6319	6226
N	1114	1114	1114	1114	1114	1114	1114	1114	1114	1114

Notes: Robust standard errors clustered at the couple level are in parentheses. All regressions include dummy variables for the first 6 experimental sessions, cash prize receipt for each spouse, account type dummies, and cash prize×account type interactions, as well as interest rate dummies. Both the number and value of deposits and withdrawals are topcoded to the 99th percentile among open accounts. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Appendix Table A4. Impact of Temporary Interest Rates on Account Use**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>A. Short-Run Measures of Account Use (First 6 Months)</i>							
	Active	Number Deposits	Number With- drawals	Value Deposits	Value With- drawals	Number Trans- actions	Standard- ized Use
4 Percent Interest	0.015 (0.016)	0.054 (0.066)	0.046 (0.050)	178 (196)	84.8 (147)	0.106 (0.109)	0.033 (0.033)
12 Percent Interest	0.047*** (0.017)	0.129* (0.068)	0.066 (0.056)	205 (214)	179 (182)	0.191* (0.114)	0.068* (0.037)
20 Percent Interest	0.086*** (0.018)	0.293*** (0.074)	0.193*** (0.064)	769*** (252)	599*** (210)	0.504*** (0.132)	0.171*** (0.042)
DV Mean (No Int., No Cash)	0.038	0.100	0.044	260	109	0.145	-0.248
N	2337	2337	2337	2337	2337	2337	2337
<i>B. Long-Run Measures of Account Use (6 Months-3 Years)</i>							
	Active (Last Year)	Number Deposits	Number With- drawals	Value Deposits	Value With- drawals	Number Trans- actions	Standard- ized Use
4 Percent Interest	-0.003 (0.010)	0.466*** (0.163)	0.046 (0.221)	238 (1172)	363 (1208)	0.568 (0.381)	0.026 (0.034)
12 Percent Interest	0.018 (0.011)	0.688*** (0.174)	0.246 (0.230)	1968 (1423)	1586 (1412)	0.994*** (0.397)	0.078** (0.037)
20 Percent Interest	0.039*** (0.013)	1.20*** (0.239)	0.810*** (0.304)	4034** (1788)	4125** (1851)	2.01*** (0.520)	0.168*** (0.049)
DV Mean (No Int., No Cash)	0.015	0.209	0.280	1430	1468	0.475	-0.210
N	2337	2337	2337	2337	2337	2337	2337

Notes: Robust standard errors clustered at the couple level are in parentheses. All regressions include dummy variables for the first 6 experimental sessions, cash prize receipt for each spouse, account type dummies, and cash prize×account type interactions, as well as dummies for ex-ante ATM selection. Both the number and value of deposits and withdrawals are topcoded to the 99th percentile among open accounts. The use index averages standardized values of an account activity dummy, the number of deposits, the number of withdrawals, the value of deposits, and the value of withdrawals. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Appendix Table A5. Impact of Free ATM Card Provision on Endline Economic Outcomes**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Has Bank Account	Has SACCO Account	ROSCA Member	Saves at Home	Saves with Mobile Money	Total Assets	Total Debt	Income Last Month
<i>Panel A. Pooled Impact of ATM Cards</i>								
Couple Received a Free ATM	0.018 (0.029)	-0.029 (0.024)	-0.083*** (0.030)	0.013 (0.030)	-0.017 (0.032)	3906 (3587)	-518 (1982)	202 (556)
<i>Panel B. Impact of ATM Cards by Type</i>								
Joint ATM Card	0.024 (0.038)	-0.039 (0.029)	-0.069* (0.039)	0.038 (0.037)	-0.068 (0.042)	5036 (4386)	-590 (3233)	485 (758)
Husband's ATM Card	0.086* (0.048)	-0.011 (0.044)	-0.135*** (0.053)	-0.050 (0.054)	0.101** (0.049)	8055 (6544)	2716 (4114)	820 (948)
Wife's ATM Card	-0.088* (0.050)	-0.029 (0.041)	0.014 (0.053)	0.017 (0.053)	-0.020 (0.052)	-4328 (6309)	-2466 (3907)	-270 (922)
DV Mean (No ATM, No Cash)	.741	.169	.516	.637	.717	37888	14477	8366
N	1363	1366	1366	1365	1362	1039	1346	1230

Notes: The unit of observation is the individual; both men and women are included in all regression specifications. Robust standard errors clustered at the couple level in parentheses. Total assets, debt, and income measures are top-coded at the 99th percentile. Additional controls include an own and spousal cash prize selection dummy, a dummy for the first 6 experimental sessions, dummy variables for the interest rate on each bank account, separate dummy variables indicating that the couple opened the joint, husband's, and wife's account, and a confirmed couple dummy. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.



**Appendix Table A6. Attrition and Correlation With Treatments**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Mean	Free ATM			Interest Rate		
	(All ATM Elig.)	Husband	Wife	Joint	Husband	Wife	Joint
Marital status verified <sup>a</sup>	0.968	0.001 (0.024)	-0.018 (0.027)	0.019 (0.016)	0.012 (0.018)	-0.021 (0.016)	-0.007 (0.017)
Confirmed couple <sup>b</sup>	0.905	-0.024 (0.052)	0.106*** (0.041)	0.000 (0.025)	0.012 (0.030)	-0.009 (0.026)	0.005 (0.032)
Interviewed at endline	0.912	0.020 (0.032)	-0.029 (0.035)	0.026 (0.022)	0.017 (0.023)	0.009 (0.021)	0.009 (0.024)
Interviewed at endline and "intact" <sup>c</sup>	0.790	0.039 (0.061)	-0.010 (0.063)	0.015 (0.037)	0.016 (0.039)	0.034 (0.037)	0.062 (0.044)
"Intact" and participated in allocn. game <sup>c</sup>	0.746	0.051 (0.066)	-0.059 (0.068)	0.012 (0.043)	0.046 (0.043)	0.049 (0.041)	0.067 (0.048)
Experimental proxy identified <sup>d</sup>	0.578	0.127* (0.069)	-0.063 (0.069)	0.002 (0.054)	0.061 (0.048)	0.037 (0.048)	0.094* (0.055)
N		638	618	972	1498	1498	1498

Notes: Robust standard errors clustered at the couple level in parentheses. Column 1 gives the average value of each attrition outcome in the full sample of couples with at least one ATM-eligible bank account. Columns 2-7 present individual-level regressions of attrition outcomes on the relevant treatment (sample in columns 2-4 is limited to couples who opened the relevant bank account). All regressions involving ATM treatments also include a dummy for the first 6 experimental sessions. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

<sup>a</sup>Marital status verified indicates that at least one of the original spouses in the couple was located at endline to confirm marital status.

<sup>b</sup>Confirmed couple indicates that the couple was verified and at least one spouse confirmed that the couple was married at baseline.

<sup>c</sup>Intact couples are both confirmed and still married at endline.

<sup>d</sup>The experimental proxy is identified if spouses are intact, participated in the allocation game, and did not provide the same response for all three (husband, wife, joint) allocations.

**Appendix Table A7. Heterogeneous Treatment Effects Using Alternative Outcomes**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Standardized Use: No Topcode			Number Transactions		Short-Run Index Components (First 6 Months)					Long-Run Index Components (Next 2.5 Years)				
	First 6 Months	6 Months-3 Years	Overall	First 6 Months	6 Months-3 Years	Active	Number Deposits	Number Withdrawals	Value Deposits	Value Withdrawals	Active (Final Year)	Number Deposits	Number Withdrawals	Value Deposits	Value Withdrawals
<i>Panel A. All Individual Accounts</i>															
Free ATM	-0.265*** (0.102)	-0.239** (0.120)	-0.252*** (0.097)	-0.872*** (0.359)	-2.44* (1.36)	-0.144** (0.063)	-0.495*** (0.204)	-0.363** (0.173)	-1730*** (631)	-1229** (531)	-0.071* (0.039)	-1.03* (0.600)	-1.33* (0.790)	-9079* (4812)	-9665* (4987)
Free ATM×Advantaged	0.423*** (0.171)	0.373*** (0.155)	0.398*** (0.144)	1.62*** (0.660)	4.12* (2.14)	0.214** (0.093)	0.734** (0.321)	0.791*** (0.338)	2281** (1041)	1955** (895)	0.125** (0.064)	2.09** (1.00)	2.01* (1.20)	14005** (6807)	14580** (6902)
Advantaged	-0.179** (0.081)	-0.198** (0.091)	-0.188*** (0.071)	-0.591** (0.274)	-1.99* (1.08)	-0.156*** (0.041)	-0.389*** (0.161)	-0.208 (0.139)	-648 (655)	-513 (535)	-0.054* (0.033)	-0.913** (0.450)	-0.991 (0.651)	-7614* (4118)	-8045* (4284)
P-value: ATM+ATM×Adv.=0	0.209	0.159	0.136	0.146	0.246	0.257	0.316	0.109	0.468	0.264	0.235	0.141	0.387	0.242	0.244
DV Mean (No ATM, Not Adv.)	0.076	0.079	0.077	1.13	3.71	0.259	0.772	0.354	1529	1004	0.095	2.05	1.57	8434	8661
N	628	628	628	628	628	628	628	628	628	628	628	628	628	628	628
<i>Panel B. Men's Accounts</i>															
Free ATM	-0.320* (0.165)	-0.231 (0.167)	-0.276* (0.150)	-1.17* (0.610)	-3.32 (2.26)	-0.084 (0.092)	-0.517 (0.323)	-0.613** (0.287)	-2173*** (930)	-1976** (857)	-0.021 (0.063)	-1.45 (1.02)	-1.66 (1.24)	-13654 (8744)	-14428 (8932)
Free ATM×Advantaged	0.666** (0.305)	0.312 (0.252)	0.489** (0.233)	2.79** (1.28)	4.18 (3.96)	0.157 (0.149)	0.996* (0.569)	1.51** (0.654)	4221*** (1630)	3898*** (1522)	0.029 (0.105)	2.42 (1.83)	1.61 (2.19)	16918 (13014)	18404 (13060)
Advantaged	-0.234* (0.120)	-0.192 (0.133)	-0.213** (0.106)	-0.807** (0.403)	-2.19 (1.84)	-0.104 (0.064)	-0.391* (0.214)	-0.415* (0.219)	-1314 (866)	-1207 (792)	-0.029 (0.040)	-1.09 (0.699)	-0.916 (1.15)	-9499 (7202)	-10404 (7450)
P-value: ATM+ATM×Adv.=0	0.130	0.642	0.193	0.109	0.765	0.477	0.264	0.087*	0.089*	0.086*	0.912	0.473	0.972	0.674	0.606
DV Mean (No ATM, Not Adv.)	0.063	0.064	0.063	1.14	4.18	0.215	0.738	0.402	1543	1209	0.075	2.24	1.73	9485	9733
N	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319
<i>Panel C. Women's Accounts</i>															
Free ATM	-0.385*** (0.139)	-0.322** (0.162)	-0.354*** (0.120)	-1.12*** (0.417)	-3.09** (1.45)	-0.235*** (0.096)	-0.699*** (0.254)	-0.422* (0.216)	-2571** (1165)	-1548* (859)	-0.139*** (0.056)	-1.23* (0.673)	-1.82** (0.830)	-10421* (5849)	-10911* (5999)
Free ATM×Advantaged	0.475*** (0.203)	0.386** (0.172)	0.430*** (0.161)	1.42** (0.632)	3.62** (1.78)	0.276** (0.139)	0.729** (0.371)	0.709** (0.318)	3280* (1721)	2416** (1221)	0.221*** (0.094)	1.41* (0.804)	2.19** (1.07)	12229* (6659)	12360* (6814)
Advantaged	-0.258** (0.119)	-0.220 (0.147)	-0.239** (0.104)	-0.667* (0.396)	-1.89 (1.32)	-0.262*** (0.067)	-0.507* (0.265)	-0.183 (0.174)	-711 (999)	-505 (715)	-0.089 (0.056)	-0.763 (0.615)	-1.11 (0.757)	-5118 (4623)	-5062 (4825)
P-value: ATM+ATM×Adv.=0	0.491	0.492	0.456	0.490	0.664	0.613	0.893	0.223	0.507	0.258	0.229	0.775	0.584	0.567	0.658
DV Mean (No ATM, Not Adv.)	0.092	0.098	0.095	1.11	3.10	0.317	0.817	0.293	1509	735	0.122	1.80	1.35	7061	7262
N	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309

Notes: Robust standard errors (clustered at the couple level in Panel A) in parentheses. All regressions include controls up to the demographic control set, as described in notes to Table 6. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Appendix Table A8. Heterogeneous Treatment Effects: Robustness to Alternative Proxies and Samples**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(9)
	Main Proxy, >0	Main Proxy, Level Value	Main Proxy + Savings, Above Median	Principal Components	Principal Components + Savings	Spending - I Decide	I Mostly Save	Experimental Proxy	Main Proxy, Confirmed Couples Only	Monogamous Couples Only
<i>Panel A. All Individual Accounts</i>										
Free ATM	-0.155 (0.120)	-0.052 (0.073)	-0.270*** (0.111)	-0.187 (0.118)	-0.161 (0.148)	-0.055 (0.096)	-0.087 (0.093)	-0.054 (0.182)	-0.295*** (0.101)	-0.267** (0.123)
Free ATM×Advantaged	0.228 (0.195)	0.423** (0.207)	0.475*** (0.196)	0.279 (0.173)	0.265 (0.202)	0.135 (0.201)	0.172 (0.161)	0.029 (0.288)	0.484*** (0.159)	0.455** (0.200)
Advantaged	-0.135 (0.085)	-0.139* (0.080)	-0.241*** (0.087)	-0.115 (0.086)	-0.115 (0.090)	0.089 (0.082)	-0.024 (0.072)	-0.119 (0.120)	-0.201*** (0.079)	-0.198* (0.106)
P-value: ATM+ATM×Adv.=0	0.568	0.108	0.162	0.411	0.386	0.605	0.492	0.879	0.092*	0.208
DV Mean (No ATM, Not Adv.)	0.005	0.031	0.110	0.082	0.105	-0.026	0.030	0.088	0.064	0.079
N	628	628	628	628	628	628	628	320	530	460
<i>Panel B. Men's Accounts</i>										
Free ATM	0.129 (0.332)	-0.268 (0.175)	-0.300 (0.201)	-0.158 (0.174)	-0.141 (0.205)	-0.001 (0.186)	-0.108 (0.167)	-0.210 (0.445)	-0.345** (0.173)	-0.451** (0.208)
Free ATM×Advantaged	-0.227 (0.376)	0.570 (0.418)	0.476 (0.345)	0.221 (0.335)	0.205 (0.332)	-0.094 (0.306)	0.165 (0.386)	0.177 (0.505)	0.509* (0.265)	0.848** (0.378)
Advantaged	-0.083 (0.151)	-0.176 (0.124)	-0.261* (0.145)	-0.070 (0.132)	-0.124 (0.147)	0.208* (0.116)	0.062 (0.109)	-0.351** (0.177)	-0.213* (0.126)	-0.292* (0.160)
P-value: ATM+ATM×Adv.=0	0.507	0.351	0.478	0.803	0.787	0.647	0.846	0.866	0.421	0.150
DV Mean (No ATM, Not Adv.)	0.025	0.083	0.125	0.101	0.153	-0.055	0.033	0.252	0.063	0.130
N	319	319	319	319	319	319	319	163	270	239
<i>Panel C. Women's Accounts</i>										
Free ATM	-0.197** (0.088)	0.053 (0.121)	-0.382*** (0.134)	-0.422*** (0.165)	-0.439*** (0.170)	-0.137 (0.093)	-0.166 (0.125)	0.031 (0.127)	-0.345*** (0.121)	-0.299* (0.180)
Free ATM×Advantaged	0.394 (0.264)	0.596*** (0.232)	0.510*** (0.204)	0.483** (0.238)	0.501** (0.233)	0.365 (0.255)	0.176 (0.140)	-0.286 (0.199)	0.466*** (0.184)	0.458* (0.246)
Advantaged	-0.100 (0.121)	-0.113 (0.080)	-0.186 (0.117)	-0.190 (0.133)	-0.105 (0.126)	-0.043 (0.114)	-0.113 (0.090)	0.101 (0.150)	-0.231** (0.110)	-0.096 (0.144)
P-value: ATM+ATM×Adv.=0	0.435	0.052*	0.415	0.650	0.665	0.373	0.933	0.090*	0.358	0.351
DV Mean (No ATM, Not Adv.)	-0.001	-0.023	0.091	0.051	0.031	-0.007	0.027	-0.037	0.066	0.005
N	309	309	309	309	309	309	309	157	260	221

Notes: The outcome in all regressions is overall standardized account use. Column headers specify different bargaining power proxies/subsamples. Robust standard errors (clustered at the couple level in Panel A) in parentheses. All regressions include controls up to the demographic control set, as described in notes to Table 6. All bargaining power proxies are set to missing for unconfirmed couples. Main proxy, >0 sets Advantaged=1 if the level value of the main proxy is greater than zero. Main proxy + savings includes the standardized difference in spousal cash savings in the bargaining power proxy. The principal components measures indicate that the first principal component of standardized spousal differences is above-median. When the independent variable is the level value of the bargaining power index I present the dependent variable mean for all individuals with no ATM. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

**Appendix Table A9. Study Participation Among Co-Resident Married Couples**

School	(1) Participating Couples	(2) Primary Enrollment	(3) Located In Township?	(4) Implied Takeup
School 1	77	793	N	0.222
School 2	55	873	N	0.144
School 3	32	905	N	0.081
School 4	82	727	N	0.258
School 5	28	503	N	0.127
School 6	75	696	N	0.247
School 7	65	761	N	0.196
School 8	49	716	N	0.157
School 9 and 10	33	1244	N	0.061
School 11	26	778	N	0.077
School 12	52	912	N	0.131
School 13	36	1208	Y	0.068
School 14	26	1832	Y	0.033
School 15	57	1450	Y	0.090
School 16	36	1138	Y	0.072
School 17	14	771	Y	0.042
School 18 and 19	36	1213	Y	0.068
<i>Total - Outside Township</i>	574	8908		0.148
<i>Total - Inside Township</i>	205	7612		0.062
<i>Total</i>	779	16520		0.108

Notes: School enrollment data is from the Kenya Ministry of Education and was collected in 2007, accessed via [www.opendata.go.ke](http://www.opendata.go.ke) on December 5, 2014. Schools 9 and 10 are single-sex schools serving the same catchment area. School 19 is not a primary school and is located opposite School 18. I therefore combine experimental attendance for these two sites and use enrollment data for School 18. I assume that there is one married co-resident couple for every 2.29 students enrolled in a primary school. This ratio is estimated using 2009 Kenyan census data for Busia and Teso South districts.