

## Banking the Unbanked? Evidence from Three Countries<sup>†</sup>

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*We experimentally test the impact of expanding access to basic bank accounts in Uganda, Malawi, and Chile. Over two years, 17, 10, and 3 percent of treatment individuals made five or more deposits, respectively. Average monthly deposits in treatment accounts were sizable among users, corresponding to the seventy-ninth, ninety-first, and ninety-sixth percentiles of baseline savings. Survey data show no discernible intention-to-treat effects on savings or any downstream outcomes, though we cannot reject large effect sizes for active users. Results suggest that policies merely focused on expanding access to basic accounts are unlikely to improve welfare noticeably on average. (JEL D14, G21, O12, O16)*

Bank accounts are essential to daily economic life in developed countries but are still far from universal in developing countries: only 54 percent of adults in developing countries report having a bank account, compared to 94 percent in the Organisation for Economic Co-Operation and Development (OECD) countries (Demirgüç-Kunt, et al. 2015). Instead of using banks, people save in more informal ways such as keeping cash at home or buying illiquid assets, which may be costly, risky, or inconvenient. Many governments and donors believe that there are benefits to moving people into formal banks: in recent years, groups such as the World Bank, the International Monetary Fund, the United Nations, and the Alliance for Financial Inclusion, have put forward goals at the country and institutional level for access to financial services.

On a macro level, a vast literature has established the importance of the banking sector on growth and development (for evidence, see Jayaratne and Strahan 1996; Black and Strahan 2002; Levine 2005; and Beck, Demirgüç-Kunt, and Levine 2007). Yet a much scant literature has successfully disentangled which functions

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of banks drive such a linkage. Two papers, for example, estimate the impact of expanded banking on poverty (Burgess and Pande 2005 and Bruhn and Love 2014), but both are asking the holistic question about expanded access to banks and all that they offer, i.e., a full variety of both credit and savings products.

We focus on a more narrow function: safekeeping. While the history of banking started with banks accepting deposits for safekeeping as the primary function, banks quickly expanded to include payments, issuing debt, and providing credit. He, Huang, and Wright (2005, 2008) describe this historical process, and put forward general equilibrium models about the role of safekeeping as a catalyst for banking sector development. He, Huang, and Wright (2008, 1013) observes: “While these points [on safekeeping] may be obvious, this does not mean they are uninteresting or unimportant for our understanding of money and banking. Yet they have been all but ignored in the literature.”

We narrow our focus to safekeeping by facilitating the opening of basic, low-interest, “no frills” accounts, for free, for rural individuals living in three countries at starkly different stages of development and banking access: Malawi, Uganda, and Chile. GDP per capita in 2014 was \$253 in Malawi, \$677 in Uganda, and \$14,520 in Chile (World Development Indicators 2015), while the estimated percentage of households that had an account at a financial institution in 2014 was 16 percent in Malawi, 28 percent in Uganda, and 63 percent in Chile (Demirgüç-Kunt, et al. 2015). These countries were chosen in collaboration with the Bill and Melinda Gates Foundation (BMGF) as part of an effort to gather robust, representative (of the poor), and large-scale evidence on the impact of removing financial barriers and administrative hassle to opening bank accounts in existing financial institutions. Earlier promising work on access to bank accounts found significant effects on some downstream outcomes for selected subsamples.<sup>1</sup> A major strength of this study is that the same experiment was conducted simultaneously in the three countries, offering a breadth of contexts that is unusual for an evaluation. By examining the impact of expansion of simple no-frill bank accounts that afford arguably no further benefits beyond safekeeping, we tackle a micro-level partial-equilibrium question about the importance of the safekeeping role for banks in developing countries. It is possible that if the intervention we study is scaled up and bank accounts are used by the majority of the population, general equilibrium effects—unobserved in our study—would be observable.<sup>2</sup>

Our study was designed to mimic an expansion of bank accounts “as is,” rather than to provide new savings products to households. Our intervention removed account opening fees and potentially relieved some other non-pecuniary opening costs, for instance, if people do not know how to fill out the paperwork to open a bank account or are intimidated to enter a formal financial institution. However, we do not address other important costs such as limited opening hours, distance to bank branches, or transaction fees. Nevertheless, we argue that facilitating account

<sup>1</sup>Dupas and Robinson (2013a) finds effects on business investment/expenditures for female vendors in Kenya, and Prina (2015) finds effects on perception of financial well-being among poor women in Nepal.

<sup>2</sup>Agarwal et al. (2017) studies administrative data from the Pradhan Mantri Jan Dhan Yojna (JDY) program in India, which opened 255 million new bank accounts, and argues that there was an increase in lending in regions with low ex ante access to banking services.

opening is a policy question of primary interest at the moment, which is largely about expanding access to accounts as they are currently offered. Indeed, across the globe in developing and middle income countries, policymakers and donors expressed strong interest in expanding access to basic savings accounts as a key component of a financial inclusion strategy.<sup>3</sup> This strategy spans many objectives and approaches, including, for example, the shift to trying to pay government transfers directly into bank accounts,<sup>4</sup> and the expansion of mobile money in order to lower transaction costs for households to transact with bank accounts.

Working in the catchment areas of partner rural banks, we identified households that were close enough to a bank branch to use it but who had not chosen to open accounts on their own before the program.<sup>5</sup> In Malawi and Uganda, we partnered with banks that offered basic savings accounts with substantial account opening and maintenance fees.<sup>6</sup> The experiment waived all these fees for two years, and offered assistance with filling out the paperwork required to open an account. In Chile, we partnered with a bank that already offered an account with no opening or maintenance fees.<sup>7</sup> Despite there being no financial barriers in Chile, qualitative evidence collected for the study suggested that some people were not familiar with the account opening and usage procedures; in that site, we therefore decided to facilitate account opening by helping potential participants with paperwork. Nevertheless, we would expect lower barriers to account opening in Chile. As expected, there were many more unbanked households in the African sites than in Chile: 85 percent of people in Malawi and 77 percent of people in Uganda did not have accounts, compared to only 26 percent in Chile. Thus, at the onset of our study, being unbanked was much more of a choice in Chile than in Uganda and Malawi.

The rate of account opening among treatment households was 69 percent in Malawi and 54 percent in Uganda, but was only 17 percent in Chile. A much smaller percentage actually used the accounts: within two years of follow-up, 10 percent of households made at least five deposits in Malawi, 17 percent in Uganda, and just 3 percent in Chile. Among these households, however, usage was substantial: the mean total amount deposited by active users was \$648 in Malawi, \$527 in Uganda, and \$1,858 in Chile.<sup>8</sup> Averaged across the entire treatment group, the amount deposited per household was \$3, \$4, and \$4 per month, respectively. These amounts are not trivial for Malawi and Uganda (where average monthly individual expenditures are about \$15 and \$30 per month, respectively), but they are tiny in Chile, where average monthly household expenditures are about \$250 per month. Given such low take-up, we did not conduct follow-up surveys in Chile in treatment and control

<sup>3</sup> See the 2013 report prepared by the Consultative Group to Assist the Poor (CGAP) and the International Finance Corporation (IFC).

<sup>4</sup> See Zimmerman, Bohling, and Rotman Parker (2014).

<sup>5</sup> We selected rural areas since we expected lower bank access in those areas. The rural population makes up approximately 84 percent of the population in Uganda and Malawi, and 11 percent in Chile.

<sup>6</sup> High fees are common in sub-Saharan Africa. Beck, Demirgüç-Kunt, and Martínez Peria (2008) report that fees can be as high as 20 percent of GDP per capita in Malawi and Uganda. These high fees may be due to several factors, including that banks find it hard to profitably lend to creditors in countries where credit markets and credit bureaus are less developed, that overhead costs are proportionally higher in developing country markets where balances held with banks are low, or that competition among banks is limited.

<sup>7</sup> The bank did charge withdrawal fees and also deposit fees after the fifth deposit in a given month.

<sup>8</sup> All US dollar figures are provided in 2010 US dollars.

groups, but rather conducted semi-structured interviews with participants in the treatment group to learn reasons for not taking up the account.

This is a situation in which a minority of users may have benefited substantially from financial access, but in which the majority did not use the accounts and could not benefit. We therefore present both intent-to-treat (ITT) and treatment-on-the-treated (ToT) estimates. We consider two different ToT estimates using two measures of usage: whether a deposit was ever made into the account (41 percent in Malawi and 42 percent in Uganda qualified), and whether a deposit was made in year two (12 percent in Malawi and 19 percent in Uganda)—this latter measure is a proxy for adopting the account as a financial tool over the longer run.

In Uganda and Malawi, we conducted three rounds of follow-up surveys. Each time, we measured both savings stocks and flows. While stocks have the major disadvantage of missing much of the action, we found deposit flows to be more problematic in such settings, since transactions are few and far between and therefore occur outside the look-back period of the survey. We find ITT effects on total stock of savings at formal institutions of about 10 percent of control group savings. We observe similar percentage increases in Uganda and Malawi, even though the absolute levels are different since Malawi is much poorer (baseline stock of savings are \$14 in Malawi compared to \$41 in Uganda). Treatment increased average bank balances by \$3.9 in Malawi (equivalent to 22 percent of control group total savings) and \$8.8 (28 percent) in Uganda. ToT effects are much larger: \$20–43 in Uganda (47 to 119 percent of the control complier mean of total savings) and \$9–32 in Malawi (41 to 140 percent).

Where did the money saved in the bank account come from? One would expect that some of the money put in the bank accounts was a reshuffling of money from other sources, in particular money saved at home. Estimating crowd-out of home savings is challenging, since people are reluctant to reveal how much money they keep in cash to an enumerator, especially in a face-to-face interview in the home. Consequently, many studies simply do not ask about home savings and instead infer treatment effects on savings from downstream outcomes (this is the case in Dupas and Robinson 2013a, for example). Instead, we extensively pretested modules to measure informal savings—in particular, home savings. We find that half of the increase in bank balances appears to be crowd-out: informal savings (which primarily consists of cash savings at home, but also includes savings groups and savings with friends/family) declined by about \$2.5 in Malawi and \$4 in Uganda.<sup>9</sup> The resulting ITT effect on total savings is thus \$1.4 in Malawi (not statistically significant) and \$4.8 in Uganda (significant at 5 percent).<sup>10</sup> Though these ITT effects are modest, we find very large effects among users: ToT effects are equivalent to a 26 percent increase in total savings in Uganda (significant at 5 percent) and

<sup>9</sup>We expect that this sort of crowd-out of cash savings was also present in earlier studies but not measured.

<sup>10</sup>The results for flows are very similar, though less precisely measured. We find ITT effects on monthly deposits at formal institutions of about 10 percent of total control group deposits. Moreover, we find some evidence that savings effects are attenuated due to underreporting of bank deposits. In Malawi, reported deposits were only about one-third of recorded deposits; in Uganda, they were about two-thirds.

20 percent in Malawi (not significant statistically) compared to the appropriate control complier mean.<sup>11</sup>

Finally, we look at a host of downstream outcomes, such as business inventory, expenditures, educational investments, and health investments. Unsurprisingly, given the lack of a clearly discernible average treatment effect on savings, we find no statistically significant ITT effect on any of these outcomes. We can reject effects larger than 0.10 standard deviations of the outcome in the control group. However, ToT effects for the minority of active users are large, but all imprecise and not statistically significant; we cannot rule out fairly substantial effects for users. An additional reason why treatment effects may be imprecise is that users had a variety of reasons for saving, and therefore the effects are diffuse across several channels and their corresponding downstream outcomes.

What prevents more people from using basic accounts? In Malawi and Uganda, the constraint seems to be poverty: in follow-up surveys, 89 and 80 percent of households responded that they did not use the accounts because they did not have enough money to save. This is consistent with the rest of our data, which suggest that people are living well below the global poverty line and living essentially hand to mouth with virtually no savings. Indeed, we find that baseline wealth and education predict usage, suggesting that people with more slack in their budgets save more. Though low income appears to be the dominant reported reason for low usage, we also document that people who live farther from the bank branches used the accounts less, in both Malawi and Uganda. This result suggests that products with lower transaction costs, like mobile-money linked accounts, might have better impacts (e.g., Suri and Jack 2016). Another issue is that the accounts offered virtually no interest, even though inflation was high (14.0 percent in Malawi during the study period, and 10.7 percent in Uganda). In fact, Malawi went through a major currency devaluation during this time period, in which the kwacha devalued by approximately one-third. Nevertheless, while important, these were fewer cited reasons for low usage, compared to the simple fact of low income. In Chile, survey evidence shows that being unbanked (which is much more common among the elderly) is primarily a choice: store credit is ubiquitous and the social safety net is fairly generous in comparison to the African sites (particularly in the form of pensions and health insurance), so there is relatively little need to save individually, and people indeed report not needing to save.

The pattern of usage we observe in our two African sites is similar to the one found by two previous studies in rural Kenya (Dupas and Robinson 2013a, and Dupas, Keats, and Robinson 2015); both find that a majority of initially unbanked households never use the accounts they are offered but that usage among a subset of active users is substantial. A major difference here, however, is that there was not enough usage among active users to generate statistically significant treatment effects on any downstream outcomes. By contrast, the Chile results suggest a much lower demand for bank accounts among currently unbanked households. To take stock of these varied findings, we discuss (and include an extensive table)

<sup>11</sup> The long term ToT (for the smaller number who made deposits after the first year) amounts to 68 percent of the control complier mean of total savings in Uganda and 50 percent in Malawi.

comparing the target samples, features, usage, and primary impacts found in 16 completed randomized trials of savings products in 13 countries. There is too much heterogeneity in sampling and product design, as well as what is meant in practice by each product design feature, to conduct a formal meta analysis. However, one pattern does emerge: few products appeal to more than a small minority. Rather than simply expanding access to basic services, expanding access to a wide variety of products catering to many different needs may thus be needed to generate noticeable welfare impacts. Furthermore, experiments like ours, which focus only on financial costs of opening an account, do not speak to the quality of the banking options. But bank accounts may provide low quality on other dimensions, such as long transaction queues, limited operating hours, or limited branch locations, or people may not trust banks (e.g., Dupas et al. 2016, Bachas, et al. 2016). The quality of banking options is likely another major constraint to expanding financial access, so the creation of new products with lower transactions costs (like mobile money-linked savings accounts) might be a key requirement to induce usage.

## I. Background, Experimental Design, and Data

### A. Study Sites

This study took place in two low income African countries (Malawi and Uganda) and the higher income Latin American country of Chile. These countries are at very different levels of economic and financial sector development: GDP per capita is \$253 in Malawi, \$677 in Uganda, and \$14,520 in Chile (World Development Indicators 2015), while the percentage of adults with an account at a financial institution remained stagnant at 16 percent in Malawi between 2011 and 2014, and increased from 20 to 28 percent in Uganda, and from 40 percent to 63 percent in Chile over that time period (Demirgüç-Kunt et al. 2015). In Malawi and Uganda, censuses were conducted in 2010, accounts were opened in 2011, and follow-up surveys were conducted until 2012–2013. In Chile, the census and account opening were conducted in parallel (in 2010–2011), and instead of a follow-up, we conducted semi-structured interviews with participants in the treatment group. Online Appendix Figure WA1 presents a timeline for study activities.

Within each country, we partnered with banks in rural areas where we expected a large share of the population to be unbanked. We worked in the Balaka and Machinga districts in Southern Malawi; the Bukomansimbi and Kalungu districts in Central Uganda; and the Temuco region in Southern Chile.<sup>12</sup>

In each country, nominal interest rates on the bank accounts were low, so that real interest rates were actually negative. Over the study period of 2010–2013, the average annual inflation rate was 3.7 percent in Chile, 10.7 percent in Uganda, and

<sup>12</sup>The specific choice of study site was made based partly on priors about banking access and partly for logistical reasons. In Malawi, we chose to work in the Southern Region because a 2008 FinScope survey highlighted the region as having the country's lowest average savings rates. In Uganda, we chose the Masaka region for convenience (it was not too far from Innovations for Poverty Action's (IPA) offices but was not part of the peri-urban area around Kampala). Finally in Chile, we chose the Temuco region because it is one of the poorest regions in the country.

14.0 percent in Malawi (World Development Indicators 2015). Also of importance is that during our sample period, the Malawian central bank devalued the currency by 34 percent in May 2012 (*Al Jazeera* 2012).<sup>13</sup>

### B. Partner Banks

In each site, we partnered (through IPA in Malawi and Uganda and through the Abdul Latif Jameel Poverty Action Lab (J-PAL) in Chile) with a financial institution and selected rural areas in which the partnering institution operated. Each site started with a listing of households, from which households were randomly drawn for inclusion in the study, and assignment to treatment and control. More details on the sampling and randomization procedures are provided below, site by site.

In Uganda, we were unable to find a formal banking institution without prohibitive fees in rural areas,<sup>14</sup> so we instead partnered with a Savings and Credit Cooperative (SACCO) called MAMIDECOT (an acronym for the Masaka Microfinance and Development Cooperative Trust). Originally founded in 1999, and incorporated with the Ugandan Ministry of Tourism, Trade, and Industry, MAMIDECOT is a local cooperative owned by its shareholder “members.”<sup>15</sup> We worked with three of the four branches, each located in a different trading center. MAMIDECOT offers basic savings accounts that pay no interest unless balances exceed \$8.50, in which case the interest rate is 3 percent (as mentioned above, average inflation over this time period was about 10 percent per year). The total cost of opening an account is high—about \$15.<sup>16</sup> The accounts also featured monthly maintenance fees of approximately \$0.20 per month, but had no withdrawal fees (this maintenance fee was later doubled to \$0.40 per month during our study period). These fees are all quite substantial relative to monthly expenditures of around \$30 or average stock of savings of \$32 (the opening fees and minimum balance amounted to 60 percent of the stock of savings at baseline, while a year of maintenance fees was 4 percent of that stock). Deposits and withdrawals can only be made in person at the bank during standard bank hours (no ATM cards available).

In Malawi, we partnered with NBS, one of Malawi’s 13 commercial banks. As of early 2013, it had branches or agencies in 37 locations and 73 ATM locations. We worked with two branches of the bank, in Liwonde and Balaka.<sup>17</sup> NBS offers basic savings accounts with a 4.5 percent annual interest rate paid on balances of \$33 or higher. There are no costs to open an account. The minimum balance to keep the account open was \$3.50 at the start of the study but was raised to \$8.2 within 2 years. Monthly maintenance fees started at approximately \$0.50 per month but were raised

<sup>13</sup>Exchange rates at the start of the study in 2010 were 478 Chilean pesos, 2,290 Ugandan shillings, and 150 Malawian kwacha to US\$1.

<sup>14</sup>The only bank with branches in rural areas was the Post Office Bank, but requirements to open an account were prohibitive.

<sup>15</sup>At the onset of the study, it had over 11,500 members serviced by 4 branches.

<sup>16</sup>This \$15 fee includes \$4.25 for a membership fee, \$8.50 for two shares, and \$2.25 for a passbook. In addition, a minimum balance of \$4.25 is required to keep the account open.

<sup>17</sup>The Liwonde branch was opened in 2004 and in 2010 had 7,000 accounts; by 2013, it had a total of 12,000 accounts. The Balaka branch opened in March 2010 and after 9 months of operation, it had 1,475 accounts. By February 2013, it had 4,322 accounts.

3 times within our study period to a total of \$0.64 per month within 2 years. There are no withdrawal fees for withdrawals made at the teller, but there is a \$0.40 fee for withdrawals made using an ATM card (the ATM card itself costs about \$7—both branches have 24 hour ATM access). Again, these fees are quite sizable compared to monthly expenditures of about \$15 per month or mean stock of savings of \$12 (the minimum balance amounted to 30 percent of the stock of savings at baseline and a year of maintenance fees to 50 percent of that stock).

Finally, in Chile, we partnered with BancoEstado, the only public commercial bank and the third largest bank in Chile. BancoEstado offers an account with no opening or maintenance fees called the “CuentaRUT”, which every Chilean with a national Chilean ID/tax number (the “RUT”) is eligible for. Despite the fact that CuentaRUT accounts are free, their take-up is low among those who live in small towns or villages lacking a bank branch. In 2010, to increase inclusion, BancoEstado facilitated access by allowing account holders to make transactions at retailer stores, through a point of sale (POS) machine (similar to a debit card machine) called Caja Vecina. Account holders can make deposits, withdrawals, and pay bills through the Caja Vecina.<sup>18</sup> However, people who do not have an account must first visit the bank branch to fill out the necessary paperwork.

### *C. Sampling and Randomization*

The details of the sampling procedure in each country are provided in the online Appendix. We present a brief summary here.

In Uganda and Malawi, a census exercise was conducted in the catchment areas of the partner banks to identify unbanked households. In Malawi, we additionally conducted a census at six market centers to oversample households with at least one member involved in an occupation other than farming.

As expected, most households were unbanked in these areas—74 percent of households in Uganda and 85 percent in Malawi were unbanked. Of the sample of unbanked households, we applied several exclusion criteria. While these differed somewhat across sites, the most important criteria were removing households in which both spouses were likely working for a wage, households which were deemed too far away from the banks to use them regularly, and households with no female head (see the online Appendix for the full list of exclusion criteria and for more details). Our study sample includes 2,160 households in Uganda and 2,107 households in Malawi.

In both countries, 50 percent of the households in the sample were randomly allocated (only one individual per household) to receive the bank account subsidy. In Uganda, randomization was stratified by gender, occupation,<sup>19</sup> and bank branch (recall there were three branches in the study). In Malawi, randomization was

<sup>18</sup> While deposits (up to 5 per month), purchases and payments are free of cost, withdrawals are charged \$0.62 per transaction. The same cost applies to deposits after the fifth deposit in a given month.

<sup>19</sup> The occupation categories were classified as employee, self-employed: vendor, business owner, trader; or farmer: including animal rearing, and housewife or unemployed.



stratified by gender, occupation,<sup>20</sup> marital status, literacy, bank branch, and whether the respondent was from the household or market sample.

Chile differed methodologically from the other sites in that the census exercise was not representative of the region. Instead, enumerators went door-to-door until they reached a sample size of nearly 2,000 eligible individuals. A door-to-door census exercise was conducted in 48 Comunas of Region IX in Southern Chile. During that census exercise, 9,985 respondents were interviewed, out of which 74 percent already had bank accounts (either the respondent or spouse). Of the 2,472 respondents without a bank account, 1,975 were willing to enroll and complete a baseline survey. Among those eligible and enrolled in the study, half were selected to receive procedural assistance for the intervention. Treatment group was assigned based on the last digit of the RUT: odd numbers were assigned to treatment, and even numbers to the control group. Because this was done in the field at the end of the baseline survey, treatment was not stratified on any characteristics.

#### D. Bank Account Subsidy Offer

In all sites, respondents were given the opportunity to open accounts with no financial costs. In Malawi and Uganda, account opening and maintenance fees were waived, and so was the minimum balance requirement.<sup>21</sup> Treatment respondents were given a voucher that could be redeemed for the free account at the bank branch. To open an account, respondents also needed three passport photos and needed to have their identity certified by the local village council. To remove the cost of getting the photos and minimize the hassle of the identity certification, account marketers facilitated this process by offering vouchers for free passport pictures and by obtaining letters of certification from the local council for the entire “treatment” sample. In Chile, where accounts were already free, households were given assistance in filling out the necessary paperwork to open accounts. Below, we provide further details on the specifics of the bank account subsidy country by country.

*Uganda.*—Individuals in the treatment group were visited by agents of MAMIDECOT four to five months after the baseline.<sup>22</sup> The agents gave some basic information about MAMIDECOT and the accounts, and also explained that the accounts normally featured various fees that would be waived for the study period. At the conclusion of the visit, the agents gave respondents a voucher that could be brought to MAMIDECOT and redeemed for a free account (these vouchers expired after four months). Beneficiaries of the free account were informed that the monthly maintenance fees would be waived for a total of 21 months, after which the promotion would end and account holders would be responsible for the fees. In practice,

<sup>20</sup>The occupation categories were classified as employee, vendor, business owner, trader/farmer or animal rearing, cash crop farmer, and housewife or unemployed.

<sup>21</sup>IPA compensated partner banks for the lost fees and balances.

<sup>22</sup>These agents were employed jointly by IPA and MAMIDECOT, but they introduced themselves as employees of MAMIDECOT when interacting with respondents at this visit (the visit was presented as part of a campaign to attract new customers). This was done to minimize the risk of social desirability bias in the follow-up surveys, which were carried out by IPA enumerators.

the promotion ended in March 2013, 24 months after vouchers were distributed. Out of the 1,080 individuals assigned to receive a voucher, 94 percent accepted the voucher,<sup>23</sup> and 54 percent opened an account.

*Malawi.*—The procedure in Malawi was mostly the same as in Uganda. Individuals in the treatment group were visited by a NBS agent, were given some basic information about NBS and the accounts, and were told that the accounts normally featured various fees that would be waived for the study period.<sup>24</sup> At the conclusion of the visit, the agents gave respondents a voucher (which also expired after four months) which could be brought to NBS and redeemed for a free account. Beneficiaries of the free account were informed that the monthly maintenance fees would be waived for a total of 18 months, after which the promotion would end and account holders would have to cover it on their own. In practice, voucher distribution happened in June/July 2011, and the promotion ended in June 2013, 24 months later. Out of the 1,053 assigned to the voucher, 89 percent accepted the voucher<sup>25</sup> and 69 percent opened an account.

In Uganda and Malawi, enumerators visited all households in the treatment group for a “study closure” survey during which we reminded respondents that the fee waiver on the accounts was ending, so that respondents who chose to keep their account open would have to start paying the fees. Specifically, each individual in the treatment group received a home visit during which the individual received information on the fees that would be starting on the account the following month, personalized information on their current balance and an assessment of how quickly their balance would be “eaten” by the fees if they kept the account open; those with low usage were explicitly told closing the account was the recommended option; and individuals received procedural assistance to close the account, which was made extremely easy for individuals. Respondents anticipated these visits since at the time they were offered the accounts, they were told that they would receive a home visit and procedural assistance to close the accounts before the end of the free-fee period.

*Chile.*—At the end of the baseline survey, individuals sampled for the treatment were informed (by the J-PAL enumerator conducting the survey) of the existence and of the main features of the CuentaRUT account and were invited to open an account with BancoEstado. Any respondent who was interested in an account received assistance with the account opening process. In particular, the enumerator helped respondents fill out the application form and delivered the forms to BancoEstado. Participants were told that they would get an answer from the bank in 20 days and that they would need to go in person to one branch of the bank in order to activate the account. In total, 938 households were offered an account. Of this group, only 17 percent signed up and activated their account within a few months.

<sup>23</sup> Of the 68 people who did not accept the voucher, 51 were not interested in the program and 17 were never found (12 people had moved outside the study region, 1 person had died, and 4 people were untraceable).

<sup>24</sup> As in Uganda, the agents were jointly employed by IPA and NBS but introduced themselves as NBS agents, conducting a new customer campaign. They did mention that the fee waiver was sponsored by a nonprofit (the Bill and Melinda Gates Foundation), however. Follow-up surveys were conducted by IPA enumerators.

<sup>25</sup> Of those who did not accept the account offer, 69 were not interested and the rest could not be located.

### E. Data

*Baseline Surveys.*—In Uganda and Malawi, the baseline surveys included modules on demographics and socioeconomic status, income, agricultural inputs and outputs, assets, expenditures, savings, social transfers, cognitive ability, and time and risk preferences. In Chile, we used a shorter baseline survey that focused on household demographics, participant's socioeconomic characteristics, and sources of income, expenditures, and credit.

*Follow-Up Surveys.*—In Uganda and Malawi, we conducted 3 rounds of follow-up surveys, administered approximately 6, 12, and 18 months after accounts were opened. The follow-up surveys were similar across rounds, and to the baseline (which allows us to control for baseline values of most dependent variables in the empirical analysis).

Besides standard outcomes already examined in previous work, a special point of emphasis in the surveys was the measurement of savings across multiple sources. In any savings study, one would expect that at least part of the increase in bank savings would come from moving cash from other places (i.e., crowd-out). In our context, the most natural source of crowd-out would be from saving money at home, which is typically hard to measure (especially with surveys conducted face-to-face, in the home or business where the money may be kept). We extensively piloted modules to measure such savings, asking both about savings stocks and flows. While there may still be underreporting on this measure, we are well positioned to quantify crowd-out and to gauge impacts on total savings.

Attrition in the follow-up surveys is fairly low and uncorrelated with treatment status. Our regressions include all respondents who completed at least one follow-up survey (97 percent of sample). Attrition on this measure is uncorrelated with treatment (see online Appendix Table WA1).<sup>26</sup> In addition, the composition of those who completed at least one follow-up survey is not different in treatment versus control (the  $p$ -value from an  $F$ -test for compositional attrition difference is 0.71 in Uganda and 0.27 in Malawi). Consequently, online Appendix Table WA2 shows that the respondents who remain in the sample post-attrition have similar characteristics as the pre-attrition sample, and are balanced between treatment and control. Online Appendix Table WA3 examines attrition round-by-round, and also finds similar attrition rates across treatment groups (of about 6–8 percentage points).

In Chile, given the low take-up rate of the bank accounts, we did not conduct full follow-up surveys to measure impact. Instead, we conducted qualitative follow-ups with a subsample to understand reasons why people chose not to open accounts.

<sup>26</sup>We note that all our results are robust to including only those households who answered all four rounds, with the sole exception that the increase in total monetary savings in Uganda is only significant when using the larger set of households.

*Administrative Account Data.*—We also have administrative data from banks on account activity. However, in Chile, the bank was not willing to release ID numbers for the bank data, so we are not able to merge the data to our other surveys (and so instead have de-identified individual data). The data covers 24 months in Uganda, 22 months in Malawi, and 17 months in Chile.

### F. Sample Characteristics

Table 1 presents baseline characteristics for the follow-up sample, by treatment status and for each study site, together with the  $p$ -values for the tests of equality between the treatment and control means. As expected, the treatment and control groups are balanced along most characteristics.

The summary statistics also highlight key differences between the two East Africa sites and the Chile site. The Uganda and Malawi sites are much poorer and younger, reflecting differences in both the sampling strategy (we conducted door-to-door visits in Chile during working hours, in a country in which many people have formal employment and were not likely to be home) and in banking access (Chile has much higher bank account ownership rates among working age adults). Panel A of Table 1 shows demographic and socioeconomic status information. The overall picture in Uganda and Malawi is one of serious poverty. Average years of schooling is 5.5 years in Uganda and 4.2 years in Malawi, both substantially lower than the minimum to complete elementary schooling (7 years in Uganda and 8 in Malawi). Literacy rates are low: only 77 percent of people in Uganda and 61 percent in Malawi can read and write in the local language. The main sources of income there are entrepreneurship and agriculture.

Panel B of Table 1 shows access to savings. There are big differences across countries. The dominant form of saving in this unbanked population is in cash at home—in Uganda, 97 percent of people report keeping cash at home (to reduce reporting bias we asked about cash at home or in a secret place), while interestingly in Malawi only 49 percent do (suggesting that a large share of people may have close to no savings whatsoever). In Chile, reported savings at home is even lower, at 25 percent. While this is a surprisingly low figure given Chile's level of development, it might be indicative of having access to credit or the social safety net, or it might be reflective of the sample that has selected into not having a bank account. Outside of home, 23 percent of people in Uganda save in ROSCAs, compared to only 5 percent in Malawi. While we excluded households with formal accounts, we did not exclude those with mobile-money accounts, which encompass only 3 percent of our sample at baseline in Uganda, and 0 percent in Malawi, where mobile money had yet to be introduced. All in all, reported savings are very low: total reported savings stocks is only \$32 in Uganda, \$23 in Chile, and only \$12 in Malawi. While we do not necessarily take these values at face value as people may underreport savings at home to an enumerator, we view them as indicative of extremely low financial savings.

Panel C presents some basic statistics on income and expenditures. By both measures, respondents in Uganda and Malawi are very poor, especially in Malawi: total expenditures in the month before the baseline were only \$18 in Malawi and \$32 in Uganda (income was \$26 and \$32). While we do not have a measure of total

TABLE 1—BASELINE SUMMARY STATISTICS

	Uganda		Malawi		Chile	
	Control mean (SD) (1)	Treatment difference (SE) (2)	Control mean (SD) (3)	Treatment difference (SE) (4)	Control mean (SD) (5)	Treatment difference (SE) (6)
<i>Panel A. Demographics and SES</i>						
Female	0.72 (0.45)	0.00 (0.02)	0.68 (0.47)	0.00 (0.02)	0.78 (0.41)	-0.02 (0.02)
Main occupation						
Entrepreneur	0.46 (0.50)	0.01 (0.02)	0.37 (0.48)	0.00 (0.02)	0.10 (0.30)	-0.01 (0.01)
Farmer	0.32 (0.47)	-0.01 (0.02)	0.23 (0.42)	0.00 (0.02)	0.03 (0.18)	0.00 (0.01)
Employee	0.17 (0.38)	0.00 (0.02)	0.29 (0.45)	0.00 (0.02)	0.17 (0.37)	0.00 (0.02)
Housewife/ unemployed	0.05 (0.21)	0.00 (0.01)	0.11 (0.31)	0.00 (0.01)	0.70 (0.46)	0.01 (0.02)
Age	36.23 (11.90)	0.11 (0.52)	39.79 (17.00)	-0.33 (0.73)	51.54 (16.74)	-0.05 (0.75)
Married	0.71 (0.45)	0.00 (0.02)	0.72 (0.45)	0.00 (0.02)	0.46 (0.50)	0.01 (0.02)
Household size	5.15 (2.39)	-0.04 (0.10)	4.60 (1.99)	-0.07 (0.09)	3.80 (1.95)	0.01 (0.08)
Years of education	5.49 (2.95)	0.01 (0.13)	4.21 (3.44)	-0.15 (0.15)		
Acres of land owned by household	1.51 (2.17)	0.07 (0.11)	2.19 (1.88)	0.06 (0.08)		
Value of household and agricultural assets	373.66 (694.09)	32.91 (65.66)	144.26 (270.67)	6.12 (16.45)		
Distance to bank branch in kilometers	2.68 (2.03)	-0.09 (0.09)	6.03 (3.22)	-0.32 (0.14)		
<i>Panel B. Savings</i>						
Participates in ROSCA	0.23 (0.42)	0.00 (0.02)	0.05 (0.22)	-0.01 (0.01)		
Holds savings in cash at home	0.97 (0.18)	-0.02 (0.01)	0.49 (0.50)	0.00 (0.02)	0.25 (0.44)	-0.02 (0.02)
Holds savings with friends/family	0.11 (0.31)	0.00 (0.01)	0.07 (0.25)	0.01 (0.01)	0.02 (0.15)	-0.01 (0.01)
Holds savings in mobile money account <sup>a</sup>	0.03 (0.18)	-0.01 (0.01)	0.00 (0.00)	0.00 (0.00)		
Holds other cash savings <sup>b</sup>	0.02 (0.15)	0.00 (0.01)	0.00 (0.07)	0.00 (0.00)		
Total monetary savings	31.80 (111.87)	-5.35 (4.33)	11.82 (45.00)	0.60 (2.08)	23.22 (148.94)	-4.52 (5.40)
<i>Panel C. Income and expenditures</i>						
Total expenditures (last month) <sup>c</sup>	32.06 (51.08)	-0.59 (2.43)	17.80 (45.74)	-1.35 (1.60)	250.05 (216.78)	(13.16) (9.17)
Labor income (last month) <sup>c</sup>	32.48 (95.45)	-5.88 (4.38)	25.72 (67.27)	2.79 (3.77)	270.56 (426.39)	13.50 (17.64)

(continued)

household expenditures (since we only interviewed one respondent), these households are quite likely to be below the global poverty line.<sup>27</sup> In Chile, the income and expenditure questions were asked of the household rather than the individual: reported

<sup>27</sup> We did ask respondents to report the source of income of the spouse, but in many cases they did not know this value with certainty, if we include those reports income is \$41 in Uganda and \$34 in Malawi.

TABLE 1—BASELINE SUMMARY STATISTICS (*continued*)

	Uganda		Malawi		Chile	
	Control mean (SD)	Treatment difference (SE)	Control mean (SD)	Treatment difference (SE)	Control mean (SD)	Treatment difference (SE)
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel D. Access to credit</i>						
If you needed US\$5 (US\$6.5 in Malawi, US\$60 in Chile) urgently, how would you get the money?						
Would use (only) savings	0.12 (0.33)	0.01 (0.01)	0.04 (0.19)	0.00 (0.01)	0.03 (0.16)	0.00 (0.01)
Would use savings and other method	0.35 (0.48)	0.04 (0.01)	0.07 (0.25)	0.00 (0.01)	0.03 (0.16)	0.00 (0.01)
Would borrow/ask from friends/family	0.76 (0.77)	0.00 (0.03)	0.50 (0.60)	−0.02 (0.03)	0.61 (0.49)	0.01 (0.02)
Would sell animals (Chile: sell something)	0.23 (0.69)	−0.04 (0.03)	0.07 (0.32)	0.01 (0.01)	0.02 (0.15)	0.00 (0.01)
Would borrow from bank					0.04 (0.20)	0.00 (0.01)
Would borrow from ROSCA (Chile: from other source)	0.03 (0.20)	0.01 (0.01)	0.02 (0.13)	−0.01 (0.01)	0.05 (0.23)	−0.01 (0.01)
Would be impossible to get it <sup>d</sup>	0.05 (0.26)	0.01 (0.01)	0.20 (0.40)	−0.01 (0.02)	0.19 (0.39)	−0.02 (0.02)
If you needed US\$25 (US\$26 in Malawi, US\$600 in Chile) urgently, how would you get the money?						
Would use (only) savings	0.05 (0.22)	−0.02 (0.01)	0.02 (0.13)	0.00 (0.01)	0.01 (0.10)	0.00 (0.00)
Would use savings and other method	0.27 (0.44)	0.02 (0.02)	0.04 (0.20)	0.00 (0.01)	0.01 (0.11)	0.00 (0.01)
Would borrow/ask from friends/family	0.78 (0.82)	0.02 (0.04)	0.38 (0.62)	−0.01 (0.03)	0.23 (0.42)	0.01 (0.02)
Would sell animals (Chile: sell something)	0.35 (0.88)	0.04 (0.04)	0.07 (0.34)	0.03 (0.02)	0.03 (0.16)	0.00 (0.01)
Would borrow from bank					0.17 (0.37)	0.02 (0.02)
Would borrow from ROSCA (Chile: from other source)	0.04 (0.30)	0.01 (0.01)	0.04 (0.19)	0.00 (0.01)	0.06 (0.23)	−0.01 (0.01)
Would be impossible to get it <sup>d</sup>	0.16 (0.40)	0.00 (0.02)	0.41 (0.49)	−0.02 (0.02)	0.46 (0.50)	−0.03 (0.02)
Ever received a formal loan <sup>e</sup>	0.04 (0.18)	−0.01 (0.01)	0.05 (0.22)	0.05 (0.22)	0.29 (0.45)	0.01 (0.02)
Ever received an informal loan <sup>f</sup>	0.05 (0.22)	0.01 (0.01)	0.03 (0.18)	0.03 (0.18)		
<i>Panel E. Aggregate orthogonality test for panels A–D</i>						
<i>p</i> -value (joint <i>F</i> -test)		0.34		0.50		0.60
Observations		2,159		2,107		1,967

*Notes:* Randomization in Uganda was stratified on occupation, gender, and bank branch, while in Malawi it was based on occupation, gender, marital status, literacy, and whether the respondent was from the household or market sample. The table uses values of the variables collected in Round 1 Survey (October–November 2010 in Uganda, February–March 2011 in Malawi, and December 2010–March 2011 in Chile). All monetary values are expressed in June 2010 US dollars. Columns 2, 4, and 6: means for the treatment-control difference and robust standard errors in parentheses obtained from a regression of each variable on treatment.

<sup>a</sup>The question was introduced later in the baseline survey and was only asked of 1,661 households in Uganda.

<sup>b</sup>Other cash savings: savings with shopkeeper or employer, farmer groups, and village leader.

<sup>c</sup>The question asks about total expenditures and income of the respondent in Uganda and Malawi and of the household in Chile.

<sup>d</sup>For Chile, the question pools together those who say that they would not do anything to face the emergency, and those who say they would not know how to get the money.

<sup>e</sup>Informal loan: from ROSCA or community group (Uganda); ROSCA, village bank, or moneylender (Malawi).

<sup>f</sup>Formal loan: loan from bank, SACCO, or MFI (Uganda and Malawi), loan or credit card from bank (Chile).

values were \$250 in expenditures and \$270 in income, much larger than in the other two countries.

Finally, panel D of Table 1 presents statistics on access to credit. Only 4 percent in Uganda and 5 percent in Malawi report ever having had a formal loan, whereas in Chile 29 percent report having had a formal sector loan or credit card at some point. However, when asked how they would obtain urgently \$5 in the African countries and \$60 in Chile, which is approximately 25 percent of expenditures in the three countries, only 5 percent in Uganda said they would not be able to get it, with 76 percent mentioning that they can get it from friends/family. In Malawi and Chile, 20 percent said they could not get it, the difference mainly coming from lower shares that would ask friends/family (50 percent in Malawi and 60 percent in Chile). We also had a second question asking about \$25 in Uganda and Malawi and \$600 in Chile, which shows similar patterns (with 16 percent saying they could not get it in Uganda and around 40 percent in Malawi and Chile, and 78 percent going to friends/family in Uganda versus only 38 percent and 23 percent in Malawi and Chile). It could be the case that these amounts are not big enough in Chile for someone to go to a bank and get credit; indeed, only 4 percent would borrow from a bank when asked about \$60, but 17 percent would do so when asked about \$600.

## II. Results

### A. Take-Up of the Accounts

Table 2 presents statistics on take-up of the accounts.<sup>28</sup> As mentioned earlier, 54 percent of respondents opened accounts in Uganda, 69 percent in Malawi, and 17 percent in Chile. The majority of those opening accounts did not use them very much as shown in Figure 1, where we present the distribution of the number of deposits over the study period. In the three countries, 42 percent, 41 percent, and 6 percent used the accounts at least once. We define users as “active” if they made at least five deposits in the first two years after getting the account offer. According to this definition, active usage rates were 17 percent in Uganda, 10 percent in Malawi, and 3 percent in Chile.<sup>29</sup>

Among active users, usage is quite high: active users made 13 deposits over the study period in Uganda, 12 in Malawi, and 14 in Chile, and the average amount of total deposits among active users was \$527 in Uganda, \$648 in Malawi, and \$1,858 in Chile. These figures imply average monthly deposits of about \$22, \$24, and \$110 per month for active users, and \$4, \$3, and \$4 for the overall treatment group (total deposits were calculated over 22 months in Malawi, 24 in Uganda, and 17 in Chile due to data availability). These amounts are not trivial for Malawi and

<sup>28</sup>The account opening and usage rates we present here are averages for the treatment group and they are only an approximation to treatment effects because we do not have administrative data on account usage for the control group. However, only 4 percent of the control group in Uganda reports having an account at our partner institution, while this share is just 1 percent in Malawi.

<sup>29</sup>This definition differs from Dupas and Robinson (2013a), which only had six months of bank usage data and thus defined active usage as making at least two deposits over the first six months. Prina (2015) uses their definition in her comparison of take-up across studies even if studies have a longer window (table 3 in her paper). With their definition, the figures in our study are 32 percent in Uganda, 25 percent in Malawi, and 5 percent in Chile.

TABLE 2—TAKE-UP OF SPONSORED BANK ACCOUNT AMONG ASSIGNED TO TREATMENT

	Uganda		Malawi		Chile	
	All (1)	Active users only (2)	All (3)	Active users only (4)	All (5)	Active users only (6)
Opened account	0.54	1.00	0.69	1.00	0.17	1.00
Ever used account (at least 1 deposit)	0.42	1.00	0.41	1.00	0.06	1.00
Made at least 2 deposits within first 2 years	0.32	1.00	0.25	1.00	0.05	1.00
Active user (made at least 5 deposits within first 2 years)	0.17	1.00	0.10	1.00	0.03	1.00
Long-term user (at least 1 deposit in the second year)	0.19	0.77	0.12	0.83	0.05	0.93
Total number of deposits	2.68	12.81	1.78	12.06	0.49	14.24
Total number of withdrawals	1.45	6.86	1.42	10.95	0.56	15.07
Total value of deposits	106.72	527.32	74.56	647.64	66.01	1,858.11
Total value of withdrawals	90.06	444.78	70.47	623.80	58.17	1,494.89
If ever deposited, median deposit size	13.12	29.38	11.44	29.23	5.68	82.64
If ever withdrew, median withdrawal size	20.00	54.46	10.29	33.57	8.67	104.86
Total savings at baseline from survey data	26.45	29.26	12.42	34.28	18.70	N/A
Number of observations	1,080	181	1,053	106	938	29

Notes: Samples restricted to those offered a sponsored account. The sponsored account offer was made in March–April 2011 in Uganda and in June–July 2011 in Malawi. “Active user” is defined as making at least five deposits within two years. Monetary values are deflated to June 2010 values and converted to nominal US dollars. Total deposits are calculated over 24 months in Uganda, 22 months in Malawi, and 17 months in Chile due to data availability. In Chile, opened account is defined as within five months of the baseline due to bank data availability.

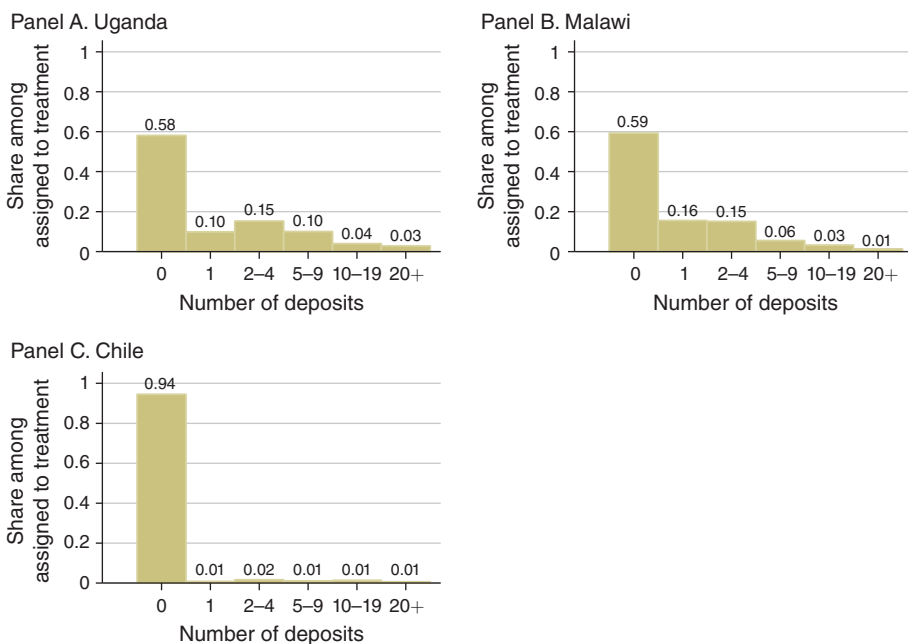


FIGURE 1. DISTRIBUTION OF NUMBER OF DEPOSITS

Notes: This plots the distribution of number of deposits onto sponsored bank accounts among individuals who were offered an account. Number of deposits is calculated over 24 months in Uganda, 22 months in Malawi, and 17 months in Chile.



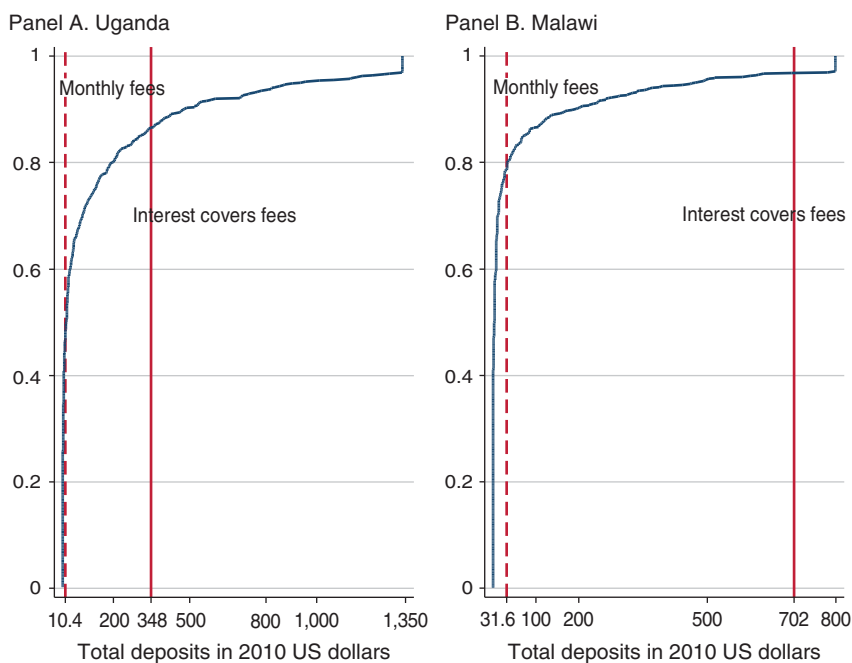


FIGURE 2. DEPOSITS AND FEES

*Notes:* This figure plots the CDF of total deposits onto sponsored bank accounts among individuals in the treatment group who opened an account in the first two years after accounts were offered. The dashed vertical line shows the total value of monthly fees that would have been owed onto the account over the two-year period had the account not been sponsored. The solid vertical line shows the threshold total deposit amount needed for the interest rate paid on the accounts to equalize the fees. Thus, only those with a total deposit amount above that threshold would face a nonnegative interest rate, absent a fee waiver.

Uganda (where average monthly individual expenditures are about \$15 and \$30 per month, respectively), but they are tiny in Chile, where average monthly household expenditures are about \$250 per month. The pattern of usage we observe here is similar to several previous studies in rural Kenya (Dupas and Robinson 2013a; Dupas, Keats, and Robinson 2015), which find that a majority of households never use the accounts, but usage among active users is high.

Figure 2 plots the cumulative density function of the total amount deposited into the account over the study period. On each graph, we also plot a line for the balance for which the interest on deposits would cover the fees (so that the accounts would yield a positive financial return). Given the interest rates, these would be very large balances: \$702 in Malawi and \$348 in Uganda. Few people save this much (13 percent in Uganda and 3 percent in Malawi). This suggests that, absent the fee waiver offered for the study, these accounts are unaffordable for the majority of unbanked households—and it is worth noting that the fees charged by financial institutions chosen for this study are comparable to those charged by most institutions throughout the African continent (Demirgüç-Kunt et al. 2015).<sup>30</sup>

<sup>30</sup>The cost of opening and maintaining the account for one year amounts to 68 percent (80 percent) of the average stock of savings in Uganda (Malawi) at baseline.

Figure 3 plots usage over time. Interestingly, while average usage is fairly modest, people who do use the accounts continue to use them throughout the study period. As can also be seen, people deposit and withdraw at similar rates over time. Consequently, account balances do not increase very much over time. This figure seems to indicate that people are using the accounts for transactions on a regular basis, which can be an important benefit of the accounts. However, we do not think this is the main reason why the accounts are used. First, people are not making transactions with the bank directly: the bank administrative data show very few transfers to or from other accounts (only six individuals in Uganda and one individual in Malawi had some bank transfer over the course of the study). Second, there are no records of any direct bill payment in the administrative data. Our preferred conjecture for what can explain the in and out patterns in the data is that people are using the accounts for safekeeping and long-term savings goals (as self-reported in the baseline survey), but they have frequent needs. Every time they have accumulated a large enough sum to warrant a trip, they bring it to the bank, but they take money out every time they need it. Note that active users made one deposit every two months, and one withdrawal every four months in Uganda; while in Malawi active users made one deposit and one withdrawal every two months.

### B. *Determinants of Take-Up*

We next examine the correlates of take-up and active usage of the bank accounts in the treatment group. We look at two primary outcomes: the “active usage” dummy defined above, and total deposits (for which we use an inverse sine hyperbolic transformation to approximate a log specification without dropping the zeroes, as is common in this literature; see Callen et al. 2014 and Prina 2015). Since the Chilean bank did not give us access to personal identifiers in the administrative account data, the only outcome we can examine there is accepting our offer of assistance to open the account.

Results are presented in Table 3. There are three important predictors of usage that are statistically significant in both Uganda and Malawi: distance to the bank branch, years of education, and a proxy for wealth (the log value of agricultural and household assets). The negative correlation between distance and usage is likely due to travel costs and is suggestive that access to the branch is a constraint.<sup>31</sup> The positive correlation between usage and years of education and asset holdings is suggestive that better-off households have more income to allocate to savings, though could also operate through other channels, such as human capital. This correlation has also been found in previous work, such as Dupas and Robinson (2013a) and Dupas, Keats, and Robinson (2015). We find some evidence that baseline savings are correlated with usage, in particular savings at a ROSCA in Uganda, and home savings in Malawi. In contrast to Dupas and Robinson (2013a), we find no differences in take-up between genders or across occupations.

<sup>31</sup> Alternatively, this correlation could certainly be due to other differences between households that live close to towns and households that live farther away. Note, however, that the correlation is conditional on most obvious covariates.

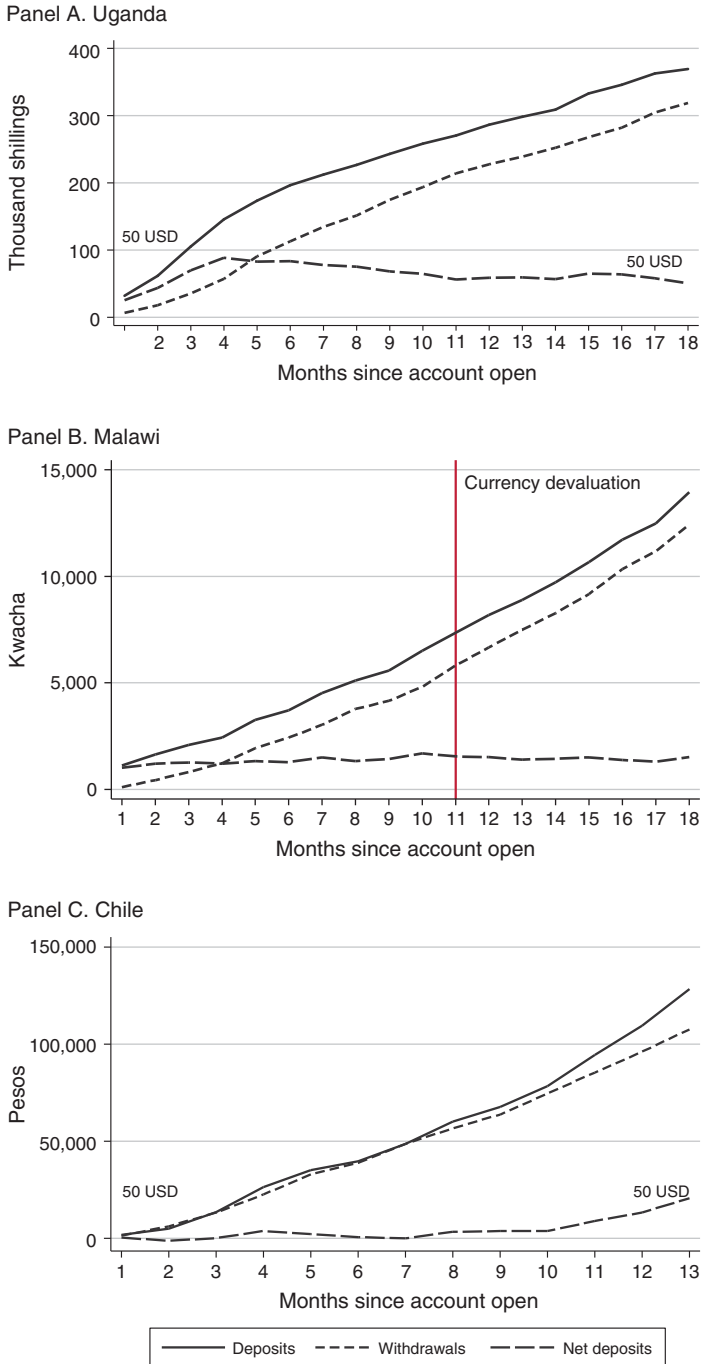


FIGURE 3. EVOLUTION OF USAGE OVER TIME, FROM ADMINISTRATIVE DATA

Notes: Plots show evolution of total deposited and total withdrawn to date over time, as well as their difference. The y-axes are in local currencies as the exchange rate changed over the study period in Malawi, hence making comparisons over time in US dollars somewhat difficult. The “50 USD” text boxes are placed to show the exchange rate at the beginning and end of the study period.

TABLE 3—CORRELATES OF TAKE-UP AMONG THOSE IN TREATMENT GROUP: REGRESSION ANALYSIS

	Uganda			Malawi			Chile	
	Active <sup>a</sup>	Deposits (inverse hyperbolic sine transformation)		Active	Deposits (inverse hyperbolic sine transformation)		Accepted assistance	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A. Demographics</i>								
Female	0.046 (0.029)	-0.211 (0.209)	-0.256 (0.212)	-0.004 (0.024)	0.305 (0.179)	0.343 (0.178)	-0.091 (0.047)	-0.068 (0.047)
Not married	0.096 (0.105)	0.453 (0.693)	0.524 (0.696)	0.004 (0.128)	-0.325 (0.789)	-0.319 (0.794)	-0.034 (0.052)	-0.010 (0.052)
Female × not married	-0.093 (0.108)	-0.459 (0.711)	-0.527 (0.715)	0.017 (0.130)	0.551 (0.805)	0.515 (0.810)	0.097 (0.059)	0.086 (0.060)
Household size	0.010 (0.006)	0.097 (0.038)	0.102 (0.038)	-0.002 (0.006)	0.048 (0.042)	0.048 (0.042)	0.017 (0.008)	0.020 (0.008)
Age (1/10s of years)	0.073 (0.064)	0.745 (0.457)	0.698 (0.458)	0.093 (0.031)	0.775 (0.230)	0.788 (0.227)	-0.092 (0.050)	
Age squared	-0.004 (0.008)	-0.051 (0.056)	-0.045 (0.056)	-0.009 (0.003)	-0.069 (0.024)	-0.069 (0.023)	0.005 (0.005)	
Pension age								-0.098 (0.029)
Entrepreneur	0.058 (0.049)	0.578 (0.333)	0.494 (0.336)	0.029 (0.033)	0.344 (0.241)	0.284 (0.241)	0.129 (0.054)	0.108 (0.055)
Farmer	-0.017 (0.050)	0.211 (0.339)	0.162 (0.340)	0.009 (0.030)	0.286 (0.237)	0.298 (0.237)	-0.104 (0.061)	-0.086 (0.060)
Employee	0.067 (0.055)	0.382 (0.370)	0.277 (0.373)	-0.001 (0.029)	0.055 (0.223)	0.060 (0.223)	-0.019 (0.040)	-0.011 (0.041)
<i>Panel B. Access to bank</i>								
Distance to closest branch in kilometers	-0.017 (0.005)	-0.129 (0.038)	-0.123 (0.038)	-0.005 (0.004)	-0.073 (0.027)	-0.066 (0.027)		
<i>Panel C. Asset holdings and education</i>								
log value of household and agricultural assets	0.021 (0.013)	0.165 (0.090)	0.134 (0.091)	0.019 (0.009)	0.202 (0.063)	0.166 (0.062)		
Years of education (dummy for more than primary in Chile)	0.008 (0.004)	0.069 (0.027)	0.065 (0.027)	0.010 (0.004)	0.114 (0.027)	0.112 (0.027)	0.038 (0.031)	0.063 (0.031)
<i>Panel D. Cognitive ability/financial literacy</i>								
Raven's score (standardized)	0.011 (0.012)	0.143 (0.083)	0.143 (0.082)	0.007 (0.010)	0.038 (0.076)	0.035 (0.076)		
Financial literacy/numeracy index (standardized) <sup>b</sup>	-0.009 (0.012)	-0.030 (0.080)	-0.033 (0.079)	-0.007 (0.009)	0.116 (0.062)	0.118 (0.062)		
<i>Panel E. Baseline savings activity</i>								
Stock saved in cash at home (2010 US dollars)			-0.001 (0.001)			0.005 (0.001)	-0.003 (0.012)	-0.001 (0.012)
Stock saved at ROSCA (2010 US dollars)			0.013 (0.006)			0.024 (0.017)		
Stock saved with friends/family (2010 US dollars, 1/100 US dollars for Chile)			0.000 (0.003)			0.003 (0.004)	-0.020 (0.009)	-0.015 (0.009)
Adjusted R <sup>2</sup>	0.055	0.087	0.096	0.047	0.099	0.110	0.047	0.036
Observations	1,080	1,080	1,080	1,053	1,053	1,053	938	938
Mean of dependent variable	0.168	1.593	1.593	0.101	1.479	1.479	0.191	0.191

Notes: OLS regressions also include branch dummies for Uganda and Malawi. Some variables have missing data; to avoid dropping these observations, we set these values to zero, create dummies for having missing data, and include these in the regressions (coefficients not reported). Standard errors are in parentheses.

<sup>a</sup>Active is defined as making at least five deposits over the length of the study.

<sup>b</sup>Financial literacy was asked of a random half of the sample at baseline and for which we impute the mean of the financial literacy index. The index was composed of five questions about investments involving multiplication, averages, and percentages.

Overall, we cannot predict very well who the active users are based on observables. The  $R^2$  in the regressions in Table 3 never goes beyond 0.11. Among other things, that means that we cannot use a propensity score matching algorithm to identify who in the control group would have been likely active users in order to compare active users with their proper counterfactual and increase statistical power compared to a standard “intention-to-treat” (ITT) estimation.

### C. Comparing Administrative to Survey Data

Our main results for treatment effects on total savings use the survey data from the follow-ups, since these are the only measures we have for the control group. How accurate are these data? Online Appendix Table WA4 shows figures on deposits in the month before the date of each follow-up survey from the survey and from the administrative data. Averaging across rounds, average deposits in the survey data were \$2.13 in Uganda and \$0.55 in Malawi, substantially lower than the average of \$2.94 and \$1.77 from the administrative data. The table shows that the survey data have fewer large transactions: the standard deviation of deposits is at most half as large compared to the administrative records in both countries, and there is a wide discrepancy in the highest percentiles of the deposit distribution. The balance data is closer to the truth, and even possibly overstated in Uganda (average reported balances were \$21 in Uganda and \$9 in Malawi, compared to true values of \$12.5 and \$9 recorded by the banks). To deal with this misreporting, in the main specifications we winsorize at 1 percent, which brings the two measures much closer together.<sup>32</sup> For completeness, we also show non-winsorized results in the online Appendix.<sup>33</sup>

Another note of interest concerning the administrative data shown in online Appendix Table WA4 is that the 30 days before the surveys (the periods over which deposits were self-reported) had lower bank usage than average: while administrative data suggest average monthly deposits over the entire study period was \$4 in Uganda and \$3 in Malawi, for the months covered by the surveys the same administrative records show averages of only \$3 in Uganda and \$1.8 in Malawi. This suggests that the periods around the survey may be low-savings periods.

### D. Impact on Savings and Other Downstream Outcomes

In Uganda and Malawi, we examine the effects of the accounts on a number of outcomes from the follow-up data (in Chile, as discussed above, we did not collect follow-up data because the take-up of the account was so low). We use the experimental variation to examine differences in outcomes between the treatment and control groups. Since the experiment was randomized and we have baseline measures of most outcomes, regressions are very simple. For a given outcome  $Y_{hst}$  for household

<sup>32</sup>The confidence intervals for the difference in means between administrative and survey data always contain zero, but they are wide. However, for the winsorized data they are quite narrow.

<sup>33</sup>This partially deals with the issue of nonclassical measurement error that overstates treatment effects for total savings stocks, but it could also be the case that control group participants understate savings at home.

$h$  in strata  $s$  in wave  $t$  (see Section IC for details on the strata), we run the following ANCOVA regression:

$$(1) \quad Y_{hst} = \alpha T_{hs} + \beta Y_{hs1} + \mu_s + \theta_t + \varepsilon_{hst},$$

where we control for the baseline value of the outcome ( $Y_{hs1}$ ), stratification dummies ( $\mu_s$ ), and wave dummies ( $\theta_t$ ). All monetary values are winsorized at the ninety-ninth percentile to reduce the prevalence of outliers. Whether winsorizing is the correct thing to do when usage is so skewed is unclear, however—we therefore show non-winsorized results in online Appendix Table WA6. The coefficient  $\alpha$  represents the intent-to-treat effect.

In all tables, we also perform IV treatment on the treated regressions in which we run a first-stage regression of

$$(2) \quad A_{hst} = \gamma T_{hs} + \mu_s + \theta_t + \varepsilon_{hst},$$

where  $A_{hs}$  is an indicator for actively using the account. We use two measures: making at least one deposit, which we label as “ToT” in all tables; and depositing in the account at least once in year two (i.e., at least a year after account opening), which we call the “Long Term ToT.” Our IV regression, therefore, is

$$(3) \quad Y_{hst} = \alpha A_{hs} + \beta Y_{hs1} + \mu_s + \theta_t + \varepsilon_{hst}.$$

To calculate appropriate effect sizes, we report the control complier mean (CCM) in all tables. The CCM is the implied mean outcome for those in the control group who would have made one deposit in the free account if it had been offered to them, and it is identified under the assumptions needed to estimate the ToT effect (Katz, Kling, and Liebman 2001). It is the difference between the treatment complier mean (mean for those who were offered the account and made at least one deposit on it) and the ToT effect. It can take on negative values due to sampling variability.

These ToT effects should be interpreted with a note of caution. First, our instruments might not satisfy the exclusion restriction: the offer of the account might have an effect on savings that is independent from having ever used the account or from having used it in the second year (for example, by motivating people to save more at home when reminded about the importance of savings in the case of the first instrument, and saving in the account in the first year leading to long-term changes even if the individual did not continue using it in the second year or onward). The second caveat is that we cannot rule out the existence of always takers in our sample: households in the control group were not prevented from opening an account as long as they paid for the fees, but the share of households in the control group doing so was very small.<sup>34</sup> However, we do not have administrative data from the partner banks for control group respondents; thus, we do not have information on whether

<sup>34</sup>In Uganda, 4 percent of respondents in the control group report having an account at our partner institution at endline. In Malawi, only 1 percent of respondents in the control group report having an account at our partner institution at the second follow-up survey. Thus, this does not seem to be an important issue, in magnitude.

they made at least one deposit in the account. We assume they did not. If they did, this would mean our ToT estimate is underestimated.<sup>35</sup>

*Savings.*—To measure savings, we first look at savings balances in Table 4 (because the limited window over which savings flows was measured missed most of the activity). Column 1 of Table 4 shows savings in formal financial institutions (including partner banks), columns 2–6 show savings in other sources, column 7 shows total savings, and column 8 shows formal loans. Column 1 shows an important safekeeping effect, the ITT effect on bank savings is of \$8.8 in Uganda (equivalent to 22 percent of control group total savings), and \$3.9 (28 percent) in Malawi. ToT effects are much larger: \$20–\$43 in Uganda and \$9–\$32 in Malawi, which represent 47 percent to 119 percent and 41 percent to 140 percent of the appropriate total savings CCM, respectively.

We find evidence of crowd-out, mostly from home savings: in Uganda, savings in other sources declined by almost \$4, leaving an ITT effect on total savings of \$5.0 (significant at 5 percent); in Malawi, other savings declined by \$2.5, leaving a total effect of \$1.40 (not significant). As percentages, these are about 10 percent of control group savings (which are \$41 in Uganda and only \$14 in Malawi), and about 1 percent of annual expenditures (which are \$350 in Uganda and \$180 in Malawi, calculated from Table 5). ITT effects are thus fairly modest and of borderline significance.<sup>36,37</sup> ToT effects on total savings stocks are quite sizable, at \$11–\$24 in Uganda (26–68 percent of control complier mean savings) and \$3–\$12 in Malawi (20–50 percent), though the Malawi results are not statistically significant.

While balances are likely better measured than flows, balances are difficult to interpret since zero usage will appear the same as a large amount of deposits and withdrawals. Figure 3 shows some evidence of this: withdrawals and deposits were roughly of the same order of magnitude among users—users were taking out what they were putting in. To examine this, we also present savings flows in online Appendix Table WA5. We find an ITT effect of formal bank savings of just \$0.74 in Uganda and \$0.13 in Malawi (these are fairly small figures, amounting to about 2 percent of individual labor income in Uganda and 0.5 percent in Malawi); total savings flows are not statistically significant, however. As before, ToT effects are more substantial.

We present quantile treatment effects on total savings stocks in online Appendix Figure WA2. In Uganda, we see larger effects at the upper tail. In Malawi, we now see a few small statistically significant effects for some quartiles at the upper tail. This is consistent with stronger effects for a small number of active users.

<sup>35</sup>For example, if the 4 percent of respondents in the Ugandan control group who reported having an account at our partner institution actually made at least one deposit, this would approximately lead to a 10 percent increase in the ToT estimates (since we would need to divide the ITT effects by 0.38 (0.42 – 0.04) instead of by 0.42. In Malawi, under a similar scenario we would be underestimating the ToT effects by 2.5 percent (we would need to divide by 0.40 instead of 0.41).

<sup>36</sup>See online Appendix Table WA6 for results without winsorizing—results in Uganda become not statistically significant.

<sup>37</sup>Columns 3 and 4 in online Appendix Table WA7 replicate Table 4 by using administrative data on balances at the moment of the survey instead of reported savings at SACCOs (Uganda) and Banks (Malawi) for those with balance data (for those without administrative data, we keep on using survey data). The effect size in Uganda is smaller, and the effect on total savings is not statistically significant.

TABLE 4—IMPAIRMENTS ON SAVINGS STOCKS IN 2010 US DOLLARS

	Formal financial institutions <sup>a</sup>	Mobile money	Cash at home or in secret place	ROSCA/VSLA <sup>b</sup>	Friends/family	Other cash savings <sup>c</sup>	Total monetary savings	Received formal loan <sup>d</sup>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A. Uganda</i>								
ITT	8.780 (1.270)	-0.387 (0.188)	-2.743 (1.544)	-0.349 (0.79)	-0.813 (0.65)	0.003 (0.01)	4.980 (2.440)	0.007 (0.01)
TOT <sup>e</sup>	20.117 (2.795)	-0.882 (0.428)	-6.250 (3.503)	-0.795 (1.78)	-1.849 (1.47)	0.007 (0.02)	11.380 (5.530)	0.016 (0.02)
Long-term TOT <sup>f</sup>	43.146 (6.089)	-1.893 (0.923)	-13.441 (7.560)	-1.706 (3.82)	-3.971 (3.16)	0.016 (0.04)	24.524 (11.903)	0.033 (0.03)
Dep. var. mean in control group	5.03	1.10	21.61	8.54	4.63	0.02	40.94	0.04
Standard deviation	31.60	6.97	55.40	25.00	22.67	0.26	80.26	0.19
Treatment complier mean (TCM)	26.26	0.76	15.46	9.87	2.08	0.03	54.51	0.06
Control complier mean (CCM)	6.14	1.65	21.71	10.66	3.93	0.03	43.13	0.05
Long-term treat. complier mean (LTTCM)	34.92	0.74	14.46	8.98	1.52	0.03	60.77	0.05
Long-term control complier mean (LTCCM)	-8.23	2.63	27.90	10.68	5.49	0.01	36.25	0.02
Observations	6,007	6,027	6,022	6,028	6,030	6,017	5,978	6,033
Number of households	2,085	2,085	2,085	2,085	2,085	2,085	2,085	2,085
<i>Panel B. Malawi</i>								
ITT	3.883 (0.605)	—	-1.951 (0.671)	-0.438 (0.236)	-0.034 (0.019)	—	1.391 (0.98)	0.005 (0.00)
TOT	9.403 (1.424)	—	-4.727 (1.619)	-1.059 (0.570)	-0.081 (0.047)	—	3.372 (2.36)	0.012 (0.01)
Long-term TOT	32.482 (4.866)	—	-16.330 (5.696)	-3.653 (1.992)	-0.280 (0.163)	—	11.676 (8.08)	0.040 (0.03)
Dep. var. mean in control group	2.15	—	9.20	2.45	0.10	—	13.87	0.02
Standard deviation	15.08	—	26.15	8.63	0.82	—	32.57	0.14
Treatment complier mean (TCM)	11.18	—	7.18	2.19	0.05	—	20.55	0.03
Control complier mean (CCM)	1.78	—	11.91	3.25	0.13	—	17.18	0.02
Long-term treat. complier mean (LTTCM)	24.18	—	7.78	2.81	0.02	—	34.81	0.04
Long-term control complier mean (LTCCM)	-8.30	—	24.11	6.47	0.30	—	23.13	0.00
Observations	5,900	—	5,905	5,906	5,907	—	5,898	5,889
Number of households	2,046	—	2,046	2,046	2,046	—	2,046	2,040
<i>Panel C. Pooled ITT</i>								
	6.359 (0.709)	—	3.052 (1.334)	6.359 (0.709)	-0.447 (0.33)	—	3.052 (1.334)	0.006 (0.00)

Notes: ITT is the coefficient from a pooled regression of the outcome (including three waves of follow-up data 12, 18, and 24 months after baseline) on an indicator for being offered a free bank account. We control for the baseline value of dependent variable (we replace missing values of dependent variables at baseline by zero and include dummies for missing observations), dummies for stratification variables, and wave dummies. Standard errors are clustered at the respondent level. All dependent variables are top winsorized at the ninety-ninth percentile. Treatment Complier Mean is the mean of the dependent variable for those who made at least one deposit (or at least one deposit in the second year, for the long-term TOT). Control Complier Mean is the difference between the TOT and the treatment complier mean.

<sup>a</sup>Formal financial institutions include commercial banks, microfinance banks, and savings and credit cooperatives (SACCOs).

<sup>b</sup>For Malawi, data for savings in VSLA are only available for the second and third follow-up.

<sup>c</sup>Other cash savings: savings with shopkeeper or employer, farmer groups and village leader.

<sup>d</sup>In Uganda, data for having "ever" received a loan; in Malawi: data on having received a loan in the last six months, and we control at baseline with a variable on having "ever" received a loan. Formal Loan: Bank, SACCO, or MFI.

<sup>e</sup>TOT shows the coefficient on an indicator for having made at least one deposit, instrumented with treatment.

<sup>f</sup>Long-term TOT shows the coefficient on an indicator for having made at least one deposit in the second year of the program (i.e., still using the account after 1 year), instrumented with treatment.



TABLE 5—IMPACTS ON DOWNSTREAM OUTCOMES IN 2010 US DOLLARS

	Total labor income (last 3 months) (1)	Owns a business (2)	Business inventory (USD) (3)	Total expenditures (last month) (4)	Food expenditures (last 7 days) (5)	Durables, education, and home repair (last year) (6)	Health expenditures (last month) (7)	Agricultural expenditures (last month) (8)
<i>Panel A. Uganda</i>								
ITT	0.502 (3.68)	0.000 −0.013	−5.153 (5.11)	0.273 (1.20)	0.302 (0.21)	4.331 (4.75)	0.414 (0.37)	0.002 (0.10)
TOT	1.138 (8.31)	0.000 −0.031	−11.731 (11.61)	0.622 (2.72)	0.688 (0.47)	9.842 (10.73)	0.943 (0.83)	0.004 (0.22)
Long-term TOT	2.447 (17.87)	0.000 −0.065	−25.139 (24.93)	1.326 (5.81)	1.477 (1.01)	21.128 (23.06)	2.023 (1.78)	0.008 (0.46)
Baseline mean in control group	75.76	0.68	57.01	29.97	4.91	120.80	9.52	1.58
Standard deviation	145.20	0.47	104.80	35.64	5.82	179.90	22.16	4.55
Dep. var. mean in control group	82.32	0.73	90.84	33.26	5.74	89.49	6.53	0.78
Standard deviation	132.40	0.44	175.40	43.71	7.08	164.70	12.58	3.61
Treatment complier mean (TCM)	82.06	0.79	91.55	36.84	5.99	110.20	7.21	0.94
Control complier mean (CCM)	80.92	0.79	103.28	36.22	5.30	100.36	6.26	0.93
Long-term treat. complier mean (LTTCM)	79.94	0.81	97.99	37.56	6.26	110.20	7.41	1.09
Long-term control complier mean (LTCCM)	77.49	0.81	123.13	36.23	4.79	89.07	5.39	1.08
Observations	6,032	6,033	6,025	5,994	6,021	6,031	6,030	6,027
Number of households	2,085	2,085	2,082	2,073	2,084	2,085	2,085	2,084

(continued)

*Other Downstream Outcomes.*—Tables 5 and A1 report results of the bank account offer on a host of important downstream outcomes, including business investment, expenditures, transfers to and from others, health, and education. We find small ITT effects for all outcomes, which are not statistically significant. We can reject effects that are larger than 0.09 standard deviations of the outcome or 15 percent of the control mean in all cases. ToT effects, however, are large and imprecise, allowing for the possibility of very large effects for users. For example, in Uganda, we cannot reject effects of 30 percent of the CCM on food expenditures and on lumpy expenditures, or 40 percent of the CCM in health expenditures. In Malawi, we cannot reject effects of 35 percent of the CCM on income, 30 percent effects on lumpy expenditures, agricultural inputs, and assets, and of 60 percent on business inventories (long-term ToT effects are even larger). Table 6 shows effects on a set of attitudes and beliefs. Here, again, we find no effect on any outcome, with the one exception of trust in banks in Uganda. The ToT effect on high trust in banks is very large, increasing trust by 24 percentage points (the long-term ToT is of 50 percentage points).<sup>38</sup>

<sup>38</sup>In Malawi and Uganda, we had stratified the randomization of the bank account offer by gender and occupation in order to test for heterogeneity in the effects across subgroups (as specified in the original grant proposal). We do not report this analysis in the paper for brevity, but we have run this subgroup analysis as prespecified and

TABLE 5—IMPACTS ON DOWNSTREAM OUTCOMES IN 2010 US DOLLARS (continued)

	Total labor income (last 3 months) (1)	Owens a business (2)	Business inventory (USD) (3)	Total expenditures (last month) (4)	Food expenditures (last 7 days) (5)	Durables, education, and home repair (last year) (6)	Health expenditures (last month) (7)	Agricultural expenditures (last month) (8)
<i>Panel B. Malawi</i>								
ITT	2.207 (1.97)	-0.004 (0.01)	0.585 (0.39)	0.416 (0.84)	0.193 (0.19)	0.015 (0.61)	-0.023 (0.05)	-0.018 (0.03)
TOT	5.337 (4.73)	-0.01 (0.03)	1.418 (0.95)	1.031 (2.07)	0.468 (0.45)	0.037 (1.46)	-0.056 (0.12)	-0.045 (0.08)
Long-term TOT	18.411 (16.26)	-0.035 (0.11)	4.955 (3.32)	3.608 (7.24)	1.622 (1.55)	0.128 (5.05)	-0.192 (0.42)	-0.154 (0.28)
Baseline mean in control group	69.09	0.37	5.89	15.75	3.98	6.46	0.26	0.02
Standard deviation	124.50	0.48	15.95	20.55	5.02	17.85	0.96	0.11
Dep. var. mean in control group	40.30	0.34	4.97	21.11	5.23	7.32	0.66	0.30
Standard deviation	70.69	0.47	14.61	27.93	6.85	22.30	1.88	1.35
Treatment complier mean (TCM)	45.95	0.39	7.03	24.10	5.85	8.92	0.70	0.26
Control complier mean (CCM)	40.61	0.40	5.61	23.07	5.38	8.88	0.76	0.31
Long-term treat. complier mean (LTTCM)	63.97	0.50	10.13	33.01	6.79	8.32	0.71	0.46
Long-term control complier mean (LTCCM)	45.56	0.54	5.18	29.40	5.17	8.19	0.90	0.62
Observations	5,906	5,907	5,877	4,676	5,903	5,902	5,900	5,902
Number of households	2,046	2,046	2,036	2,025	2,046	2,046	2,045	2,046
<i>Panel C. Pooled ITT</i>								
	1.139 (2.12)	-0.002 (0.01)	-2.417 (2.60)	0.365 (0.77)	0.242 (0.139)	2.057 (2.43)	0.197 (0.19)	-0.009 (0.05)

Notes: See Table 4 notes. *Total labor income*: includes income from formal work, casual work, business, selling animals or animal produce, and selling crops. *Business inventory*: winsorized at the ninety-fifth percentile to avoid the influence of large outliers. *Food expenditures*: include staples, grains, vegetables, fruits, meat, milk, eggs, and salt. *Lumpy expenditures*: education expenditures include fees, uniforms, and supplies. *Durable expenditures* include house and electronic equipment, vehicles, jewelry, and furniture. *Health expenditures* include medicines, fees, and other costs. Indices: defined to be the equally weighted average of z-scores of the components, with the sign of each measure oriented so that more beneficial outcomes have higher scores.

We also present quantile treatment effects on total expenditures and labor income in online Appendix Figures WA3 and WA4, respectively. We cannot reject a null effect for any quartile. In Malawi, we see larger effects in the upper tail, but they are not statistically significant.

### E. Account Closure Decision

At the end of the study, we visited individuals in order to remind them of the monthly fees they would need to start paying and to offer procedural assistance to

found no systematic evidence that some subgroup saw larger ITT effects. In particular, we do not see differential effects among vendors, in contrast with Dupas and Robinson (2013a). A major difference between the vendors in this sample and those in Dupas and Robinson (2013a) appears to be in their average income—vendors in Dupas and Robinson (2013a) report earning more money and may thus have had a higher ability to save.

TABLE 6—IMPACTS ON SAVINGS ATTITUDES AND BELIEFS, FEMALE DECISION MAKING, AND LOCUS OF CONTROL

	Thinks that saving for the future is more important than giving to friends/family (1)	Thinks that saving is only for rich people (2)	Thinks other people in household would get angry if saved alone (3)	Has very high trust in banks (4)	Has lost or knows someone who has lost money deposited in a bank (5)	Decision-making index (only for women) (6)	Internal locus of control index (7)
<i>Panel A. Uganda</i>							
ITT	0.000 (0.01)	-0.015 (0.01)	-0.001 (0.01)	0.104 (0.022)	-0.035 (0.015)	0.020 (0.05)	0.000 (0.02)
TOT	0.000 (0.03)	-0.033 (0.03)	-0.003 (0.02)	0.236 (0.048)	-0.079 (0.034)	0.048 (0.11)	0.000 (0.04)
Long-term TOT	0.001 (0.07)	-0.071 (0.06)	-0.006 (0.05)	0.506 (0.104)	-0.169 (0.074)	0.090 (0.20)	0.001 (0.08)
Dep. var. mean in control group	0.90	0.10	0.06	0.40	0.16	0.00	0.00
Treatment complier mean (TCM)	0.91	0.04	0.05	0.61	0.13	0.20	0.01
Control complier mean (CCM)	0.91	0.07	0.06	0.37	0.21	0.15	0.01
Long-term treat. complier mean (LTTCM)	0.90	0.03	0.05	0.69	0.13	0.24	-0.01
Long-term control complier mean (LTCCM)	0.90	0.10	0.05	0.19	0.30	0.15	-0.01
Observations	1,990	1,990	1,990	1,990	1,990	662	1,974
<i>Panel B. Malawi</i>							
ITT	0.015 (0.02)	0.006 (0.01)	-0.001 (0.01)	0.007 (0.02)	0.006 (0.01)	0.019 (0.05)	-0.015 (0.02)
TOT	0.037 (0.05)	0.015 (0.02)	-0.002 (0.02)	0.017 (0.04)	0.016 (0.02)	0.05 (0.12)	-0.037 (0.04)
Long-term TOT	0.131 (0.18)	0.053 (0.06)	-0.008 (0.07)	0.061 (0.13)	0.055 (0.08)	0.23 (0.53)	-0.125 (0.13)
Dep. var. mean in control group	0.62	0.02	0.04	0.84	0.05	0.00	0.00
Treatment complier mean (TCM)	0.65	0.02	0.03	0.87	0.07	0.04	0.01
Control complier mean (CCM)	0.61	0.00	0.03	0.86	0.06	-0.01	0.04
Long-term treat. complier mean (LTTCM)	0.67	0.02	0.03	0.94	0.03	0.01	0.01
Long-term control complier mean (LTCCM)	0.54	-0.04	0.04	0.88	-0.02	-0.22	0.14
Observations	2,046	2,046	2,046	2,046	2,046	750	1,949
<i>Panel C. Pooled ITT</i>							
	0.008 (0.01)	-0.004 (0.01)	-0.001 (0.01)	0.055 (0.013)	-0.014 (0.01)	0.021 (0.03)	-0.007 (0.01)

*Notes:* See Table 4 notes. *Indices:* defined to be the equally weighted average of z-scores of its components, with the sign of each measure oriented so that more beneficial outcomes have higher scores. The z-scores are calculated by subtracting the control group mean and dividing by the control group standard deviation. If an individual has a valid response to at least one component measure of an index, then the index is computed using the non-missing components. *Locus of control index:* based on eight questions with two options each, one reflecting internal control (value 1) and the others external control (value 0); the index measures internal locus of control. *Decision-making index:* based on seven questions asking who in the household makes the decisions about food, large items, children's schooling, children's health, personal health, social visits, and business or work activities. We created a dummy equal to one for each decision if respondent reports taking part in the decision alone or with someone else, and zero if reports not taking part in the decision. At baseline the questions were asked only of a random subsample, we impute mean values to missing observations and include a dummy for missing data at baseline. *Believes saving is only for rich people:* in Malawi the question was whether they believe saving in a bank is only for rich people. *Has very high trust in banks:* omitted category includes two options: little or no trust in banks.

close the account if they wanted to avoid these fees. We found that the majority of participants preferred to keep the account open.

Individuals with a balance on the account at the time of the visits too low to justify the monthly fee (the great majority of households, 83 percent in Uganda and 90 percent in Malawi) were in fact strongly encouraged to close the accounts. Despite this, a majority chose to keep the account open: this was the case for 74 percent of those with zero balance and 89 percent of low users in Uganda, and for 47 percent of those with zero balance and 65 percent for low users in Malawi.<sup>39</sup> We also offered the possibility to close the accounts to those that were using them, without any encouragement to do so, and almost none of them chose to close the account. When we asked the low users why they wanted to keep the accounts open, the most typical answer was that they hoped to save more in the future, which indicates that the account might have an option value in this context. Another important factor is that the monthly fees are small relatively to the opening fee and minimum balance that individuals would need to pay if they wanted to open a new account.<sup>40</sup>

### III. Understanding Low Take-Up

#### *A. Uganda and Malawi: Poverty, Inflation, and Transaction Costs*

The take-up analysis in Table 3 shows a correlation between usage and baseline wealth, and between usage and distance from the branch, suggesting that baseline poverty as well as transaction costs might be important impediments to usage. To further explore this, at endline we asked respondents why they did not use the accounts more. These results are reported in Table 7. In panel A of Table 7, we asked treatment group nonusers what barriers prevented them from using the account. The dominant answer was simply that people were too poor to save: 80 percent of respondents in Uganda and 89 percent in Malawi gave this answer.

In Uganda, we further asked people why they find it hard to save in any source (not necessarily the bank)—shown in panel C of Table 7, column 3—90 percent of respondents mention having low income as one of their top two reasons. Other main factors mentioned as main reasons are related to expenditures: 73 percent state that expenses are too high and 82 percent answered that unexpected emergencies make it difficult to save. These all refer to the same basic problem that income is not enough to generate savings once subsistence expenditures have been taken care of. These poverty-related, self-reported barriers to bank usage are broadly consistent with the poverty levels observed in our surveys. Self-reported expenditures in Malawi are just \$15 per month and total savings stocks are just \$12 total. In Uganda, these figures are \$32 per month and \$32 total savings. These are much lower than in other

<sup>39</sup> At the time of the closing survey, we defined as “low user” those with a balance less than 12 times the monthly fee in Uganda, and those with a balance less than 3 times the yearly fees or who have not used the account in the last 90 days in Malawi.

<sup>40</sup> This was mainly the case for Uganda, where a year value of monthly fees amounted to 17 percent of the opening cost and the required minimum balance. In Malawi, there was no opening fee, and the required minimum balance amounted to only one-third of the annual value of monthly fees.

TABLE 7—SELF-REPORTED REASONS FOR NONUSE OF AN ACCOUNT

	Uganda (1)	Malawi (2)	Chile (3)		
<i>Panel A. Why didn't you use accounts? (treatment group non-users only)</i>					
No money to save	0.80	0.89	0.07		
Lack of trust in banks/formal institutions	0.03	0.00	0.11		
Distance	0.01	0.01	—		
Fees too high	0.01	0.02	0.03		
Cannot provide minimum balance	0.05	0.15	—		
Bureaucracy	0.03	0.03	0.00		
Low interest rate	0.01	0.01	—		
Not enough information	0.06	0.06	0.09		
Cannot access money whenever needed	0.01	0.00	—		
Not useful	—	—	0.09		
Did not remember reason why did not open account	—	—	0.50		
Number of respondents	377	554	430		
<i>Panel B. Reasons why bank account is not preferred savings vehicle (all treatment group individuals)</i>					
Not enough money to save in bank	0.33	0.17			
Cash on hand needed soon, not worth depositing it for short while	—	0.33			
Cannot access money whenever needed	0.30	0.08			
Distance from bank	0.18	0.16			
Would need to save more before it's worth the trip	—	0.37			
Lack of trust in banks/formal institutions	0.06	0.02			
Interest rates/returns	0.06	0.05			
Too much bureaucracy/paperwork involved with bank	0.05	—			
Lack of information about the account	0.03	—			
Number of respondents	999	1,025			
<i>Panel C. Self-reported reasons why it is difficult to save (Uganda only, endline survey)</i>					
	First reason		First or second reason		
	Control (1)	Treatment (2)	Control (3)	Treatment (4)	
N/A, it is always easy to save	0.08	0.07	0.08	0.07	
Low income	0.68	0.69	0.90	0.90	
Expenses are too high	0.34	0.34	0.73	0.71	
Unexpected emergencies always come up	0.36	0.41	0.82	0.83	
Spend money easily before saving enough	0.13	0.15	0.60	0.63	
Spouse would use the money for something else	0.01	0.00	0.08	0.09	
Requests from neighbors/friends	0.00	0.01	0.05	0.07	
Requests from relatives	0.01	0.01	0.09	0.11	
Too many debts	0.02	0.01	0.19	0.18	
No safe place to save	0.02	0.02	0.10	0.09	
Number of respondents	991	999	991	999	

*Notes:* Panel A: the question asked was: “What are the reasons you are not using a bank account at this time?” It was asked only of those reporting not using an account. The non-user category was self-reported during the survey. In Chile, the question at endline was about the reasons on rejecting assistance for opening a bank account and was asked only of those who remembered having received and rejected the offer. Panel B: other instruments—Uganda: home, ROSCA, animals, mobile money; Malawi: home, ROSCA, animals, VSLA. The question asked in Uganda and Malawi was, Option A: “Why did you put your money into [SOURCE] rather than into the bank/MFI/SACCO account?” Option B: “Why did you put your money into [SOURCE] rather than opening and using a bank/MFI/SACCO account?” No option was read aloud. Panel C: for the first reason, the question asked was: “What makes it sometimes difficult for you to save money?” No option was read aloud. For the second reason, each option was read aloud.

studies such as Dupas and Robinson (2013a), Callen et al. (2014), and Prina (2015). We provide additional summary statistics on the economic lives of individuals in the Uganda and Malawi sample in online Appendix Table WA8. The overall picture that emerges is one of subsistence living, with over 85 percent of farm produce being

self-consumed, very low levels of cash income, and very low levels of remittances being received from outside the village.

Poverty is not the only reason people did not use the accounts, however—in particular, while we have shown that people hold very little financial savings, they do have *some* savings. In both countries, we tried to shed light on this by asking people who saved in a source other than the bank why they chose not to use the bank (i.e., these are people that have some savings but chose not to hold it at the bank), the results of which can be found in panel B of Table 7. This encompasses nearly all respondents—96 percent of respondents in Uganda and 94 percent in Malawi say that, at least sometimes, they save money in some other source. Around 33 percent in Uganda claim that it is because they do not have enough money to save in a bank account. Relatedly, in Malawi 33 percent report that depositing on the account is not worth it since they would need to withdraw it shortly to finance consumption, and 37 percent report not being able to accumulate enough of a sum to warrant a trip to the bank. Other factors that were commonly reported are liquidity: the money at the bank is not available when needed (30 percent in Uganda) and distance to the bank (17 percent, on average, in the two countries).<sup>41</sup> These results suggest that, in addition to poverty, the illiquidity of the bank account was a deterrent (which is corroborated by the take-up analysis, which showed that distance negatively predicted usage). To further study this argument, online Appendix Tables WA11 and WA12 study heterogeneity of ITT effects for savings stocks and downstream outcomes by distance to the bank.<sup>42</sup> Table WA11 shows that in Uganda the ITT effect on formal savings is stronger for those living closer to the bank, and only for this group the ITT effect on total savings is statistically significant ( $p$ -value 0.08), amounting to 16 percent of total savings in the control group. However, we are still not able to detect any statistically significant effects on downstream outcomes for this subgroup (see online Appendix Table WA12). In Malawi, the heterogeneous effects on stocks of savings are not so strong, perhaps because we have fewer people living close to the bank.<sup>43</sup> In terms of downstream outcomes, again no statistically significant effect is observed.<sup>44</sup>

Another relevant issue is that both Uganda and Malawi experienced high rates of inflation during the study period. Online Appendix Figure WA1 shows how the peak inflation periods coincided with our study phases. In Uganda, inflation

<sup>41</sup>These results do not appear specific to our study sites. In 2011, a multi-country nationally representative survey conducted by the World Bank (FINDEX) found that “lack of money” was the primary reason given for not owning an account, at 83 percent in Uganda and 88 percent in Malawi, followed by the costs of the accounts (52 percent in Uganda and 24 percent in Malawi), distance (41 percent in Uganda and 12 percent in Malawi), lack of required documentation (38 percent in Uganda and 18 percent in Malawi), and lack of trust (24 percent in Uganda and 9 percent in Malawi).

<sup>42</sup>We interact the treatment dummy with a dummy for distance to the bank being smaller than median distance in the sample (which is 2.3 km in Uganda and 5.7 km in Malawi).

<sup>43</sup>Online Appendix Tables WA13 and WA14 replicate the analysis by restricting the sample in Malawi to those living within 8 km of the bank, which makes it more comparable to the sample in Uganda. The resulting subsample is well balanced ( $p$ -value of joint  $F$ -test = 0.36). In online Appendix Table WA13, we see that the ITT effects on formal savings are 20 percent larger than in the full sample, and the amount of home savings that is crowded out is similar; this implies that the effect on total savings is larger (16 percent of the control mean), and it becomes statistically significant at the 95 percent level as in Uganda. Results on downstream outcomes (online Appendix Table WA14) are qualitatively similar as those found for the full sample (the only exception is that we find an 11 percent increase in income, which is statistically significant at the 10 percent level).

<sup>44</sup>The only exception is a marginally significant effect on income (of 14 percent of the control mean) for those living closer to the bank ( $p$ -value 0.11).

spiked shortly after the bank account offer. In Malawi, the particularly large inflation, driven by the 34 percent devaluation of the Malawian currency by the central bank in May 2012, started almost a year after the intervention. There is no clear break in bank usage around the time of the devaluation among the few study participants that used the accounts, however—in particular, no increase in withdrawals just before the devaluation (see Figure 3). Figure 4 plots inflation rates and net deposits in constant terms month by month. We can see a negative correlation between inflation and real net deposits in both countries. In order to understand better this pattern, online Appendix Table WA9 presents the results of a pooled regression of monthly usage of accounts on inflation, clustering standard errors at the respondent level. Again, in both countries, monthly net deposits (measured in constant local currency) are negatively correlated with inflation.<sup>45</sup> When the inflation rate increases in 1 percentage point, net deposits go down by 5 percent of the mean in Uganda and by 16 percent in Malawi, which indicates that inflation could have been another relevant factor explaining low usage of the accounts.

Finally, we do not have evidence that trust issues were an important determinant of low usage. Table 7 shows that 3 percent in Uganda and 0 percent in Malawi mention trust issues as a reason for not using the account. In general, people reported high trust levels towards the types of institutions we worked with in both countries.<sup>46</sup>

### B. Chile: Widespread Insurance and Credit Access

Understanding the reasons for the modest take-up became the primary question of interest for the Chile site. A qualitative survey was administered to 639 individuals from our treatment group in May 2012 in order to gauge their relative importance. We find evidence for several important factors.

First, recall that bank account ownership is much higher in Chile than the other two sites, with 74 percent of respondents we interviewed in our door-to-door census exercise reporting already having accounts (despite the fact that we focused our study in the poorest region of Chile and in communities with the lowest bank account penetration according to our partner bank BancoEstado). In addition, bank accounts were readily available at no financial cost. This is a very different context from the Uganda and Malawi sites, and strongly suggests that people without accounts in Chile chose not to open them because they did not want them. As shown in Table 1, unbanked respondents in Chile were predominantly older women who were out of the labor market and relied on others for financial support (26 percent report that their main source of income is the wage of other household members, and another 35 percent report that it is their pension or other government assistance).

Second, Chile is a much more developed economy than Malawi and Uganda and offers various support programs for poor people. Panel A of Table 8 presents evidence on government support: 73 percent of households receive government

<sup>45</sup> Both deposits and withdrawals are positively correlated with inflation, but the effect on withdrawals is stronger, leading to a negative correlation between inflation and net deposits.

<sup>46</sup> This is different from what has been found in Kenya by Dupas et al. (2016) where the experience of recent bank failures was more salient.

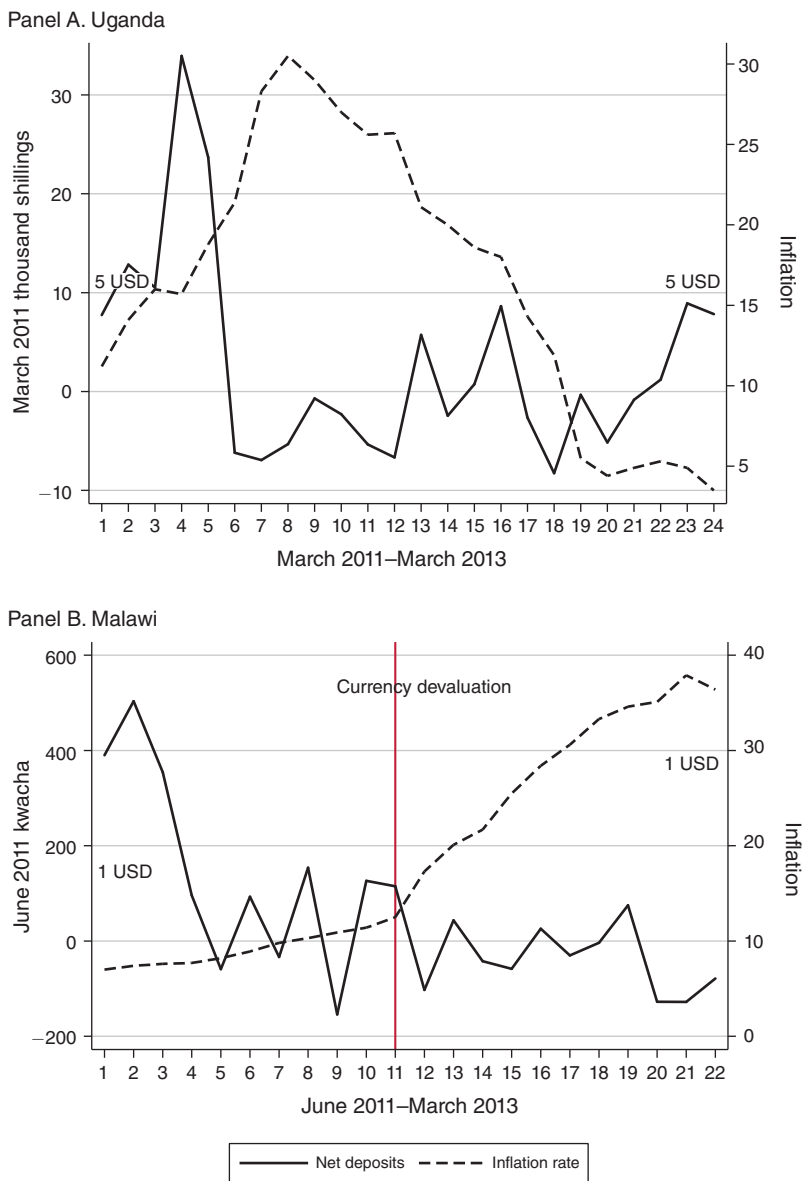


FIGURE 4. INFLATION AND MONTHLY USAGE OF ACCOUNTS

*Notes:* Plots show net deposits (amount deposited minus amount withdrawn) by month. The right y-axis is in constant (beginning of period) local currencies and the left axis presents the monthly year-to-year inflation rate. The “X USD” text boxes are placed to show the exchange rate at the beginning and end of the study period.

assistance (50 percent of them receive a family subsidy that includes free medical care and dental treatment), 32 percent receive some type of pension, and 85 percent receive either government assistance, a pension, or both. For those who receive a pension, the average amount is \$233, which represents 93 percent



TABLE 8—FACTORS RELATED TO LOW TAKE-UP IN CHILE

	Mean (1)	Observations (2)
<i>Panel A. Government assistance</i>		
Receives some type of government assistance	0.73	622
Receives a pension	0.32	624
Monthly amount of pension if receives one (June 2010 US dollars)	233.13	173
Receives either government assistance, a pension, or both	0.85	623
Expects to receive a pension if does not currently receive one	0.76	395
Receives government transfer without a bank account	0.96	485
Thinks would be beneficial to have transfer deposited into a bank account	0.23	471
<i>Panel B. Cost of health care</i>		
Believes governmental programs would cover cost of a major surgery	0.86	622
If needed major surgery, co-pay would be 0%	0.62	639
If needed major surgery, co-pay would be 25%	0.19	639
<i>Panel C. Access to credit</i>		
Ever got a loan or credit card from formal institution	0.30	1,967
Has an active credit line or credit card	0.11	1,927
Has bought an item on installment payments last year <sup>a</sup>	0.48	638

Notes: Panel A and B present data from the follow-up survey conducted with a subsample of 639 respondents in May 2012. Panel C presents data from the baseline survey conducted with 1,967 respondents between December 2010 and March 2011.

<sup>a</sup>Question asked in the follow-up survey.

of household expenditures at baseline. Among those who do not receive a pension, 76 percent expect to receive one in the future. Government assistance and pensions are distributed monthly, constituting a reliable income stream for a majority of the sample. Our follow-up data show that the vast majority (96 percent) of government transfer recipients receive them without a bank account, and only 23 percent of current transfer recipients see a benefit to having the transfer deposited directly into a bank account. In all, the system of government transfers is highly utilized and perceived to be highly effective, likely attenuating the demand for savings accounts. Consistently with this idea, Table 3 shows that pension age (60 for women and 65 for men) is negatively correlated with accepting assistance to open the account.<sup>47</sup>

Health care also seems to be comprehensive for the sample. As shown in panel B of Table 8, 86 percent of the sample believes that the cost for a major medical procedure like surgery would be mostly or completely covered by government programs. The share the household would expect to pay for a surgery is low: it is 0 for 62 percent of the sample and 25 percent for another 19 percent. Health care that is expected to be comprehensive further mitigates the need to privately store funds to respond to health shocks.

Third, the Chile population enjoys relatively better access to credit, reducing the need to privately save—in particular, for durables. Using baseline data,

<sup>47</sup> Age and pension age are highly correlated and if we include both variables in the regression, only age is statistically significant. Thus, we cannot reject that the pension age dummy is capturing the effect of older people being less interested in bank accounts.

panel C of Table 8 shows that 30 percent of respondents reported having obtained a loan or credit card from a formal institution, and 11 percent had an active credit line or credit card. In addition, in our follow-up survey, 48 percent report having bought an item on installment payments in the previous year, even though several people mention that interest rates on these purchases are high. Panel D of Table 1 shows that when respondents are asked how they would get money to cover an emergency that requires around \$600, only 1 percent report that they would use savings, while 17 percent report they would get a loan from a bank or formal institution, 5 percent would get a loan from other sources, and 23 percent from family or friends, but still 46 percent would not be able to get it (more precisely, 27 percent say they would not know how to get it, and 19 percent say they would not do anything to deal with the emergency). It is possible that \$600 is an amount that is too high to ask family or friends (only 23 percent would do so, while 61 percent would ask family or friends if the amount were \$60), but too low to ask banks for. Since people are more likely to have health emergencies covered by the public health system, incentives to save for these type of emergencies might be lower than in Malawi and Uganda.

Finally, we do not have evidence that trust issues or distance to the bank were important determinants of rejecting assistance to open the account, although we cannot rule it out either. Table 7 shows that 11 percent of participants who rejected assistance to open an account mention trust issues, but this number includes only a 3 percent mentioning lack of trust in BancoEstado, while the other 8 percent mention either lack of trust in banks in general (4 percent) or in the nongovernmental organization (NGO) that delivered the intervention (4 percent). While we do not have geocoded information on the location of the households, fieldwork indicated that they are relatively far from the branch of the bank, but close to a point of sale machine.

Thus, while distance to the bank might not have determined the low usage of the account, it could have affected the decision to open it since people needed to visit the bank in order to open an account. Furthermore, people that live farther from the bank might be less familiar with its products, and more likely not to trust the bank. At baseline, 36 percent of the sample mention having heard of some product offered by BancoEstado, but mainly about credit lines; only 9 percent of the sample were familiar with CuentaRUT, and only 2 percent name the POS at the CajaVecina as one of the products offered by BancoEstado.

#### IV. Comparison with Other Savings Studies

Figure 5 provides a detailed meta-comparison of 16 recent studies including randomized trials of savings products. The most similar (i.e., closest to a “basic” savings account) papers are Dupas and Robinson (2013a) with Kenyan vendors and bicycle taxis, Prina (2015) with women living in slums in Nepal, and Dupas, Keats, and Robinson (2015) with unbanked households in rural Kenya. Each of these prior studies observed some effect on at least one downstream outcome for at least a subsample, such as business investment/expenditures for female vendors (Dupas and Robinson 2013a), perception of financial well-being among poor women

Study, Country (published studies are underlined)	Sample	Treatment/Intervention	Detailed Features of Intervention										Data														
			No. (open, etc. follow, monthly)	No. (open, etc. follow, 2-3 m)	Interest rate	MPA (not in account industry)	Formal/informal	Deposit scheme - a strategy	Withdrawal as a goal	Peer group feature	Deposit collector	Formal/informal	Formal/informal	High frequency (not in collection)	Account Take-up	Account Usage	Usage measure*: monthly average deposits over sample assigned to treatment (2015 US dollars)	Usage measure*: Period used for monthly average (See notes at bottom)	Individual income (monthly equivalent) (2015 US dollars)	Household income (monthly equivalent) (2015 US dollars)	Stat. sig. treatment effect on total savings?	Stat. sig. treatment effect on other savings?	Impact on other instruments?	Statistically significant treatment effect on other outcomes?	Nominal interest rate	Inflation rate over study period	
<b>Panel A. This paper</b>																											
Uganda	2159 unbanked individuals	Cover Fees Return/Help Opening	X										54%	32% (> 1 deposit), 17% (> 4)	8.20	6 months	32	45	Yes	Yes	(+) sig. on mobile money and cash at home; (-) not sig. friends/family and ROSCAs	No	3%	10.7%			
Malawi	2107 unbanked individuals	Cover Fees Return/Help Opening	X	X									69%	25% (> 1 deposit), 10% (> 4)	3.07	6 months	29	37	Yes	No	(-) sig. cash at home, friends/family and ROSCAs	No	1.50%	1.4%			
Chile	1967 unbanked individuals	Inform/Help Opening	X	X	X	X							17%	5% (> 1 deposit), 3% (> 4)	2.54	6 months	N/A	347	N/A	N/A	N/A	N/A	0%	3.7%			
<b>Panel B. Other Basic Savings Account Studies</b>																											
Chin, Korfusnik, and Wilson (2011), U.S.	215 male unbanked Mexican immigrants	Assistance to get I.D. card (and paid for application fee)	X	X									47%	N/A	N/A	N/A	838	N/A	N/A	Yes	(-) not sig.; any savings in Mexico	Increase in income and decrease of share of those who lacked control over how incomes were spent	N/A				
Dupas and Robinson (2013a), Kenya	170 female vendors and 80 male bicycle taxi drivers	Cover Fees Return/Help Opening	X	X	X	X							X	87%	25% (> 1 deposit), 17% (> 4)	8.22	6 months	66	N/A	Yes	N/A	(+) sig.; animal savings; (-) not sig.; contribution	Yes (business investments food and private expenditures, mainly for female vendors)	0%	10-14%		
Dupas, Keats and Robinson (2015), Kenya	885 households	Cover Fees Return/Help Opening, account offered to female or male head of both	X	X	X	X							69%	28% (> 1 deposit), 15% (> 4)	3.33	6 months	18	26	Yes (dual-headed household only)	Yes (dual-headed household only)	(+) not sig.; ROSCA transfers to others; (-) not sig.; ROSCA transfers to others	Yes (increase in transfers out, decreases in transfers in)	0%	10-14%			
Prima (2015), Nepal	1118 women living in slums	Cover Fees Return/Help Opening	X	X	X								84%	80% (> 1 deposit)	6.81	6 months	N/A	112	N/A	No	(+) not sig.; non-monetary assets (savings, ROSCA, cash at home, friend/family); not reported slacks	Yes (increase in index of reported financial situation, educational expenditures, and meat expenditures, higher ability to cope with shock)	6%	10.5%			
<b>Panel C. Other Studies</b>																											
Ashraf et al. (2006a), Pakistan	1777 current and former bank clients	Commitment Account with lockbox, offset automated transfers	X	X	X	X							28% (9% for women, 14% (> 1 deposit))	N/A	N/A	14	381	N/A	N/A	N/A	N/A	N/A	4%	3.4%			
Ashraf et al. (2006b), Pakistan	346 current and former bank clients	Deposit collector	X	X	X	X							28% (accepted service 15% (> 1 deposit))	0.66	10 months	N/A	279	Yes	N/A	N/A	N/A	N/A	4%	3.4%			
Brune et al. (2016), Malawi	3150 cash crop farmers in farmer clubs	Basic Savings Account: direct deposit of crop proceeds, raffia (spices privately or publicly paid), financial education	X	X	X	X							85% (accepted account)	18%	0.88	8 months	22 (tobacco farmers in the region)	N/A	Yes	N/A	N/A	No	2.5%	7.7%			
Callen et al. (2014), Sri Lanka	795 weekly income earners, no deposit	Account Opening, Deposit Collectors	X	X	X	X							X	89%	82% (basic acct), 90% (1% (> 1 direct deposit))	11.19	24 months	208	N/A	Yes	Yes	N/A	N/A	N/A			
Callen, Sampson, and Yin (2011), Indonesia	564 unbanked	Financial incentives to open account and financial training	X	X	X	X							X	8%	4% low incentive, 8% of high incentives	N/A	N/A	121	N/A	N/A	N/A	N/A	13%	13%			
Dupas and Robinson (2013a), Kenya	771 members of 113 ROSCAs	Health Fee	X	X	X	X							66%	N/A	0.51	6 months	38	N/A	N/A	N/A	N/A	N/A	0%	0%			
Dupas and Robinson (2013b), Kenya	Pres. 2,775 bank clients	Health savings account	X	X	X	X							97%	N/A	0.36	6 months	105	N/A	N/A	No	N/A	N/A	0%	0%			
Karlan et al. (2006a), Kenya	893, 9,376 bank clients	Reminders for people with recently opened commitment device	X	X	X	X							N/A	56% (not committed min. deposit per month)	89	At goal date, balance	N/A	N/A	N/A	N/A	N/A	N/A	1 to 3%	2.6%			
Karlan and Linden (2016), Uganda	Students in 136 elementary schools	School-based commitment device for education savings with parental outreach. Strong commitment: withdrawal restricted via voucher for educational expenses only. Weaker: the weaker commitment: withdrawals as cash with strong encouragement to spend on educational expenses.	X	X	X	X							N/A	39% (total with parent), 2% (total without)	0.02 (per student), 8.02 (per school)	24 months	5.33 (total income from work + volunteerism)	N/A	Increased savings in the program accounts	No	Higher expenditures on educational supplies	0%	10%				
Karlan and Zinman (2014), Philippines	8,992 unbanked	Commitment account, lockbox, randomly allocated interest rate, individual vs. joint account	X	X	X	X							N/A	42% (total with parent), 4.15 (per school)	0.02 (per student), 4.15 (per school)	No	No	No	No	No	No	2 to 3%	2.5%				
Kast and Pomeranz (2014), Chile	3,560 informal business owners, borrowers from credit institution, 95% females	Ordinary Account plus self-help group for half of treatment group, plus higher interest rate for a quarter of treatment group	X	X	X	X							51%	16% (> 1 deposit), 8% (> 4)	2.7	12 months	116 (per capita household income)	N/A	Yes	No	N/A	Reduced short term borrowing, particularly to relatives and friends, improved subjective welfare, less likely to cut "non-essential" stock	6.3% (75% of acct) or 5% (not committed)	7%			
Schaner (2016), Kenya	749 unbanked	Individual ordinary savings accounts + a meter rate subsidies	X	X	X	X							31%	6% (> 1 deposit)	0.56 (individual accounts)	6 months	64	N/A	N/A	Yes	Yes	Individual income increase entrepreneurship rates, joint rates increase public goods investment	0%	3.4% (during 6 months of acct) or 4.12 (or usage)			
Somville and Vanderwalle (2015), India	442 individuals (40% unbanked)	Weekly interviews with task paid either in cash or into accounts. Opened accounts for all participants	X	X	X	X							100%	46% (> 0 deposits)	1.13	3 months	N/A	N/A	Yes	Yes	(+) not sig.; post office; (-) not sig.; cash home	Reduction in frequency committed items	4%	5%			

FIGURE 5. COMPARISON WITH OTHER STUDIES

Notes for usage measure: Dupas and Robinson (2013a): calculated from publicly available dataset. Dupas, Keats, and Robinson (2015): provided by authors. Prima (2015): calculated from publicly available dataset. Ashraf, Karlan, and Yin (2006a): calculated from Table 1, panel C. Brune et al. (2016): calculated based on treatment effects (treatment coefficient + control group mean) in Table 4, it includes direct deposits. Callen et al. (2014): calculated from Table 2 and email from authors, top 1 percent truncated. Dupas and Robinson (2013b): for the safebox we report total balance after six months divided by six, this is a lower bound for average monthly deposits, we impute 0 for non-users from Table 2. Karlan and Linden (2016): calculated based on Table 3, with parental outreach. Karlan and Zinman (2014): monthly balance in the account including those making zero deposits, calculated based on data reported on page 9. Karlan et al. (2016): amount saved at goal date from Table 3. Kast and Pomeranz (2014) calculated based on Table 2, email from authors. Schaner (2016): first panel includes deposits in individual accounts, second panel deposits in any account, short-term results, email from author. Somville and Vanderwalle (2015): does not include rewards directly deposited, provided by email from authors.

TABLE 9—COMPARISON OF TREATMENT EFFECTS WITH OTHER STUDIES

Upper and lower bounds of the 95 percent CI for ITT effects divided by SD of the outcome in the control group								
Study	Sample	Treatment/ intervention	At least 1 deposit	Savings	Income/ business	Expenditures	Non- monetary assets	Other outcomes
<i>Panel A. This paper</i>								
Uganda	2,159 unbanked individuals	Cover fees/ inform/help opening	0.42	Bank: (0.20, 0.36) Home: (-0.10, 0.01) ROSCA: (-0.08, 0.05) Total: (0.00, 0.12)	Labor income: (-0.05, 0.06) Business investments: (-0.09, 0.03) Total: (0.00, 0.12)	Food: (-0.02, 0.10) Total: (-0.05, 0.06)	(-0.04, 0.06)	Health: (-0.01, 0.07) Education: (-0.06, 0.06)
Malawi	2,107 unbanked individuals	Cover fees/ inform/help opening	0.41	Bank: (0.17, 0.34) Home: (-0.13, -0.02) ROSCA: (-0.10, 0.00) Total: (-0.02, 0.10)	Labor income: (-0.02, 0.09) Business investments: (-0.01, 0.09) Total: (-0.02, 0.10)	Food: (-0.03, 0.08) Total: (-0.04, 0.07)	(-0.08, 0.00)	Health: (-0.07, 0.05) Education: (-0.04, 0.09)
<i>Panel B. Other basic savings account studies</i>								
Dupas and Robinson (2013a), Kenya	170 female vendors, and 80 male bicycle taxi drivers, all unbanked	Cover opening fees/ inform/ help opening	0.35	Bank: (0.09, 0.53) Home: N/A ROSCA: (-0.17, 0.61) Total: N/A	Labor income: (-0.13, 0.63) Business investments: (-0.02, 0.80) Total: N/A	Food: (-0.04, 0.43) Total: (-0.06, 0.46)	N/A	Health: N/A Education: N/A
Prina (2015), Nepal	1,118 women living in slums	Cover fees/ inform/help opening	(0.80, 0.84)	Bank: N/A Home: N/A ROSCA: N/A Total: (-0.05, 0.15)	Labor income: N/A Business investments: N/A	Food: (-0.01, 0.24) Total: (-0.09, 0.13)	(-0.07, 0.16)	Health: (-0.13, 0.07) Education: (0.01, 0.24)

*Notes:* Uganda and Malawi: all variables are winsorized at 99 percent level. *Total savings:* stock of savings in formal financial institutions, mobile money, cash at home, ROSCAs, with friends/family. *Labor income:* last three months. *Total expenditures:* last month. *Food expenditures:* last week. *Business investments:* business inventory winsorized at 95 percent. *Health/education outcomes:* see notes to Table 5. *Assets:* house assets and animals. Dupas and Robinson (2013a): results for the full sample assigned to treatment. *Bank savings:* average daily balance from logbooks. *ROSCA savings:* ROSCA contributions from logbooks. *Labor income:* business revenues. *Total expenditures:* daily total expenditure. *Food expenditures:* daily food expenditure. *Business investments:* trimmed top 5 percent. Prina (2015): we include results controlling for baseline values. *Total savings:* monetary assets (including cash at home, in banks, in MFIs, in ROSCAs, with friends/relatives/employer). *Total expenditures:* last 30 days. *Food expenditures:* expenditures in meat and fish, last 30 days. *Nonmonetary assets:* consumer durables, livestock, and poultry. *Health:* health expenditures last 30 days. *Education:* education expenditures last 30 days.

(Prina 2015),<sup>48</sup> or dependence on remittances and financial support to others for dual-headed households (Dupas, Keats, and Robinson 2015). As discussed earlier, we checked for the presence of impacts on such subsamples in our data but did not find any significant patterns. What explains this difference?

As it turns out, the take-up pattern we observe is not that far from these other studies. The two closest papers conducted in East Africa are Dupas and Robinson (2013a) in which only 35 percent of people ever used the account, and Dupas, Keats,

<sup>48</sup>In Table 9, we compare for selected outcomes the confidence intervals for our ITT effects with those by Prina (2015) and the full sample in Dupas and Robinson (2013a). For the outcomes for which they find some effects (e.g., business outcomes, education), we can reject in our data effects larger than 0.1 standard deviation. But, it is important to note that most of the confidence intervals overlap across papers.

and Robinson (2015) in which only 28 percent did. As here, the people who used the accounts saved fairly large sums, however, and so the positive treatment effects were driven by a minority of users who benefited greatly. The pattern in the closely related study of Prina (2015) in Nepal is somewhat different: 84 percent of people took up accounts in that study and most users made many deposits.

We postulate that the main reason that usage was lower in our study sites is that people in Chile did not have much use for accounts, and that people in Uganda and Malawi did not use the accounts much because they were poorer than in previous studies. In addition, we find strong evidence that people who lived farther from the bank used the accounts less, suggesting that travel costs were an impediment. The discrepancy in the emergence of downstream outcomes among users may come from the fact that the impacts were more diverse and thus harder to observe in Uganda and Malawi.

However, there are also other features of the interventions that might explain the differences. Prina (2015) worked with an NGO which operated local banking locations in the slums where people lived, for three hours per day twice per week. These mobile branches reduced transaction costs substantially; in addition, the prearranged schedule of visits may have served as a reminder or coordination device for people. The respondents in Dupas and Robinson (2013a) were all entrepreneurs working in a market where the bank was located, so transaction costs were most likely smaller. In addition, the collection of logbooks from participants could have produced a behavioral attention-increasing “nudge” that, when interacted with the treatment of a bank account, led to higher savings for a subset of the treatment group. Another possible difference is that the accounts in Dupas and Robinson (2013a) and Dupas, Keats, and Robinson (2015) had withdrawal fees, which might have acted as a (weak) commitment device (note, however, that Chile had withdrawal fees as well, so this explanation is not relevant to explain lower usage there). A final possibility is that several of these studies were operated by NGOs (Prina 2015) or marketed by NGOs at the outset (Dupas and Robinson 2013a and Dupas, Keats, and Robinson 2015). The NGO may have implicitly signaled that it was in people’s best interest to save more (compared to a bank which is trying to maximize its own profits) or may have induced people to expect benefits from the NGO from complying (i.e., individuals may perceive that satisfying the guidance of an NGO could lead to future benefits). This is unlikely to be the main explanation though: while accounts were not endorsed in Uganda or Chile, they were endorsed by the NGO in Malawi and yet take-up was still low.

Extending past the “basic” savings accounts, panel C in Figure 5 shows usage and treatment effects for more “behavioral” savings accounts and features, including commitments (commitments to deposit, commitments to not withdraw), reminders, labeling of accounts, peer effects, or financial literacy training. For most studies, the sample was narrowly selected (the sample is often composed of previously banked households; Dupas and Robinson 2013b focused on those self-selected into participating in a ROSCA) and therefore comparisons with our representative sample of unbanked households are difficult. Overall, the pattern that emerges, if any, is that different features matter for different segments of the population, with no “one size fits all.”

## V. Conclusion

Bank accounts as currently offered appear unappealing to the majority of individuals in our three samples of unbanked, rural households—even when these accounts are completely subsidized. While we do observe substantial usage among a subset of active users, we are unable to pick up any statistically significant effects on downstream outcomes. This is not surprising since the average impact on total savings is itself relatively modest at best, and noisily estimated. If any, treatment effects on downstream outcomes are likely diffuse since savings purposes are heterogeneous, thus difficult to detect, because of little ability to predict how user households would use the savings.

One important question is whether the approximately 80 percent of individuals in our Malawi and Uganda samples who did not make much use of their account are simply too poor to save, or whether the bank accounts were simply not well tailored to their needs or habits. Our evidence suggests that both were important. Respondents in both sites, though especially in Malawi, are extremely poor and many live hand to mouth. However, we find some suggestive evidence that barriers such as transaction costs limit usage, too: distance to the bank is a predictor of usage in both sites. Products with lower transactions costs (for example, savings accounts linked to mobile money or savings-led microfinance groups),<sup>49</sup> or products with features that can influence behavior (for example, goals or reminders) might be more attractive. Overall, our results suggest that while there may be an unmet demand for formal savings instruments in rural Africa, expanding access to existing formal institutions and the products they are currently offering with policies like one-time account opening subsidies will likely not be enough to broaden financial access and yield the hoped for poverty alleviation results.

<sup>49</sup> See Suri and Jack (2016) for evidence on the poverty reducing impacts of M-Pesa and Beaman, Karlan, and Thuysbaert (2014); Ksoll et al. (2016); and Karlan et al. (2017) for the impact of savings-led microfinance groups.

## APPENDIX

TABLE A1—IMPAIRS ON DOWNSTREAM OUTCOMES IN 2010 US DOLLARS

	“Regret” expenditures index (1)	Net transfers to friends or relatives (2)	Health outcomes index (3)	Education outcomes index (4)	Assets (house items and animals) (5)
<i>Panel A. Uganda</i>					
ITT	−0.008 (0.02)	−0.249 (1.39)	0.003 (0.02)	0.001 (0.02)	6.112 (12.89)
TOT	−0.019 (0.05)	−0.568 (3.17)	0.007 (0.04)	0.001 (0.05)	13.891 (29.17)
Long-term TOT	−0.04 (0.11)	−1.219 (6.80)	0.015 (0.09)	0.003 (0.11)	29.804 (62.60)
Baseline mean in control group	−0.01	−8.62	0.00	0.06	335.00
Standard deviation	0.80	25.46	0.68	0.91	415.60
Dependent variable mean in control group	0.00	−18.67	0.00	0.00	313.40
Standard deviation	0.89	46.91	0.66	0.67	505.90
Treatment complier mean (TCM)	0.00	−22.33	−0.03	0.05	334.40
Control complier mean (CCM)	0.02	−21.76	−0.04	0.05	320.51
Long-term treat. complier mean (LTTCM)	0.00	−21.74	−0.02	0.06	327.70
Long-term control complier mean (LTCCM)	0.04	−20.52	−0.03	0.06	297.90
Observations	6,031	6,033	6,033	5,519	6,033
Number of households	2,084	2,085	2,085	2,000	2,085
<i>Panel B. Malawi</i>					
ITT	0.047 (0.024)	0.071 (0.64)	−0.009 (0.02)	0.017 (0.02)	−6.309 (3.331)
TOT	0.115 (0.059)	0.172 (1.54)	−0.023 (0.06)	0.04 (0.05)	−15.263 (8.056)
Long-term TOT	0.395 (0.203)	0.593 (5.30)	−0.078 (0.19)	0.141 (0.17)	−52.664 (28.217)
Baseline mean in control group	−0.01	−3.98	0.00	0.05	129.70
Standard deviation	0.82	13.18	0.74	0.94	165.10
Dependent variable mean in control group	−0.03	−8.77	0.00	0.01	92.38
Standard deviation	0.85	21.78	0.67	0.63	153.80
Treatment complier mean (TCM)	0.01	−9.14	−0.02	0.09	103.50
Control complier mean (CCM)	−0.11	−9.31	0.00	0.05	118.76
Long-term treat. complier mean (LTTCM)	0.10	−12.69	−0.03	0.18	129.20
Long-term control complier mean (LTCCM)	−0.29	−13.28	0.05	0.04	181.86
Observations	5,900	5,907	5,907	5,419	5,907
Number of households	2,045	2,046	2,046	1,967	2,046
<i>Panel C. Pooled ITT</i>					
	0.019 (0.02)	−0.112 (0.77)	−0.003 (0.02)	0.008 (0.02)	−0.197 (6.79)

*Notes:* See Table 4 notes. *Indices:* defined to be the equally weighted average of z-scores of the components, with the sign of each measure oriented so that more beneficial outcomes have higher scores. *Regret expenditure index:* includes four variables measuring expenditures on goods for which respondent reports at baseline that “it was a bad idea to purchase,” or “wants to spend less in the future given constant income” using expenditure data collected in different modules. *Net transfers:* difference between transfer to friends/family minus transfer from friends/family including the self-reported value of both loans and gifts given to/received from friends or family members (excluding partner). *Health index:* dummy for no member of household sick last month, percentage of sick members treated (imputed 100 percent if no member sick), and dummy for no member missed school or work because of illness last month. *Education index:* percent school-age children enrolled, average number of school days attended last month by school-aged children (imputed 0 if not enrolled), percentage of school-aged children enrolled in private schools, dummy for no school-aged child lacks a backpack, dummy for no school-aged child lacks full uniform. *Assets:* self-reported total value of cattle (only for Uganda), other animals, and household assets.

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