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DOES LASTING BEHAVIOR CHANGE REQUIRE KNOWLEDGE CHANGE? EVIDENCE FROM SAVINGS INTERVENTIONS FOR YOUNG ADULTS

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ABSTRACT

Is financial knowledge change necessary for lasting behavior change? Or, akin to Friedman's billiard player, can behavior persist "as if" such knowledge is held? We randomize 240 Ugandan young-adult clubs to financial education, savings account access, both, or neither. Each education arm, but not the account-only arm, increases members' financial knowledge and trust at one-year. At five-years, knowledge effects essentially disappear and trust effects weaken. However, savings, wealth and income increase for each treatment at both one and five years, suggesting multiple viable paths to statistically indistinguishable average outcomes and that textbook knowledge change is unnecessary for lasting impacts.

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I. Introduction

Financial inclusion remains an important development goal worldwide, with most of the world's population lacking basic financial literacy and bank account access. Two prevalent financial inclusion interventions are financial education and basic savings account promotion. Financial education presumes the importance of building financial knowledge for navigating previously unfamiliar and increasingly complex formal markets. Basic savings account interventions presume the importance of facilitating formal market access.

Yet, many questions remain about these interventions and underlying mechanisms. Is financial knowledge change necessary for lasting savings behavior change and outcome improvement? Or, instead, is financial knowledge for a successful saver akin to physics knowledge for Friedman's successful billiard player (Friedman 1953): do agents behave "as if" they have learned some underlying principles, without demonstrating gains in "textbook knowledge" as measured by traditional tests of financial literacy? And, which interventions are effective at improving downstream outcomes like income and wealth, particularly over longer horizons?

We address such questions using a four-arm randomized evaluation alongside extensive primary data collection one-year and five-years after intervention onset. We randomly assigned 240 Church of Uganda youth clubs (median age=22) to receive either financial education ("education-only"), facilitated group access to a bank savings account ("account-only"), both ("account+education"), or neither.

Group-based financial education delivery is common through schools, workplaces, and NGOs. Group-based savings mechanisms are also common, both traditionally, through informal institutions, and increasingly over the past few decades through microfinance-focused banks and other formal institutions.[1] Religious clubs feature prominently in Uganda and neighboring countries, with 50% or more of young adults belonging to one. Our interventions and sample are

[1] https://mangotree.org/what-are-savings-groups describes informal savings groups as being "promoted by hundreds of international and local NGOs". For example, in 2018, the international nonprofit organization CARE launched a 12-year strategy to scale up its Village Savings and Loan Associations and reach 65 million members in over 50 countries.

thus broadly interesting for researchers, policymakers, and practitioners working on financial inclusion and poverty alleviation.

Our baseline survey of 2,810 club members reveals low levels of textbook financial knowledge and formal financial bank account usage, and moderate levels of income (with substantial heterogeneity). The account intervention offered groups easy access to a basic group savings account with a local affiliate of an international microfinance institution. The financial education intervention is a 10-week, 15-hour curriculum, designed and refined by three international and local NGOs, focusing on the formal financial system, savings costs and benefits, budgeting and planning, and communicating with others about money.

We administered two follow-up surveys to measure textbook knowledge and other decision inputs, as well as savings, income and other pre-registered "downstream" behaviors and outcomes. These surveys take place roughly one-year (N=2,680) and five-years (N=1,969) after random assignment, with no evidence of differential attrition rates.

We find substantial take-up and utilization of both interventions; e.g., club members attended about half of the ten financial education sessions, and about half of clubs used the savings account actively. These relatively high rates[2] are not driven by group-based economic activities, which have very low prevalence and are not moved by the treatments. Instead, the key is likely piggybacking of service delivery on pre-existing group meetings. Regardless of why utilization is high, these first-stage results provide statistical power for identifying moderately-sized treatment effects on decision inputs, behaviors, and downstream outcomes over our two follow-up horizons.

Our main decision inputs of interest are those covered by the financial education curriculum. We find no evidence that the account-only arm changes financial knowledge, planning, agency (control over household resources), or trust in banks; e.g., the estimated treatment effect on an index of answers to 20 financial knowledge questions is 0.01 SD (SE=0.06). In contrast, after one year, there is strong evidence that each education arm produces large increases in financial

[2] Our savings account take-up rate is comparable to that found in other studies in Sub-Saharan Africa, but with substantially higher utilization (see, e.g., Dupas et al (2018)). For financial education, we are not aware of any systematic review of take-up or engagement rates but several papers find low participation rates (Lara Ibarra, McKenzie, and Ruiz-Ortega forthcoming; Burke et al. 2020; Bruhn, Lara Ibarra, and McKenzie 2014).

knowledge and trust in banks (0.17 to 0.32 SD increases, with SEs of 0.05 or 0.06). The five-year treatment effects suggest that these gains from education depreciate over time: the four point estimates are all substantially lower than their one-year counterparts, with the knowledge point estimates near zero albeit imprecisely estimated. Within-treatment arm tests of equality in the one-year and five-year treatment effects yield *p*-values ranging from 0.01 to 0.14.

Next, we estimate average and quantile treatment effects on several measures of saving behavior and assets.[3] We find evidence that each treatment substantially and persistently increases savings activities. There are hints that the education arms might produce larger increases in savings than the account-only arm; increasing financial knowledge is likely valuable. But we cannot rule out equal effects from, or economically large (30% or more) savings balance increases in, the account-only arm. We also estimate treatment effects on borrowing and, finding none, infer increases in wealth, subject to the caveat that our null effects on debt are imprecisely estimated. Financial knowledge may not be necessary to generate lasting and positive changes in financial condition, a tentative inference that is reinforced by our next set of findings.

We also estimate average and quantile treatment effects on income, motivated by the mixed evidence from prior work on the downstream effects of savings interventions. There is evidence of large, positive and persistent average effects on total income in each of the three treatments. And we do not find strong evidence that the education arms produce larger increases, suggesting that increasing financial knowledge or trust is neither necessary nor complementary for generating lasting improvement in financial status.

Altogether our results suggest that increasing textbook financial knowledge, and/or trust, may be valuable but not necessary for producing lasting changes in saving and earning behavior and improvements in financial condition. We conclude this from three key sets of results: (1) The account-only treatment arm does not change measured knowledge or trust, but does increase savings and income similarly to the financial education treatment arms; (2) The financial education treatment arms do increase measured knowledge and trust after one year, but those effects weaken

[3] We define savings based on a broad set of relative liquid financial and durable asset measures, both formal and informal. We do not measure many illiquid fixed assets, in part because such assets are not likely important stores of value given the youth of our sample (Section III-C).

after five years, including a fall to imprecisely estimated zeros for knowledge; (3) Nevertheless the financial education arms' effects on savings and earnings persist after five years.

Hoping to shed light on which mechanisms *are* influential, we estimate treatment effects on measures of several other inputs and outputs: altruism, patience and self-control, and risk aversion; business activity and investment; other investments and spending patterns; various measures of formal labor market effort. We find suggestive evidence consistent with Schaner's (2018) entrepreneurship channel and Callen et al.'s (2019) labor effort channel. Given the many favorable conditions in our study - relatively high intervention take-up rates, two follow-up surveys, large treatment effects on downstream outcomes, and a sample of about 2,000 - our inability to sharply identify mechanisms is sobering. But our results remain enlightening in the sense that they are consistent with several of these mechanisms being important. Indeed, we collected data on many decision inputs and outputs because many savings interventions are posited to work through multiple mechanisms.

Our study contributes to several literatures.

Based on Kaiser et al.'s (2020) meta-analysis of randomized financial education interventions, we infer that we help fill five key gaps in that literature. First, we address whether textbook knowledge change is essential for lasting improvements in financial behavior and outcomes, and find evidence suggesting it is not. Second, we provide in-sample evidence on relative effectiveness, finding that education-only and account-only interventions deliver similar effects on savings activity and income. Third, we provide evidence of education's interaction with increased account access, with little evidence of complementarity and some evidence for substitutability. Fourth, we extend impact measurement horizons with our five-year endline, finding that the initially strong positive impact on textbook financial knowledge dissipates. Furthermore, we provide long-run evidence of effects on savings activities, finding that initial positive effects persist. Fifth, we provide evidence on the effects of financial education on income generation and on trust.[4]

[4] Regarding impacts of financial education on trust, see also Galiani et al.'s (2020) randomized evaluation of a three-hour training session designed specifically to build trust in financial institutions for beneficiaries of a conditional cash transfer program in Peru, which finds a 33 percent increase in trust.

We also build on a large literature on savings encouragement interventions.[5] First, we provide evidence on whether market experience alone produces measurable changes to decision inputs like financial knowledge or trust, and find no evidence that it does. (This contrasts with Bachas et al. (2020) which finds that issuing debit cards does increase trust, and Dupas et al. (2018) which finds mixed evidence from fee-free savings accounts.) Second and third, we provide some in-sample evidence on the relative effectiveness of and interaction between savings access and financial education, as discussed above. Fourth, we extend impact measurement horizons with our five-year endline, although there are at least three other studies with three- or four-year measurement horizons for savings and income (Beaman, Karlan, and Thuysbaert 2014; Schaner 2018; Field et al. 2019). Fifth, we add to the mixed evidence on whether improving savings access leads to lasting increase in income. Previous work finds positive effects from direct deposit and commitment (Brune et al. 2016), temporary yield incentives (Schaner 2018), deposit collection (Callen et al. 2019), fee-removal and targeting female market vendors (Dupas and Robinson 2013), and direct deposit from a public workfare program for women alongside training (Field et al. 2019). But several other studies have not found as robust a causal link (e.g., Aggarwal, Brailovskaya, and Robinson 2020; Banerjee et al. 2020; Bastian et al. 2018; Beaman, Karlan, and Thuysbaert 2014; Dupas et al. 2018; Prina 2015; Somville and Vandewalle 2019).

Three papers have similar 2x2 experimental designs but are unable to focus on the primary question we are posing, whether knowledge change from financial education interventions is necessary for long-term behavior change. Abarcar et al. (2020) implements a similar design in the Philippines for transnational households with relatively high baseline rates of financial inclusion, but finds no change in financial literacy as a by-product of the financial education treatment alone (potentially because the training was relatively short[6]); it also has low take-up rates of its encouraged savings account (around 1%) and so limited power to detect any consequent effects. Abebe et al. (2018) uses savings reminders instead of a savings access treatment with Ethiopian micro-entrepreneurs who already have substantial financial access at baseline, but it has limited power to detect downstream impacts, and also does not find improvement in financial literacy from

[5] In contrast to financial education, we could not find any meta-analyses of savings encouragement interventions. We focus our positioning with respect to the 46 papers described in Appendix Table 1.
[6] The financial education treatment comprised a 1-day workshop lasting 6-8 hours on similar topics to that covered by the 10-week 15-hour financial education intervention studied here.

the financial education-only treatment arm. Cole et al.'s (2011) seminal paper uses financial incentives to encourage account opening among unbanked Indonesian households, but it is underpowered for detecting effects on savings and does not estimate effects on financial knowledge or downstream outcomes.

From a broader anti-poverty program design and evaluation perspective, our results demonstrate two micro-level approaches to increasing wealth and income over a five-year horizon for low-income households. Our effect sizes and confidence intervals are similar to those found in Callen et al. (2019) and Schaner (2018). They are also similar to those found in successful multi-faceted "Graduation" programs that cost about an order of magnitude more than our interventions (Bandiera et al. 2017; Banerjee et al. 2015). One potentially key difference is that Graduation programs tend to target very poor households in remote villages, whereas our sample is broader.

II. Research Design and Implementation

Our study design features treatments assigned and administered at the youth club level, and club member surveys measuring decision inputs and outputs at baseline and one-year and five-year follow-ups.[7]

A. Club Sampling and Baseline Survey

We created our sample by obtaining permission from The Church of Uganda to work with its youth clubs. Clubs typically have about 40 members and engage in activities including bible study, choir, community service, continuing education, and travel to conventions with other clubs. According to 2012 Afrobarometer data, 50% of Ugandans aged 18-25 belong to a religious community group.

Our sample contains 240 clubs, sampled from each of Uganda's four administrative regions, that each satisfy three criteria: (1) Physical access to a FINCA branch, defined as being located within a 60-minute walk of public transportation to the district capital (to make the bank account treatment workable); (2) Active programming, defined as meeting at least twice a month (to make

[7] Figure 1 provides a design overview.

the financial education treatment workable); (3) Large enough, defined as having at least 12 members over the age of 16 (to facilitate obtaining the target sample size).[8]

B. Club Member Sampling, Baseline Survey, and Randomization

We created a sample frame for surveying active individual club members by using the club survey to identify the roster of members attending club meetings during both school terms and holidays. We then randomly selected 12 members and 4 alternates aged 16 and up from each club, for a baseline survey sample frame of 240*16= 3,840 members. Surveyors approached selected members at club meetings and administered the survey around the club's regular meeting place during May and June of 2010.

We completed 2,810 baseline surveys and then randomly assigned clubs evenly to education-only, account-only, account+education, and control, stratifying on region and an indicator for above-median baseline savings.

The club member baseline reveals a mean age of 24 (SD=7) years, with 63% under 25 and 31% a household head. 43% are female, and 38% are currently attending school, with an average educational attainment of 9th grade for those no longer in school. Financial knowledge and trust are low; e.g., baseline survey respondents answer only two of five basic financial literacy questions correctly, and only 43% say that bank savings definitely would not be stolen. 37% of the sample owns a formal bank account, and only 29% of these owners report frequent use, so only about 0.29*0.37= 11% of the sample is an active formal account user at baseline. Savings and earnings are very heterogeneous, with about half the sample classifiable as poor but others showing moderate levels of resources. Turning to randomization balance checks, we find little evidence of imbalance across our four arms.[9]

C. Financial Education Treatment

Innovations for Poverty Action (IPA) developed the financial education course in cooperation with the NGOs Freedom from Hunger and Straight Talk Foundation (STF), an organization which runs a Ugandan network of youth groups. The course is based on an earlier curriculum developed by the Global Financial Education Program (GFEP) that targets those near the poverty line in

[8] Appendix Figure 1 provides details on study areas and club sampling.
[9] Table 1 reports baseline statistics and randomization balance checks.

developing countries. STF further refined the curriculum after piloting it with 176 youth in four STF clubs.

The 15-hour curriculum, spread out over 10 meetings, focuses on saving.[10] The topics for each meeting are as follows: (1) myths about the formal financial sector, (2) bank regulation by the Bank of Uganda, (3) how banks function as businesses, (4) the relative costs and benefits of saving versus borrowing, (5) targeted/goal-oriented saving, (6) budgeting and record keeping, (7) prioritizing spending decisions, (8) addressing challenges to saving, (9) making informed decisions about where and how to save, and (10) how to communicate about money. Handouts and homework assignments are used to reinforce each lesson. Members were informed ex-ante that attending seven or more sessions would earn a certificate of completion. The pedagogical approach uses active and customized learning, with an emphasis on role playing, mini-cases, and group activities (Kaiser and Menkhoff 2018).

IPA hired and trained instructors (with recruiting help from FINCA) who led the classes and tracked attendance. Some clubs scheduled course sessions to piggyback on regular club meeting times, while others arranged for separate times. We estimate that developing and delivering the course cost about US$63 per person in 2020 dollars.[11]

Mean attendance is 4.6 sessions out of ten, and standard deviation of 3.9 and median of five. 75% of attended at least one session, and mean attendance conditional on attending at least one meeting is 6.2 sessions.[12] We do not find any evidence that the control group or account-only arms got any financial education.

Our key takeaway from attendance data is that we have a reasonably powerful and symmetric first stage: substantial levels of engagement with the course, and similar treatment intensity across the two education arms.

[10] Saving is the most frequent downstream behavior measured in the 76 RCTs analyzed in Kaiser et al.'s (2020) meta-analysis of financial education programs. Those programs have mean (median) instruction hours of 12 (7).

[11] Cost estimates are calculated for the study sample as (total cost of treatment)/(number of study participants). As the treatments were delivered to groups including additional members who were not part of the study sample, the estimates are conservatively high. Trainer and manager compensation and expenses account for about 80%.

[12] Appendix Table 2 reports session-level attendance statistics, Appendix Figure 2 illustrates participant perceptions of course content from focus group data.

D. Savings Account Treatment

The savings accounts were offered by FINCA, an international microfinance institution. IPA and FINCA sought to design an account that would minimize transaction costs (pecuniary and otherwise), deciding on a group-based account as the most practical way to keep costs down while still enabling FINCA to deliver basic services. Group delivery was novel in the sense that we could not find evidence of other *formal* group accounts in the market, but familiar in the sense that our sample had substantial baseline exposure to *informal* group-based savings mechanisms. Informal group savings are common in Uganda: a recent survey with a representative sample of 3,000 Ugandan adults (age 16 and over) found that savings groups were the most popular savings location, used by 43% (FSD Uganda 2018); and, 63% of the clubs in our sample had one or more members already participating in group savings.

Each club had only one FINCA account and was responsible for selecting members to serve as field agents and a treasurer for handling deposits and withdrawals. FINCA did not impose any fees except for account closure or pay interest on account balances. Clubs were required to make a deposit within thirty days of opening the account and had to maintain a minimum balance of 50,000 UGX,[13] below which withdrawals were not permitted.[14]

FINCA began marketing in each of the study regions in November 2010, roughly in accordance with the study design: we encouraged FINCA to begin marketing to the 120 clubs assigned to our two account arms around the time that the financial education course was concluding.[15] FINCA marketers met with clubs to introduce the account, assist interested clubs with account opening and teach club members on proper use of the club account ledger book. In many cases, these activities required multiple visits with an average of four visits to each club.[16] We estimate this intervention cost US$29 per person in 2020 dollars.[17]

[13] $1 USD = about 2,400 UGX during our sample period; inflation ranged from 5%-10%.
[14] Clubs making an initial deposit subsequently met the minimum balance requirement at 76% of our monthly snapshots in year 1, with 70% of these clubs meeting the requirement in every month.
[15] FINCA required Church authorization to open the accounts, and this authorization took three months longer than expected to obtain in Mbarara Diocese (Western region). But marketing continued during the delay.
[16] We tracked marketing effort and find no evidence of differential marketing across the two account arms.
[17] This covers marketer and manager compensation and expenses, and is equal to the subsidized portion of intervention cost under the assumption that FINCA makes weakly positive profits on the margin. As with the education intervention, cost estimates are per person in the study sample and thus highly conservative.

FINCA data indicate 60% and 72% of clubs open accounts in the account-only and account+education arm, respectively, and 52% and 53% of clubs, respectively, have non-zero balances after one year.[18] FINCA neither marketed to nor opened accounts for the control or education only-arms during our study period.

Our key takeaways from FINCA data are a reasonably powerful first stage that may have operated somewhat differently across the two account arms.

E. Endline Surveys and Attrition

We administered one-year endline surveys between June and August 2011, nine to twelve months after the last financial education sessions, and seven to ten months after the start of account marketing. The five-year endline was administered February to July 2015. We attempted to re-survey all baseline survey respondents and obtained 2,680 completed surveys (95% retention) at one-year, and 1969 (70%) at five-years.

We find little evidence of differential attrition rates across study arms: the biggest pairwise difference in the retention rate, across the four arms and two endlines, is two percentage points. Regressing a survey completion indicator on the three treatment assignment indicators to formally test for differential rates yields *p*-values of 0.59 at one-year and 0.85 at five-years. We also explore changes in sample composition across study arms by testing whether the means of key baseline variables, which were balanced at baseline, remain balanced at endlines. Univariate tests indicate weak evidence of compositional changes, and multivariate tests do not reject changes at the five-year endline. Therefore we control for an outcome's baseline value when estimating treatment effects.[19]

III. Treatment Effects and Mechanisms

A. Estimation Strategy and Table Organization

We estimate average impacts of financial education and account access by comparing outcomes across treatment arms, and between each treatment arm and the control group, using OLS models of the form:

[18] See Appendix Table 2 for additional usage statistics.
[19] Appendix Table 3 has additional details on retention rates and tests for sample composition changes.

$$(1)\ Y_{ijt} = \beta_{1t} EdAcct_j + \beta_{2t} EdOnly_j + \beta_{3t} AcctOnly_j + \phi Y_{ij0} + \gamma StratVars_j + \varepsilon_{ijt}$$

where Y_{ijt} is an outcome variable (a decision input, behavior, or downstream outcome of interest), for member i of club j in time period t (either the one-year or five-year endline) or 0 (baseline). The treatment arm variables have the control group as the omitted category and take the value of 1 if individual i was randomly assigned to that study arm. We use only the random assignment, and thereby identify intent-to-treat (ITT) estimates β, because we lack separate instruments for the extensive and intensive margins of participation. We cluster standard errors at the unit of randomization, the club. $StratVars_j$ is a vector of stratification variables described in Section II-B. Our quantile regressions take the same form, replacing Y_{ijt} with one of its deciles.

Each table covers an "outcome class": decision inputs, saving, income, and other mechanisms. We adjust for multiple hypothesis testing by reporting a false discovery rate (FDR) adjusted *p*-value for each ITT estimate, defining a family as either the full set of components in each table-endline or the aggregate measure in each table-endline.[20] One-year endline estimates are always in Panel A and five-year in Panel B. Each panel-column in Panels A and B presents results from a single regression. At the bottom of each of these panels we report *p*-values for tests of equality across treatment arms and for complementarity. Panel C reports *p*-values on the difference between the one- versus five-year effects, for each treatment arm.

B. Treatment Effects on Key Decision Inputs

Table 2 presents estimates of treatment effects on four decision inputs covered in the financial education curriculum: knowledge, planning, agency, and trust. These also could be affected by market experience (induced by, e.g., the account access intervention). Each outcome measure here is a standardized index of several related measures of one of the four inputs.[21] In Section III-E, we will consider decision inputs that are not a focus of the curriculum, as part of our exploration of mechanisms.

The financial knowledge index in Column 1 is a standardized score of 20 questions regarding bank regulation and basic financial concepts like budgeting, interest, and collateral. The control

[20] We calculate adjusted *p*-values using the two-stage procedure in Benjamini, Krieger and Yekutieli (2006).
[21] Appendix Tables 4-7 report results separately for each index component.

group mean is 9.7 correctly answered (SD= 2.8) at one-year and 10.0 at five-years.[22] At one-year, the education arms each increase knowledge, by 0.17 and 0.19 SDs (SEs of 0.06, adjusted *p*-values 0.03 and 0.01), relative to either the control arm or account-only arm (the *p*-values on the differences between the account-only arm and each education arm are each <0.01). These one-year magnitudes are quite similar to the mean estimated effect of 0.20 SD of financial education on financial knowledge in Kaiser et al.'s (2020) meta-analysis, where the median impact measurement horizon is about a half-year. Our clear one-year effects are no longer present at five years (the point estimates fall to 0.05 and -0.01 relative to control; 0.14 and 0.08 relative to account-only), with *p*-values on the within-arm difference between one- vs. five-year treatment effects of 0.14 and 0.01. We find no evidence that account-only affects knowledge, and the five-year confidence interval does not contain a substantial positive effect size.

The financial planning index averages across four component measures of tracking, routine and emergency planning, and plan implementation. At one-year, 64% of the control group reports regularly keeping track of money, and 18% report regularly making any preparation for emergencies. There is little evidence of treatment effects on financial planning, although these nulls are imprecisely estimated.

The financial agency index averages across three component measures of financial decision-making power in the household. At one-year, 73% of the control group reports that others in their household would not be angry if the respondent saved alone, and 58% report always making their own financial decisions. There is little evidence of treatment effects on financial agency, although we cannot rule out substantial and persistent positive effects from account+education.

The financial trust index averages across responses to two questions about the security of bank deposits. At one-year, only 44% of the control group says that bank savings definitely would not be stolen, and only 43% that savings definitely would be repaid if the bank were robbed.[23] The education arms each increase trust substantially at the one-year follow-up, by 0.22 and 0.32 SD (SEs 0.05, adjusted *p*-values < 0.01) relative to either the control group or the account-only group.

[22] Appendix Figure 3 shows estimated financial knowledge levels for each arm at each survey. Focusing on the Control Group in Panel B, there is little evidence of strong secular increases over time.

[23] Appendix Figure 3 shows estimated trust levels for each arm at each survey. Focusing on the Control Group in Panel C, there is little evidence of strong secular increases over time.

Panel B shows that these effects dissipate by year five to 0.12 and 0.20 (SEs 0.06, adjusted *p*-values = 0.66 and 0.05, respectively), but are still statistically significantly different than zero. Moreover, evidence for dissipation is only suggestive: the p-values on the difference between one- vs. five-year treatment effects are 0.13 and 0.14. The estimates for the account-only arm suggest no effect but are imprecisely estimated.

Altogether, the results suggest that education produces a large increase in knowledge that is still evident after one year and then dissipates, and large and more lasting increases in trust in banks. We find no evidence that increasing only account access changes decision inputs.

C. Treatment Effects on Savings

Table 3 reports impacts on various pre-registered measures of assets and liabilities (Columns 2-7), and a standardized index that averages across these measures (Column 1).[24] (Dis)savings is notoriously difficult to measure in surveys, as the asset and liability*institution space is large, respondents may have limited or different understanding of some asset, liability, and institution types, flows require recall, and stocks require valuation. Moreover, low-frequency surveys like ours can miss important dynamics of accumulation and decumulation. We addressed these challenges by piloting extensively to create a set of survey questions that, *taken together*, would provide the clearest possible signals on overall savings behaviors and wealth accumulation. As such, we view the index as the most informative savings outcome.

Thus starting with the savings index (Column 1), each of the six point estimates across the two follow-ups are positive. Three have *p*-values <0.01, and two <0.10. We do not reject equality of treatment effects within-arm across the two follow-up horizons (Panel C). And, although the point estimates on account-only are weakly lower than those for the education arms, we do not reject equality across treatment arms (the *p*-values for the pairwise comparisons between account-only and the other arms are 0.17, 0.32, 0.34, and 0.72). The six point estimates each imply at least a 0.10 SD increase; for comparison, Kaiser et al.'s (2020) meta-analytic estimate of the effect of financial education on savings is 0.10 SD.

We measure the index components by first asking respondents whether they save in each of 13 different savings "locations" ascertained through piloting to be the most likely stores of financial

[24] We also pre-registered savings goals as an outcome and consider goal-setting and planning in the planning index in Table 2.

and key resellable durable assets (see Appendix Table 8) and then how much they currently hold in each. We take a similar approach to the liability side of the individual's balance sheet. We do not inventory most fixed assets, the most important of which is likely housing, in part because most of our respondents have little if any ownership of their housing due to their youth.

Total savings balances (Table 3 Column 4) is then the sum of the monetary value across all savings locations. Baseline savings balances are extremely heterogeneous, with a 1% top-coded mean of 118,000 UGX (SD= 335,000, Table 1). As such we consider treatment effects on alternative functional forms in Table 5 Column 1-4, finding similar results: uniformly positive point estimates, some evidence that these increases are statistically significant, little evidence that any effects dissipate over time, and inconsistent evidence on whether treatment effects differ across arms. We also present quantile regression results (Figure 2, top panels). Treatment effects are weakly positive throughout the distribution, for each arm at each follow-up time horizon, and more positive towards the top of the distribution, with the strongest results from account+education and the weakest from account-only. (Note that the estimated null effects at lower deciles are not all due to a large mass of non-savers, as only 14% reports zero savings.)

Another key result from the index components is the lack of evidence for treatment effects on borrowing—this suggests that any increases in assets are increases in wealth. The caveat here is imprecision: we cannot rule out increases of 0.1 SD on the extensive margin of borrowing (Table 3 Column 7; note that only about 50% of our sample has any debt). Results on debt balances are even less precise (not tabulated).

Lastly, we consider treatment effects on *how* people save, subject to caveats about measurement error in categorization discussed above. The first thing to note is the positive treatment effects on the number of different locations (Table 3 Column 3), of about 0.1 to 0.2 locations on a base of about 1.3. Two key and related questions are: how much of the treatment effects on savings are driven through the FINCA group account? And where else do people save when induced to save more by our treatments, particularly in the Education Only arm? Recall from Section II-D that FINCA data shows widespread and active use of the group account, and no use (full compliance with the randomization) in the Education Only arm. This is reflected in our follow-up survey as well, where the only clear evidence of treatment effects on specific savings locations are increases in group account usage by those in our two account arms at the one-year

follow-up.[25] The FINCA data also gives a sense of how much club members save in the account (Appendix Table 2). Averaging across the account arms, we see group-level balances of about 145,000 UGX around the time of our one-year follow-up survey. Based on our baseline club surveys, we estimate a median number of members of 30, which implies a treatment effect of about 4,800 UGX per member. This is about an order of magnitude smaller than the treatment effects on total savings balances (Table 3 Column 4; Table 5 Columns 1-4). Together with the lack of treatment effect persistence on group savings in the account arms (no evidence of effects at five years in Appendix Table 8), it seems likely that our treatments induced savings through a variety of means, with the means (i.e., the location) varying across people and difficult to pin down.

Altogether, we infer that the interventions substantially and persistently increase savings activity. More suggestively, our estimates do not rule out one-for-one increases in long-term wealth per shilling of subsidy, given our estimated intervention costs of roughly 100,000 UGX (account) or 200,000 UGX (education) in 2014 currency.

D. Treatment Effects on Income

Table 4 reports impact estimates for various pre-registered measures of income (Columns 1-5). To elicit income, the surveys start by asking "We would like to know about what work you did to earn money since 90 days ago. Have you done any activities to earn any money? This can include small activities or even being given something as a thank-you for work you did" and then, if answered positively, "Please take a moment to think about what work you did to earn money in that time. Please tell me the activities that you got money from in these months", before then asking for various details on each activity, including the amount earned in the past 90 days.

Total income in Column 1 analyzes the sum of the sources in Columns 2-5.[26] Baseline earnings average about 110% of the individual poverty line, with substantial heterogeneity. Several patterns are evident in the treatment effect estimates. The point estimates are uniformly positive across all six arm-endline combinations. They each have *p*-values between 0.09-0.19 after adjusting for multiple hypotheses across treatment arms. They each imply increases of about 15-20% over the

[25] Note that ROSCA usage increases as well as formal group account usage, suggesting that respondents may categorize the FINCA account as an informal one.

[26] We also include "other" income in total income. Club-generating income is considered "other" and constitutes 1% of total income.

control group mean[27] and are similar across arms within-endline. And they are uniformly larger in levels at five-years than one-year, with *p*-values between 0.13 to 0.34.

Because total income is arguably our most important measure of earnings, we estimate treatment effects on alternative functional forms, finding similar results, in Table 5. We also present quantile regression results (Figure 2, bottom panels). As with savings, we see weakly positive effects throughout the distribution, for each arm at each endline, although here we do see more evidence of effects from account-only, at least at five-years.

Altogether, we infer that the interventions substantially and persistently increase income, with no strong evidence that effects differ across arms. If we take the treatment effect point estimates literally, they imply annual earnings increases of roughly 1 shilling per 1 shilling of account subsidy and per 2 shillings of education subsidy.

E. Other Treatment Effects and the Search for Mechanisms

The results thus far do not paint a clear picture of the mechanisms underlying the treatment effects, in part because we see increases in income and (to a suggestive but statistically weaker extent) savings in the account-only arm, which did not experience changes in the key decision inputs (Table 2). If the increased financial knowledge and trust in the education arms are not essential for lasting behavior change and outcome improvements, what is essential? A related issue is unpacking the relationship between increases in savings balances and increases in income.

Table 6 starts by exploring the latter issue. Column 5 reports imprecise null effects on an index of expenditures and consumption (although our survey was not a full inventory of either).[28] This lack of cutback in spending, combined with the lack of an increase in borrowing (Table 3 Column 7), suggests the savings balance increase likely came from the increase in income à la Callen et al. (2019). We do not find evidence that treated members change sources of income (Columns 1 and 2), and the confidence intervals rule out big changes. Increases in work effort - specifically, working more often - are a more likely candidate, in the sense that five of six point estimates in Column 3 are positive and part of confidence intervals containing increases that would be

[27] The control group endline means in Table 4 suggest a substantial upward trend in control group earnings. We suspect this is due partly to life-cycle patterns and partly to inflation and other macro trends (e.g., about 25% real GDP growth over our study period).

[28] Appendix Table 9 reports results separately for each index component

sufficient to account for the treatment effects on income, but none individually is statistically significant. Another channel runs from saving to income, à la Schaner (2018): initial increases in saving might fund high-return investments that generate income by the time we conduct our first endline. Table 6 Column 4 (investment) and Table 4 Column 3 (business income) are consistent with this hypothesis in the sense that all point estimates are positive, albeit substantially smaller than those for total income.

Columns 6-8 consider the possibility that other decision inputs besides knowledge and trust drive the results, namely changes to preferences and/or beliefs. We were motivated to pre-register these inputs by the possibility that the financial education curriculum's focus on saving, planning and agency could indirectly affect time preferences (patience and self-control), risk tolerance, and altruism.[29] It could also be the case that account access alone changes these preferences, either by changing motivation or through a feedback loop with behavior. Yet we find no evidence of such treatment effects.[30]

IV. Discussion and Conclusion

Our results suggest that increasing textbook financial knowledge may be valuable but is not necessary for producing lasting changes in saving and earning behavior and improvements in financial condition. Returning to the Friedman billiards player analogy: we learn from the financial education treatment arms that persistent change in textbook knowledge is unnecessary for persistent behavior change. (Teaching physics or rudimentary finance may help someone improve at billiards or personal finance, but they can then forget the knowledge, at least in a "book learning" sense, and still do well.) And we learn from the account-only arm that financial knowledge change is not necessary to trigger persistent behavior change, even starting from a low base. (One can improve at billiards or personal finance without ever learning physics or finance principles.)

Our results also suggest the interventions studied here are cost-effective. They cost about an order of magnitude less than many multi-faceted grant-based programs yet produce long-run impacts on wealth and income of similar magnitude. Moreover, such interventions likely have

[29] Subsequently, several financial education evaluations have estimated effects on youths' preferences; e.g., Sutter et al (2020).

[30] Treatment effect estimates for index components are in Appendix Tables 10-13. Appendix Table 14 reports estimates for other aspects of financial knowledge, and other aspects of expectations, not explicitly covered in the curriculum and finds little evidence of effects.

significant economies of scale: we estimate the marginal cost per participant of the financial education intervention if delivered at scale at US$20 per person, compared to the estimated average cost per participant of US$63 incurred in this study; for the account marketing intervention, we estimate a marginal cost of US$10 per participant if delivered at scale, compared to the estimated average cost per participant of US$29 incurred in this study.[31]

Although encouraging, we caution against inferring confidently that our interventions have lasting impacts, much less cost-effective ones, given the mixed evidence from prior work estimating the downstream effects of financial account access or financial education programs. Further replication and refinement of intervention design, delivery, and evaluation is needed to sharpen inferences regarding whether, how, and where such programs can generate the magnitude of effects found here.

Another key takeaway is that we do not find sharp evidence for any particular mechanism. Many interventions have multiple plausible paths to impact, and so larger samples, higher-frequency data, and/or additional identification strategies may be required to identify which combinations of decision inputs or behaviors must change for downstream outcomes to improve. Future work might also focus on how to measure "as-if" knowledge directly, perhaps through measures of experience, and/or of decision quality on ecologically valid stylized tasks. This work would be important from an applied as well as basic research perspective, given the influence that findings of low financial literacy levels has on policy and program design.

[31] Please see Appendix Table 15 for details on intervention costing.

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Table 1. Baseline Summary Statistics and Balance

	(1)	(2)	(3)	(4)	(5)	(6)
	Mean (SD)					
	Full Sample	Control	Account Only	Education Only	Account + Education	p-value for F-test of joint significance
Female	0.43	0.44	0.41	0.42	0.43	0.66
	(0.49)	(0.50)	(0.49)	(0.49)	(0.50)	
Age	23.82	23.31	24.12	23.83	24.02	0.13
	(7.19)	(6.60)	(8.09)	(6.68)	(7.32)	
Education: Highest Level Completed	10.28	10.32	10.11	10.45	10.23	0.35
	(3.56)	(3.49)	(3.51)	(3.70)	(3.54)	
Has Any Formal Account	0.37	0.37	0.36	0.37	0.37	0.95
	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	
Household Head (1/0)	0.31	0.29	0.32	0.32	0.31	0.68
	(0.46)	(0.46)	(0.47)	(0.47)	(0.46)	
Financial Knowledge Index	-0.02	0.00	-0.09	-0.01	0.00	0.26
	(0.98)	(1.00)	(0.98)	(0.96)	(0.98)	
Financial Planning Index	-0.03	0.00	-0.01	-0.05	-0.06	0.58
	(1.01)	(1.00)	(0.98)	(1.02)	(1.02)	
Financial Agency Index	-0.02	-0.00	-0.05	-0.01	-0.03	0.77
	(0.97)	(1.00)	(0.99)	(0.97)	(0.95)	
Financial Trust Index	-0.01	0.00	-0.01	-0.07	0.02	0.33
	(1.01)	(1.00)	(1.04)	(0.98)	(1.01)	
Total Savings ('000 UGX): 1% top-coded	118.21	117.71	117.90	135.49	101.92	0.30
	(334.81)	(337.75)	(352.38)	(367.29)	(274.74)	
Total Income ('000 UGX): 1% top-coded	140.05	129.47	141.87	150.20	139.15	0.42
	(230.77)	(226.77)	(243.17)	(233.16)	(219.96)	
N	2810	717	692	693	708	

Notes: Unit of observation is the club member. We have many additional baseline variables but, for concision, limit the set here to key demographics and outcome variables. Each cell in Column 6 provides the p-value from an F-test on the joint signifiance of the three treatment variables, from an OLS regression of the row variable on the treatment assignment dummies and stratification variables.

Table 2. Treatment Effects on Knowledge and Other Inputs Covered by the Financial Education Curriculum

	(1)	(2)	(3)	(4)
	Financial Knowledge Index	Financial Planning Index	Financial Agency Index	Financial Trust Index
Number of questions in index	20	4	6	7
Results for index components in	AT4	AT5	AT6	AT7
Panel A. One-Year Endline				
Account Access Only (T1)	0.01	0.03	-0.05	-0.01
	(0.06)	(0.06)	(0.06)	(0.06)
	[0.71]	[0.63]	[0.46]	[0.71]
Education Only (T2)	0.17	0.09	0.01	0.22
	(0.06)	(0.06)	(0.06)	(0.05)
	[0.01]	[0.23]	[0.71]	[<0.01]
Account + Education (T3)	0.19	-0.06	0.1	0.32
	(0.06)	(0.06)	(0.06)	(0.05)
	[<0.01]	[0.41]	[0.18]	[<0.01]
Control Group Mean	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00
N	2680	2680	2680	2680
p-values: T1 = T2	<0.01	0.40	0.25	<0.01
p-values: T1 = T3	<0.01	0.17	<0.01	<0.01
p-values: T2 = T3	0.77	0.03	0.12	0.07
p-values: T1 + T2 = T3	0.96	0.04	0.10	0.16
p-values: Any Account = 0	0.72	0.21	0.68	0.30
p-values: Any Education = 0	<0.01	0.98	0.05	<0.01
Controls for Baseline Values	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline				
Account Access Only (T1)	-0.09	0.08	-0.03	0.06
	(0.07)	(0.06)	(0.07)	(0.07)
	[0.65]	[0.65]	[0.89]	[0.78]
Education Only (T2)	0.05	0.07	-0.11	0.12
	(0.07)	(0.08)	(0.07)	(0.06)
	[0.82]	[0.72]	[0.54]	[0.31]
Account + Education (T3)	-0.01	0.02	0.08	0.2
	(0.08)	(0.07)	(0.06)	(0.06)
	[0.89]	[0.89]	[0.65]	[0.02]
Control Group Mean	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00
N	1969	1969	1969	1969
p-values: T1 = T2	0.05	0.92	0.26	0.39
p-values: T1 = T3	0.37	0.32	0.10	0.05
p-values: T2 = T3	0.39	0.45	<0.01	0.19
p-values: T1 + T2 = T3	0.87	0.16	0.02	0.77
p-values: Any Account = 0	0.15	0.81	0.10	0.13
p-values: Any Education = 0	0.25	0.94	0.99	<0.01
Controls for Baseline Values	Yes	Yes	Yes	Yes
Panel C: Comparisons across One-Year and Five-Year Endlines				
p-values: T1 One-year = T1 Five-year	0.24	0.52	0.82	0.37
p-values: T2 One-year = T2 Five-year	0.14	0.88	0.11	0.13
p-values: T3 One-year = T3 Five-year	0.01	0.35	0.82	0.14
p-values: Any Account One-year = Any Account Five-year	0.11	0.25	0.30	0.57
p-values: Any Education One-year = Any Education Five-year	0.07	0.94	0.18	<0.01

Notes: Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club), and FDR adjusted p-values in square brackets with a family of hypotheses defined as all treatment effects for an endline survey (i.e. 12 hypotheses per endline survey). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Item non-response rates are low and our indices average across non-missing components.

Table 3. Treatment Effects on Savings

	(1) Savings Index of Columns 2-7	(2) Any Savings (1/0)	(3) Total Number of Savings Locations	(4) Total Savings ('000 UGX): 1% top-coded	(5) Any Resellable Asset (1/0)	(6) Formal Account (1/0)	(7) No Debt (1/0)
Panel A. One-Year Endline							
Account Access Only (T1)	0.12	0.01	0.09	45.00	0.01	0.05	0.04
	(0.07)	(0.02)	(0.05)	(37.33)	(0.02)	(0.02)	(0.03)
		[0.48]	[0.15]	[0.27]	[0.48]	[0.06]	[0.16]
Education Only (T2)	0.18	0.02	0.15	104.37	0.00	0.05	0.04
	(0.07)	(0.02)	(0.06)	(41.83)	(0.02)	(0.02)	(0.03)
		[0.27]	[0.06]	[0.06]	[0.50]	[0.07]	[0.16]
Account + Education (T3)	0.18	0.04	0.14	44.30	0.00	0.09	0.03
	(0.06)	(0.02)	(0.06)	(33.59)	(0.02)	(0.02)	(0.03)
		[0.07]	[0.06]	[0.23]	[0.50]	[<0.01]	[0.27]
Control Group Mean	0.00	0.84	1.28	221.94	0.12	0.16	0.48
Control Group SD	1.00	0.37	0.88	606.00	0.32	0.37	0.50
N	2680	2680	2680	2678	2680	2680	2680
p-values: T1 = T2	0.34	0.51	0.29	0.14	0.83	0.75	0.92
p-values: T1 = T3	0.32	0.12	0.36	0.98	0.84	0.14	0.72
p-values: T2 = T3	0.99	0.29	0.86	0.10	0.99	0.07	0.78
p-values: T1 + T2 = T3	0.18	0.71	0.20	0.05	0.79	0.75	0.20
p-values: Any Account = 0	0.18	0.37	0.30	0.77	0.77	<0.01	0.38
p-values: Any Education = 0	<0.01	0.06	0.01	0.05	0.98	0.01	0.46
Proportion of Obs Equal Zero	0.00	0.14	0.14	0.14	0.88	0.79	0.49
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline							
Account Access Only (T1)	0.10	0.02	0.15	99.26	-0.00	-0.00	0.04
	(0.07)	(0.02)	(0.09)	(78.88)	(0.02)	(0.03)	(0.03)
		[0.71]	[0.58]	[0.58]	[0.71]	[0.71]	[0.58]
Education Only (T2)	0.12	0.01	0.12	123.41	0.02	0.03	0.01
	(0.07)	(0.02)	(0.09)	(91.02)	(0.02)	(0.03)	(0.03)
		[0.71]	[0.58]	[0.58]	[0.71]	[0.58]	[0.71]
Account + Education (T3)	0.19	0.02	0.18	188.15	0.03	0.04	0.04
	(0.07)	(0.02)	(0.08)	(84.08)	(0.02)	(0.03)	(0.03)
		[0.58]	[0.31]	[0.31]	[0.58]	[0.58]	[0.58]
Control Group Mean	0.00	0.86	1.60	552.14	0.13	0.23	0.51
Control Group SD	1.00	0.35	1.14	1202.70	0.33	0.42	0.50
N	1969	1969	1956	1960	1969	1956	1969
p-values: T1 = T2	0.72	0.83	0.77	0.79	0.38	0.19	0.32
p-values: T1 = T3	0.17	0.81	0.70	0.31	0.11	0.10	0.83
p-values: T2 = T3	0.30	0.62	0.49	0.50	0.47	0.72	0.42
p-values: T1 + T2 = T3	0.81	0.82	0.50	0.78	0.50	0.74	0.69
p-values: Any Account = 0	0.09	0.37	0.09	0.18	0.67	0.86	0.14
p-values: Any Education = 0	0.03	0.56	0.22	0.09	0.10	0.05	0.92
Proportion of Obs Equal Zero	0.00	0.13	0.13	0.13	0.87	0.75	0.47
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel C: Comparisons across One-Year and Five-Year Endlines							
p-values: T1 One-year = T1 Five-year	0.75	0.74	0.54	0.49	0.70	0.05	0.99
p-values: T2 One-year = T2 Five-year	0.44	0.76	0.75	0.83	0.63	0.67	0.46
p-values: T3 One-year = T3 Five-year	0.88	0.55	0.62	0.07	0.25	0.13	0.93
p-values: Any Account One-year = Any Account Five-year	0.67	0.94	0.33	0.13	0.86	0.03	0.56
p-values: Any Education One-year = Any Education Five-year	0.82	0.37	0.74	0.37	0.15	0.95	0.66

Notes: Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club), and FDR adjusted p-values in square brackets with a family of hypotheses defined as all treatment effects for an endline survey (i.e. 18 hypotheses per endline survey, excluding the savings index). We do not adjust p-values for the savings index because the index itself reduces the number of hypotheses tested. Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Our survey asks about 13 different savings locations (please see Appendix Table 8 for details). Total savings here is top-coded at the 99th percentile; please see Table 5 for results on other functional forms of savings balances.

Table 4. Treatment Effects on Income

	(1)	(2)	(3)	(4)	(5)
	Earnings ('000 UGX) last 90 days, top-coded at 99th percentile				
	Total	Formal Wage	Business	Farm	Informal
Panel A. One-Year Endline					
Account Access Only (T1)	31.06	-1.39	10.29	10.13	9.13
	(16.22)	(9.07)	(7.51)	(7.56)	(5.81)
	[0.06]	[0.78]	[0.57]	[0.57]	[0.57]
Education Only (T2)	32.45	15.12	2.76	5.62	9.11
	(16.44)	(8.80)	(7.56)	(6.50)	(6.40)
	[0.06]	[0.57]	[0.64]	[0.57]	[0.57]
Account + Education (T3)	36.34	16.55	7.25	4.07	2.96
	(17.01)	(9.48)	(7.59)	(6.42)	(5.76)
	[0.06]	[0.57]	[0.57]	[0.57]	[0.57]
Control Group Mean	200.79	70.07	38.51	42.93	29.90
Control Group SD	337.78	217.66	120.53	103.85	100.42
N	2661	2661	2661	2661	2661
p-values: T1 = T2	0.93	0.09	0.30	0.58	1.00
p-values: T1 = T3	0.76	0.08	0.68	0.45	0.21
p-values: T2 = T3	0.83	0.89	0.55	0.83	0.27
p-values: T1 + T2 = T3	0.26	0.84	0.59	0.26	0.06
p-values: Any Account = 0	0.15	1.00	0.16	0.41	0.71
p-values: Any Education = 0	0.12	0.02	0.98	0.97	0.71
Proportion of Obs Equal Zero	0.11	0.67	0.77	0.54	0.74
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline					
Account Access Only (T1)	75.47	-22.25	6.46	37.21	34.31
	(43.46)	(22.76)	(16.89)	(20.15)	(14.69)
	[0.09]	[0.49]	[0.87]	[0.22]	[0.13]
Education Only (T2)	71.70	12.06	24.32	-1.25	23.19
	(44.41)	(25.09)	(20.32)	(16.58)	(13.95)
	[0.09]	[0.87]	[0.37]	[0.97]	[0.24]
Account + Education (T3)	95.13	8.95	33.35	-0.34	44.42
	(43.15)	(24.74)	(18.43)	(16.89)	(14.87)
	[0.09]	[0.87]	[0.22]	[0.97]	[0.04]
Control Group Mean	482.02	148.29	105.38	112.03	97.27
Control Group SD	673.52	400.81	282.07	273.56	217.91
N	1963	1963	1963	1963	1963
p-values: T1 = T2	0.94	0.11	0.38	0.07	0.47
p-values: T1 = T3	0.69	0.14	0.15	0.09	0.53
p-values: T2 = T3	0.64	0.89	0.68	0.96	0.17
p-values: T1 + T2 = T3	0.43	0.56	0.93	0.19	0.54
p-values: Any Account = 0	0.13	0.43	0.57	0.16	<0.01
p-values: Any Education = 0	0.17	0.19	0.07	0.16	0.12
Proportion of Obs Equal Zero	0.09	0.78	0.67	0.59	0.62
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes
Panel C: Comparisons across One-Year and Five-Year Endlines					
p-values: T1 One-year = T1 Five-year	0.28	0.33	0.82	0.15	0.10
p-values: T2 One-year = T2 Five-year	0.34	0.90	0.30	0.67	0.30
p-values: T3 One-year = T3 Five-year	0.13	0.74	0.14	0.78	<0.01
p-values: Any Account One-year = Any Account Five-year	0.29	0.41	0.98	0.25	0.01
p-values: Any Education One-year = Any Education Five-year	0.38	0.74	0.06	0.14	0.15

Notes: Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club), and FDR adjusted p-values in square brackets with two family of hypotheses per endline: (i) all treatment effects on total earnings for an endline survey (i.e. 3 hypotheses per endline survey), (ii) all treatment effects on earnings components for an endline survey (i.e. 12 hypotheses per endline survey). Each column-panel in Panels A and B report results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Please see Table 5 for results on other functional forms of income.

Table 5. Treatment Effects on Savings and Income (Other Functional Forms)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Savings ('000 UGX)				Total Income ('000 UGX)			
	Top 1% Top-Coded (T3, C4)	No Top-Coding	Top 5% Top-Coded	Inverse Hyperbolic Sine	Top 1% Top-Coded (T4, C1)	No Top-Coding	Top 5% Top-Coded	Inverse Hyperbolic Sine
Panel A. One-Year Endline								
Account Access Only (T1)	45.00	45.62	23.96	0.17	31.06	28.45	23.13	0.09
	(37.33)	(55.67)	(16.74)	(0.16)	(16.22)	(34.60)	(13.07)	(0.11)
Education Only (T2)	104.37	138.58	49.21	0.34	32.45	29.92	26.63	0.26
	(41.83)	(66.63)	(17.91)	(0.15)	(16.44)	(31.16)	(13.16)	(0.11)
Account + Education (T3)	44.30	8.51	38.8	0.37	36.34	28.48	25.96	0.18
	(33.59)	(43.68)	(17.15)	(0.13)	(17.01)	(36.37)	(13.03)	(0.10)
Control Group Mean	221.94	247.09	162.94	3.97	200.79	233.86	180.99	4.50
Control Group SD	606.00	867.99	296.60	2.44	337.78	714.61	259.51	2.24
N	2678	2678	2678	2678	2661	2661	2661	2661
p-values: T1 = T2	0.14	0.18	0.14	0.27	0.93	0.96	0.78	0.15
p-values: T1 = T3	0.98	0.42	0.36	0.15	0.76	1.00	0.82	0.38
p-values: T2 = T3	0.10	0.03	0.55	0.82	0.83	0.96	0.96	0.47
p-values: T1 + T2 = T3	0.05	0.03	0.16	0.48	0.26	0.52	0.19	0.28
p-values: Any Account = 0	0.77	0.30	0.58	0.32	0.15	0.56	0.22	0.95
p-values: Any Education = 0	0.05	0.22	<0.01	<0.01	0.12	0.52	0.10	0.02
Proportion of Obs Equal Zero	0.14	0.14	0.14	0.14	0.11	0.11	0.11	0.11
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline								
Account Access Only (T1)	99.26	-33.54	47.55	0.21	75.47	113.15	61.22	0.24
	(78.88)	(122.10)	(51.95)	(0.18)	(43.46)	(62.83)	(34.22)	(0.14)
Education Only (T2)	123.41	168.82	71.54	0.19	71.70	122.65	48.01	0.23
	(91.02)	(163.11)	(56.88)	(0.18)	(44.41)	(59.64)	(33.37)	(0.14)
Account + Education (T3)	188.15	302.58	107.03	0.39	95.13	177.4	86.54	0.36
	(84.08)	(211.54)	(53.78)	(0.17)	(43.15)	(96.51)	(32.86)	(0.14)
Control Group Mean	552.14	662.66	480.80	5.09	482.02	491.36	443.27	5.61
Control Group SD	1202.70	2202.81	853.50	2.57	673.52	739.64	533.12	2.30
N	1960	1960	1960	1960	1963	1963	1963	1963
p-values: T1 = T2	0.79	0.16	0.69	0.95	0.94	0.89	0.72	0.96
p-values: T1 = T3	0.31	0.09	0.29	0.30	0.69	0.53	0.50	0.38
p-values: T2 = T3	0.50	0.55	0.56	0.25	0.64	0.60	0.29	0.35
p-values: T1 + T2 = T3	0.78	0.51	0.88	0.98	0.43	0.63	0.65	0.59
p-values: Any Account = 0	0.18	0.70	0.30	0.11	0.13	0.17	0.05	0.06
p-values: Any Education = 0	0.09	0.05	0.11	0.13	0.17	0.11	0.14	0.08
Proportion of Obs Equal Zero	0.13	0.13	0.13	0.13	0.09	0.09	0.09	0.09
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel C: Comparisons across One-Year and Five-Year Endlines								
p-values: T1 One-year = T1 Five-year	0.49	0.53	0.63	0.87	0.28	0.18	0.24	0.32
p-values: T2 One-year = T2 Five-year	0.83	0.85	0.68	0.49	0.34	0.11	0.49	0.88
p-values: T3 One-year = T3 Five-year	0.07	0.14	0.17	0.91	0.13	0.11	0.04	0.20
p-values: Any Account One-year = Any Account Five-year	0.13	0.45	0.35	0.48	0.29	0.24	0.10	0.09
p-values: Any Education One-year = Any Education Five-year	0.37	0.10	0.38	0.57	0.38	0.17	0.35	0.98

Notes: Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators.

Table 6. Treatment Effects on Mechanisms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Primary Income Source Changed from Baseline	Number of Income Streams (Last 90 Days)	Total Days Worked (Last 90 Days)	Business Investment (Last 12 Months)	Expenditures and Consumption Index	Patience and Self-Control Index	Risk Tolerance Index	Altruism Index
Number of questions in index					3	4,6	3	2
Results for index components in					AT9	AT11, AT12	AT12	AT13
Panel A. One-Year Endline								
Account Access Only (T1)	-0.03	0.03	3.66	19.54	0.02	0.04	0.02	-0.08
	(0.03)	(0.05)	(2.79)	(33.04)	(0.06)	(0.06)	(0.06)	(0.06)
	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
Education Only (T2)	0.02	0.04	3.19	35.33	0.00	-0.00	-0.07	-0.05
	(0.03)	(0.05)	(2.75)	(30.82)	(0.04)	(0.06)	(0.06)	(0.06)
	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
Account + Education (T3)	0.00	0.02	1.85	37.21	0.01	0.04	-0.07	-0.10
	(0.03)	(0.05)	(2.62)	(34.84)	(0.04)	(0.05)	(0.06)	(0.06)
	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
Control Group Mean	0.52	1.41	46.70	178.59	0.00	0.00	0.00	0.00
Control Group SD	0.50	0.87	45.22	531.71	1.00	1.00	1.00	1.00
N	2013	2680	2660	2674	2680	2680	2677	2680
p-values: T1 = T2	0.22	0.91	0.88	0.61	0.79	0.50	0.18	0.70
p-values: T1 = T3	0.40	0.86	0.54	0.61	0.96	0.88	0.16	0.73
p-values: T2 = T3	0.67	0.77	0.64	0.95	0.71	0.40	0.98	0.46
p-values: T1 + T2 = T3	0.77	0.50	0.21	0.71	0.96	0.89	0.82	0.73
p-values: Any Account = 0	0.38	0.80	0.56	0.65	0.69	0.29	0.86	0.17
p-values: Any Education = 0	0.36	0.67	0.73	0.25	0.98	0.94	0.08	0.39
Proportion of Obs Equal Zero	0.49	0.11	0.11	0.52	0.00	0.00	0.00	0.00
Controls for Baseline Values	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline								
Account Access Only (T1)	-0.06	0.10	4.64	29.95	0.11	-0.04	0.11	0.05
	(0.04)	(0.06)	(3.48)	(73.14)	(0.07)	(0.07)	(0.06)	(0.07)
	[0.41]	[0.41]	[0.41]	[0.73]	[0.41]	[0.73]	[0.41]	[0.73]
Education Only (T2)	-0.08	0.03	-1.25	162.57	0.15	-0.01	0.04	-0.01
	(0.04)	(0.06)	(3.41)	(71.35)	(0.08)	(0.07)	(0.07)	(0.08)
	[0.41]	[0.73]	[0.73]	[0.41]	[0.41]	[0.82]	[0.73]	[0.82]
Account + Education (T3)	-0.06	0.11	7.21	83.69	0.07	-0.04	0.08	0.04
	(0.03)	(0.06)	(3.78)	(83.78)	(0.07)	(0.07)	(0.07)	(0.08)
	[0.41]	[0.41]	[0.41]	[0.47]	[0.44]	[0.73]	[0.41]	[0.73]
Control Group Mean	0.60	1.52	69.41	398.39	0.00	0.00	0.00	0.00
Control Group SD	0.49	0.91	57.96	1071.70	1.00	1.00	1.00	1.00
N	1504	1968	1968	1924	1962	1969	1969	2810
p-values: T1 = T2	0.66	0.25	0.08	0.11	0.63	0.70	0.30	0.42
p-values: T1 = T3	0.97	0.92	0.49	0.57	0.67	0.95	0.72	0.90
p-values: T2 = T3	0.61	0.17	0.02	0.38	0.39	0.73	0.52	0.51
p-values: T1 + T2 = T3	0.15	0.81	0.44	0.35	0.11	0.90	0.52	0.96
p-values: Any Account = 0	0.48	0.03	0.01	0.68	0.80	0.53	0.11	0.36
p-values: Any Education = 0	0.17	0.70	0.79	0.07	0.32	0.97	0.88	0.84
Proportion of Obs Equal Zero	0.45	0.08	0.08	0.38	0.00	0.00	0.00	0.00
Controls for Baseline Values	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Panel C: Comparisons across One-Year and Five-Year Endlines								
p-values: T1 One-year = T1 Five-year	0.50	0.33	0.81	0.89	0.29	0.40	0.30	0.20
p-values: T2 One-year = T2 Five-year	0.03	0.84	0.29	0.08	0.06	0.93	0.23	0.70
p-values: T3 One-year = T3 Five-year	0.19	0.21	0.18	0.57	0.41	0.35	0.07	0.17
p-values: Any Account One-year = Any Account Five-year	0.92	0.09	0.07	0.54	1.00	0.21	0.26	0.12
p-values: Any Education One-year = Any Education Five-year	0.06	0.99	0.99	0.16	0.36	0.93	0.17	0.70

Notes: Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club), and FDR adjusted p-values in square brackets with a family of hypotheses defined as all treatment effects for an endline survey (i.e. 24 hypotheses per endline survey). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Item non-response rates are low and our indices average across non-missing components.

Figure 1. Study Design and Timeline

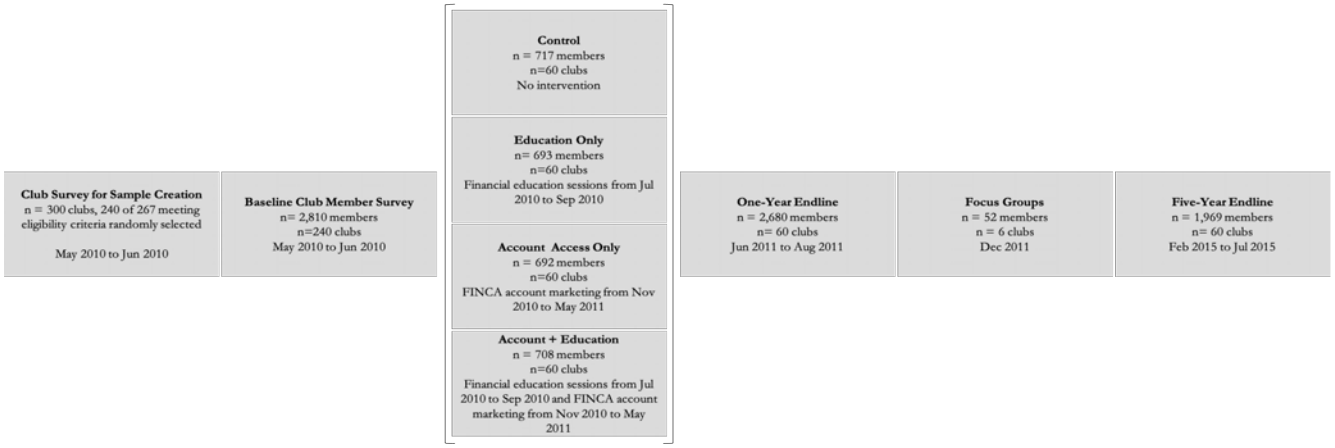
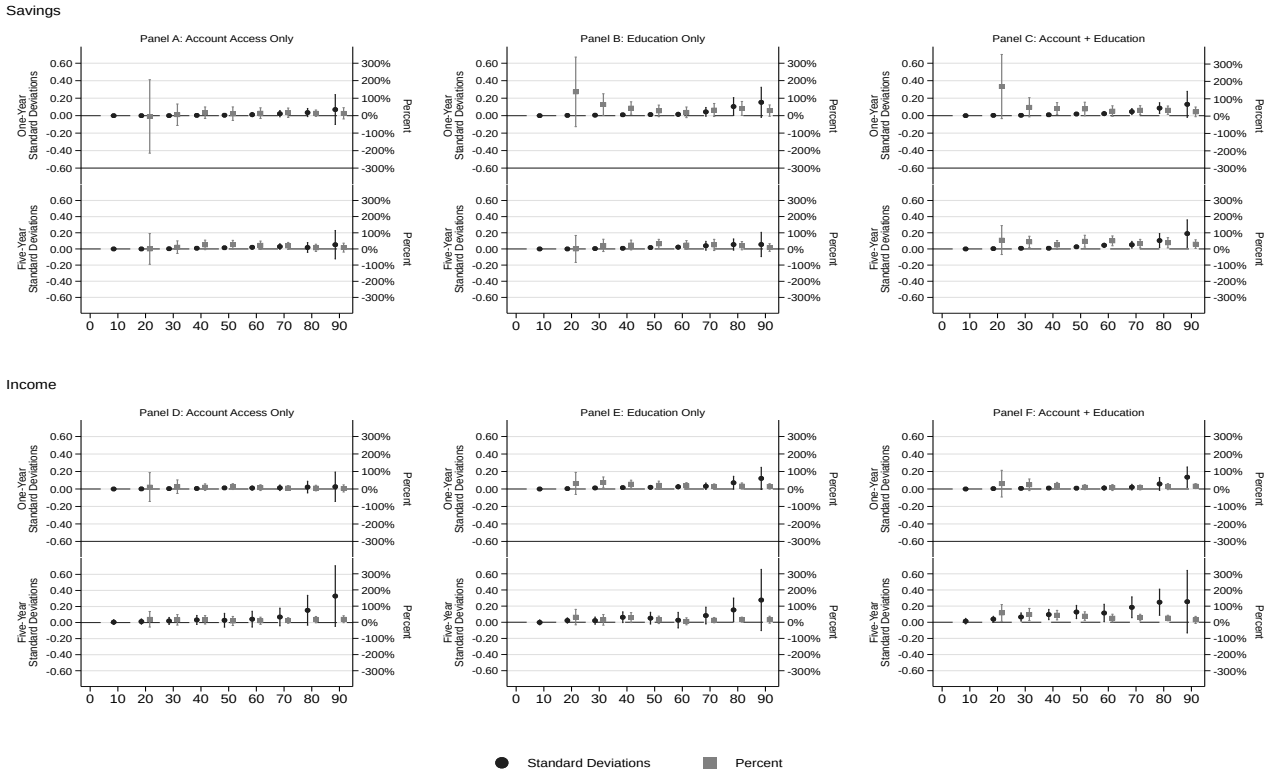
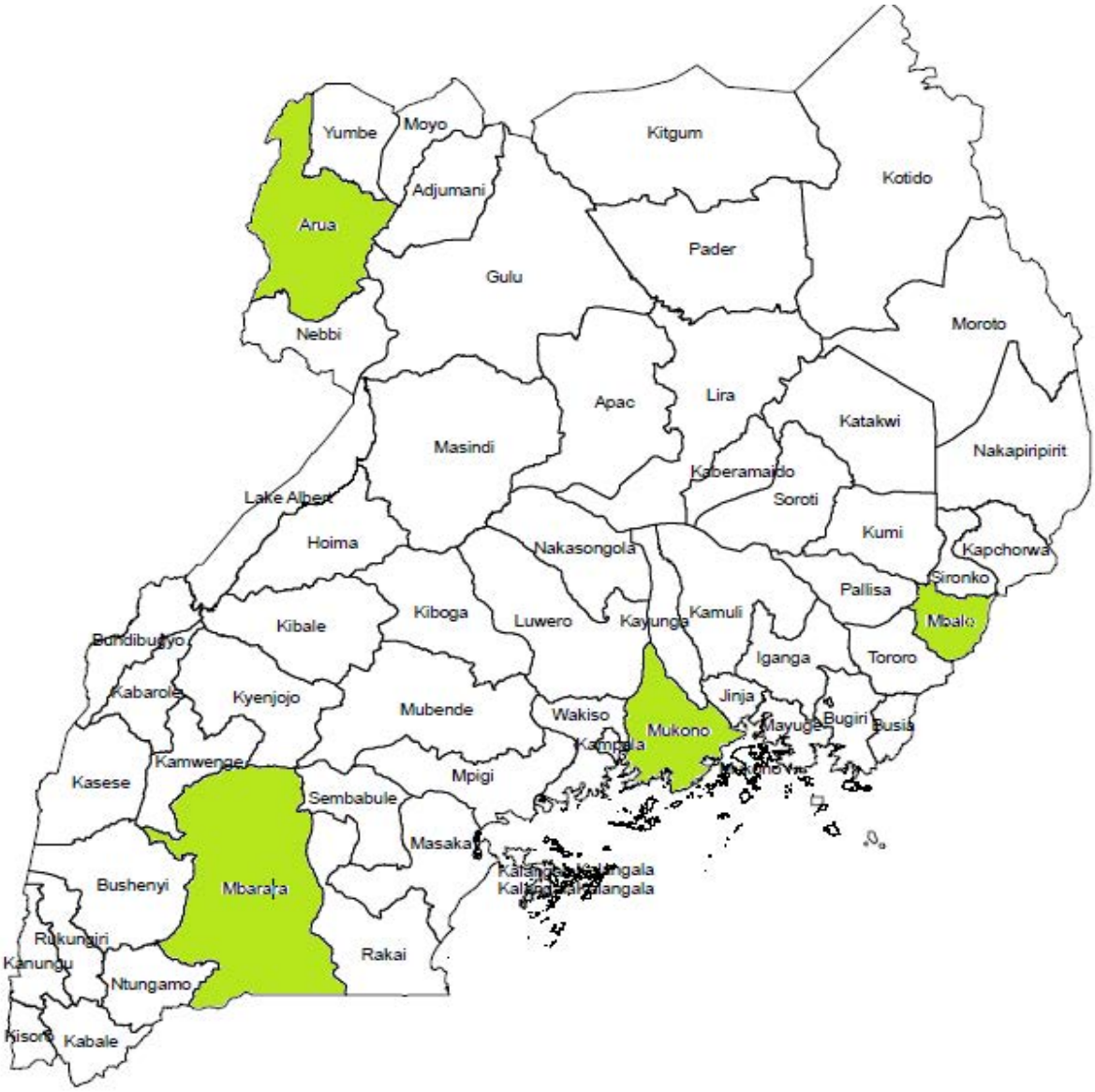


Figure 2. Quantile Treatment Effects for Savings and Income



Notes: Treatment effects on the left axis in standard deviation units of the outcome variable, standardized with respect to the full control group. On the right axis we present treatment effects for the unadjusted outcome (i.e. valued in UGX) as a percentage of the relevant control group percentile. Each quantile regression controls for the baseline outcome (with a dummy for missing baseline value where needed) and stratification variable with standard errors clustered at the unit of randomization (the youth club).

Appendix Figure 1. District Map of Uganda with Study Areas Highlighted



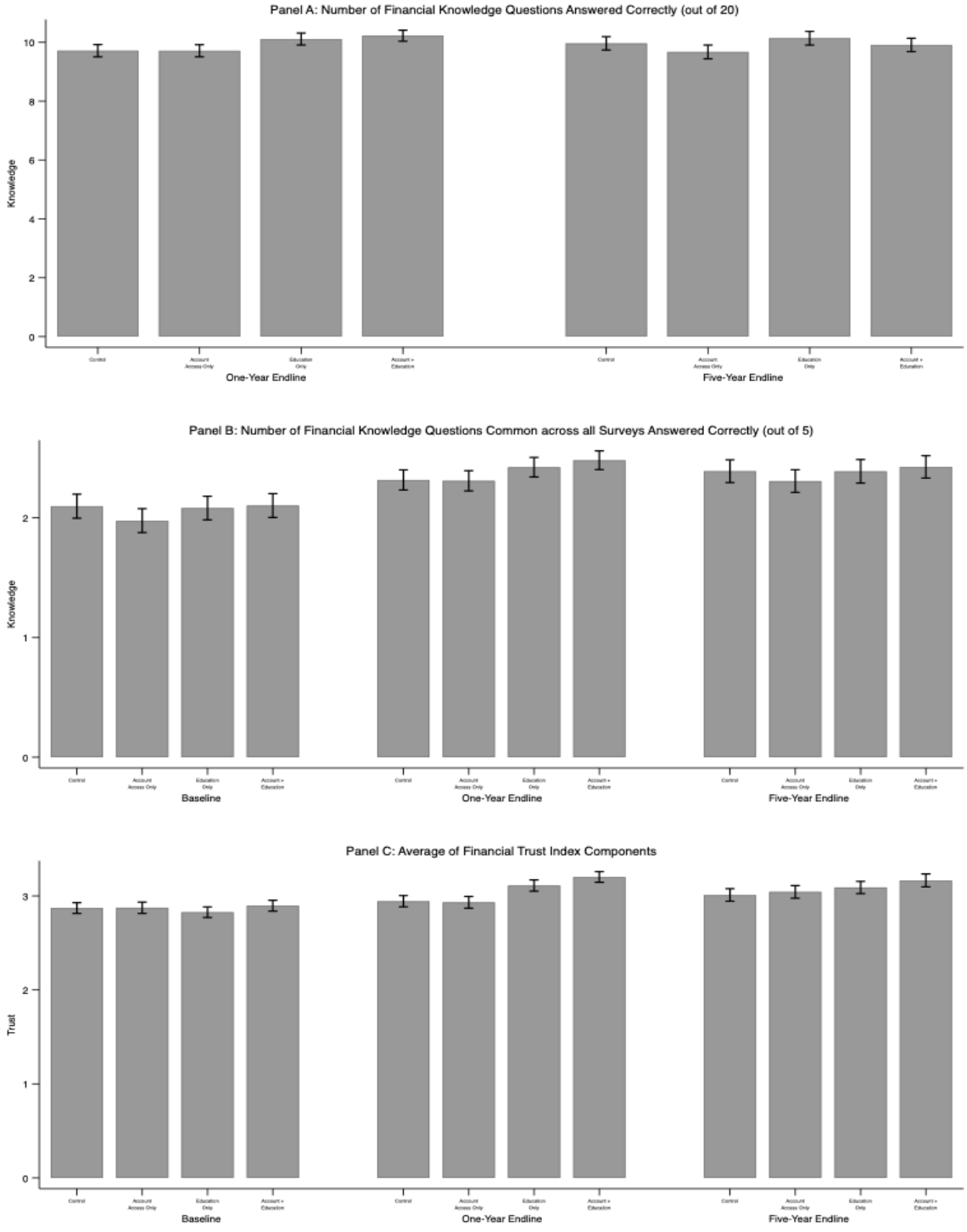
Notes: Sampling: We chose study areas in consultation with our various implementing partner organizations, then identified 300 clubs in the vicinity of the district capitals in each study area, and then surveyed club officers in April and May 2010 to assess whether each club met the three eligibility criteria described in Section I-A. 267 clubs met the criteria and we randomly selected 240 of these for the study.

Appendix Figure 2a. Word cloud of responses to question: "What do you remember most from the financial education curriculum?"

Appendix Figure 2b. Word cloud of responses to question: "What was your favorite part of the financial education?"

Notes: Questions were asked during a series of focus groups in December 2011 (around five months after the one-year endline survey) with five groups of randomly selected members from the two education arms.

Appendix Figure 3. Financial Knowledge and Bank Trust Levels by Treatment Group across Surveys



Notes: Each bar shows a mean and its 95% confidence interval. Panel A shows the number of correct responses given to 20 financial knowledge questions used to form the Financial Knowledge Index detailed in Appendix Table 4. Only five of these 20 questions were asked during the baseline survey, so Panel B shows the number of correct responses to those five in each survey round. Panel C shows the average response to the two questions used to form the Bank Trust Index detailed in Appendix Table 7, with the four possible response options for each question coded such that higher numbers indicate more trust.

Appendix Table 1. Literature review of savings encouragement RCTs in developing countries

Study	Endline Measurement Horizon(s)			
	Financial Knowledge/ Literacy Impacts	Savings Impacts	Income Impacts	Spending/ Consumption Impacts
Abarcar et al. (2019) [1]	12	12	12	12
Abebe et al. (2018) [2]	5-7	5-7	5-7	5-7
Abraham et al. (2016) [3]		[0,2], 4		
Aggarwal et al. (2020) [4]		[0,9], 26	[0,9]	[0,9]
Aker et al. (2020) [5]		3-14	14	3-14
Ashraf et al. (2015) [6]		[0,48]		
Ashraf et al. (2006a) [7]		6, 12		
Ashraf et al. (2006b) [8]		6-15		
Atkinson et al. (2013) [9]		[0,36]		
Attanasio et al. (2019) [10]	3-29	[0,6], 10, 29		10
Avdeenko et al. (2019) [11]		2		
Banerjee et al. (2020) [12]		[0,24]	24, 36	24, 36
Bastian et al. (2018) [13]	12	[0,12]	12	
Batista and Vicente (2020) [14]		[0,23]		6
Beaman et al. (2014) [15]		36	36	36
Berry et al. (2018) [16]	8	8	8	8
Blumenstock et al. (2018) [17]		[0,25]		
Brune et al. (2016) [18]		14	14	14
Brune et al. (2017) [19]		1-2 weeks		1-2 weeks
Brune et al. (2019) [20]		[0,3]	[0,3]	1-5
Callen et al. (2019) [21]		[0,15], 21, 27	[0,15], 21, 27	[0,15], 21, 27
Carter et al. (2016) [22]		3-26		3-26
Cole et al. (2011) [23]		2, 24		
De Mel et al. (2018) [24]		7-26		
Dizon et al. (2019) [25]		7		
Dupas and Robinson (2013a) [26]		6, 12		6, 12
Dupas and Robinson (2013b) [27]		[4,7]		[4,7]
Dupas et al. (2012) [28]		[0,12]		
Dupas et al. (2018)				
Site 1: Uganda [29]		[0,24]	6-18	6-18
Site 2: Malawi [30]		[0,22]	6-18	6-18
Site 3: Chile [31]		[0,17]		
Flory (2018) [32]		24	24	24
Gertler et al. (2017) [33]		[0,18]		
Habyarimana and Jack (2018) [34]		6, 7		
Jamison et al. (2014) [35]	7-10	[0,8], 10	7-10	7-10
John (2020) [36]		3-6		6
Karlan and Linden (2014) [37]		[0,24]		
Karlan and Zinman (2018) [38]		[0,12]		
Karlan et al. (2016)				
Site 1: The Philippines [39]		3-24		
Site 2: Peru [40]		6-12		
Site 3: Bolivia [41]		10-12		
Kast and Pomeranz (2014) [42]		13-15		13-15
Kast et al. (2012)				
Study 1: Peer Groups [43]		[0,12]		
Study 2: Feedback Messages [44]		[0,3]		
Laajaj (2017) [45]		3-27	3-27	
Lipscomb and Schechter (2018) [46]		[0,13]		
Prina (2015) [47]		[0,12]		12
Salas (2015) [48]		9		
Schaner (2017) [49]		[0,36]		
Schaner (2018) [50]		[0,36]	36, 48	
Somville and Vandewalle (2019) [51]		[1,7]	[1,7]	[1,7]
Supanantaroek et al. (2017) [52]		3		

Notes:

General Notes:

Time horizons in months unless indicated otherwise.

Numbers inside brackets indicate a time horizon, in months, for which high frequency data was collected, typically a bank's administrative data on savings.

Study-specific notes:

[1] Endline conducted 12 months since researchers started giving financial incentives to take-up treatment, since take-up had been very low.

[2] Endline conducted between 5 to 7 months after intervention.

[3] Savings data from administrative bank data spanning two months and a 3-4 month endline with questions on outside savings and gambling.

[4] Data from high-frequency phone surveys taken twice a week for 9 months. Only half of the participants were surveyed in these phone surveys.

[5] Savings and consumption outcomes from 3, 6 and 10 month phone surveys, and from a 14 month endline. Income outcomes from the 14 month

[6] On top of 48 months of bank administrative data there was also a 12 month survey to measure total savings. Study is with US-based migrants, but the

[7] Savings outcomes from 6 and 12 month follow-up surveys.

[8] Savings outcomes from 6, 10 and 15 month follow-up surveys.
[9] Savings outcomes from bi-monthly administrative portfolio data spanning 3 years, and data on all movements in the accounts.
[10] For savings outcomes there are 6 months of bank administrative data, as well as data from 3 follow-up surveys (3, 10, and 29 month). Financial literacy outcomes are from the 3, 10 and 29 month follow-ups. Consumption outcomes only from 10 month follow-up.
[11] Savings outcomes from 2 month follow-up.
[12] Savings outcomes from 2 years of administrative data. Income and consumption outcomes are from 24 and 36 month follow-up surveys.
[13] Savings outcomes are from 12 months of bank administrative data on transaction and from 12 month follow-up survey. Financial literacy and income outcomes are from the 12 month follow-up. Financial literacy outcomes are financial and business practices scores. An additional 20 month follow-up was scheduled to take place at the time of writing the working paper.
[14] Savings outcomes are from 23 months of administrative data and from a 6 month follow-up survey. Consumption outcomes are from the 6 month
[15] And endline survey was conducted at 36 months. A smaller subset of the participants got surveyed either every 2-3 weeks or every 3-4 months over 20 months, in order to examine consumption smoothing outcomes.
[16] The intervention had not ended when the 8 month endline was conducted, so these are short-term impacts.
[17] Savings outcomes from 25 months of administrative data and from a 7 month endline survey.
[18] Savings, income and consumption outcomes from a 14 month follow-up survey.
[19] Savings and consumption outcomes from 1 week and 2 week surveys.
[20] Savings outcomes from 3 months of administrative data and 1 and 3 month follow-ups. Income outcomes from 3 months of administrative data. Consumption outcomes from 1, 3 and 5 month follow-ups. There are two additional 8 and 26 month follow-up surveys on assets.
[21] For 15 months some participants were surveyed monthly and some quarterly. Additionally, both groups got long-term follow-ups at months 21 and 27.
[22] Savings and consumption outcomes from 3, 15 and 26 month follow-up surveys (months after the savings intervention, which happened after the fertilizer subsidy intervention.)
[23] Main outcome is "Opened bank account 2 months after intervention." Then there was an endline 2 years after intervention with other savings outcomes.
[24] Savings outcomes are from 4 follow-up surveys, which were conducted at different times relative to intervention depending on when the accounts were activated. First follow-up: 7-11 month survey, full sample surveyed. Second follow-up: 9-13 month survey, only a sub-sample surveyed. Third follow-up: 13-17 month survey, only a sub-sample surveyed. Fourth follow-up: 19-26 month survey, full sample surveyed.
[25] Savings outcomes from 7 month follow-up survey.
[26] Savings and consumption outcomes from 6 and 12 month follow-up surveys. The reported consumption outcome is "amount spent on preventative
[27] Data collected in self-reported logbooks, recorded daily from 4 to 7 months after intervention.
[28] Savings outcomes from 12 months of bank administrative data.
[29] Savings outcomes from 24 months of administrative data and from 6, 12 and 18 month follow-up surveys. Income and consumption outcomes from 6, 12 and 18 month follow-ups.
[30] Savings outcomes from 22 months of administrative data and from 6, 12 and 18 month follow-up surveys. Income and consumption outcomes from 6, 12 and 18 month follow-ups.
[31] There are 17 months of administrative data on savings. Take-up of accounts was low so there were no follow-ups to measure impact. There are qualitative surveys on why participants did not open an account.
[32] Savings, income and consumption outcomes are from 24 month follow-up survey. Savings outcome is "Has formal savings" dummy. Consumption outcome is a food-access score.
[33] Savings outcomes from 18 months of administrative data.
[34] Savings outcomes from 6 and 7 month follow-up surveys.
[35] Financial literacy, savings, income, and consumptions outcomes from a follow-up survey conducted between 7 and 10 months after intervention. Additionally, there are 8 months of administrative data on savings.
[36] Consumption outcomes from a 6 month follow-up. Savings outcomes from administrative data spanning from baseline to 3-6 months after baseline.
[37] Savings outcomes from administrative data spanning 24 months.
[38]Savings outcomes from 12 months of administrative data.
[39] The client chooses a commitment period ranging between 3 and 24 months. There is bank administrative data on deposits made in that period.
[40] The client chooses a commitment period ranging between 6 and 12 months. There is bank administrative data on deposits made in that period.
[41] The commitment period has a fixed end-date. Depending on when the client signs up the period could range between 9 and 11 months. There is bank administrative data on deposits made in that period.
[42] Outcomes come from follow-up survey conducted between 13 and 15 months after intervention, as well as bank administrative data.
[43] Savings outcomes from administrative data spanning 12 months.
[44] Savings outcomes from administrative data spanning 3 months. The second study came right after the first one, with the same study participants (re-randomizing and stratifying on Study 1 assignment).
[45] Savings and income outcomes from 3, 15 and 27 month follow-up surveys.
[46] Savings outcomes from administrative data on mobile account use spanning 13 months and a 12 month follow-up survey.
[47] Savings outcomes from bank administrative data spanning 12 months. Consumption outcomes from a 12 month follow-up survey.
[48] Data from both a 9 month endline and administrative data from month 9.
[49] Savings outcomes from bank administrative data spanning 36 months and from a 36 month endline survey.
[50] Savings outcomes from administrative data spanning 36 months and from a 36 month follow-up survey. Income outcomes from 36 month and 48
[51] Savings, income and consumption outcomes from weekly interviews conducted between months 1 and 4 and then again between months 6 and 7.
[52] Savings outcomes from 3 month follow-up survey.

Appendix Table 2. Account usage and financial education attendance

	(1)	(2)	(3)	(4)
	Mean or Proportion (SE)			*p*-value
	Account Only	Education Only	Account + Education	(1)=(3) or (2)=(3)
Club Opened Savings Account	0.60 (0.06)	-	0.72 (0.06)	0.13
Conditional on Opening Account:				
FINCA Savings Account Balance at Time of One-year Endline Survey ('000 UGX)	107.47 (33.14)	-	180.97 (65.56)	0.25
Non-Zero FINCA Savings Account Balance at Time of One-year Endline Survey	0.86 (0.06)	-	0.73 (0.07)	0.12
Number of FINCA Transactions from Opening through One-year Endline Survey	3.87 (0.60)	-	4.20 (0.72)	0.59
Total financial education sessions attended	-	4.58 (0.28)	4.76 (0.22)	0.56
Attended all financial education sessions	-	0.13 (0.02)	0.13 (0.02)	0.79
Attended session: Myths about the formal financial sector	-	0.50 (0.03)	0.56 (0.03)	0.16
Attended session: Bank regulation by the Bank of Uganda	-	0.45 (0.03)	0.46 (0.03)	0.80
Attended session: How banks function as businesses	-	0.46 (0.03)	0.49 (0.03)	0.34
Attended session: Costs and benefits of saving versus borrowing	-	0.48 (0.03)	0.47 (0.03)	0.90
Attended session: Targeted/goal-oriented saving	-	0.47 (0.03)	0.49 (0.03)	0.44
Attended session: Budgeting and record keeping	-	0.44 (0.03)	0.46 (0.03)	0.68
Attended session: Prioritizing spending decisions	-	0.45 (0.03)	0.46 (0.03)	0.87
Attended session: Addressing challenges to saving	-	0.45 (0.03)	0.47 (0.03)	0.61
Attended session: Decisions about where and how to save	-	0.44 (0.04)	0.45 (0.02)	0.96
Attended session: How to communicate about money	-	0.45 (0.03)	0.45 (0.03)	0.98

Notes: Unit of observation is a club member, sample is those completing endline 1. Account data from FINCA and attendance data from instuctor logs. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each p-value in Column 4 is from a single regression using our usual specification but estimated using only subjects from two arms being compared in the row. For example, in the first four rows - for the savings variables - we only include individuals from clubs assigned to account access only or to account+education.

Appendix Table 3. Attrition: Retention Rates and Sample Composition Across Arms and Endlines

	(1)	(2)	(3)	(4)	(5)	(6)
	Balance: Mean (SD)					Composition
	Control	Account Only	Education Only	Account + Education	p-value of F-test of treatment assignment dummies after regression of row variable on treatment assignment dummies	p-value of F-test of interaction terms after regression of 1=completed survey on treatment assignment dummies, row variables, and row variables interacted with treatment assignment dummies
Panel A. One-Year Endline						
Completed survey	0.95	0.96	0.96	0.95	0.59	
	(0.23)	(0.21)	(0.19)	(0.21)		
Baseline statistics for those completing survey:						
Female	0.44	0.40	0.42	0.43	0.54	
	(0.50)	(0.49)	(0.49)	(0.49)		
Age	23.39	24.16	23.85	24.12	0.16	
	(6.56)	(8.03)	(6.69)	(7.40)		
Education: Highest Level Completed	10.35	10.09	10.47	10.22	0.24	
	(3.50)	(3.52)	(3.68)	(3.56)		
Has Any Formal Account	0.37	0.36	0.37	0.36	0.91	
	(0.48)	(0.48)	(0.48)	(0.48)		
Household Head (1/0)	0.30	0.32	0.32	0.31	0.73	
	(0.46)	(0.47)	(0.47)	(0.46)		
Financial Knowledge Index	0.02	-0.09	-0.01	0.01	0.17	
	(1.00)	(0.98)	(0.96)	(0.98)		
Financial Planning Index	-0.00	-0.01	-0.04	-0.06	0.68	
	(1.00)	(0.99)	(1.02)	(1.03)		
Financial Agency Index	0.00	-0.06	0.00	-0.02	0.68	
	(0.99)	(0.99)	(0.96)	(0.95)		
Financial Trust Index	-0.00	-0.02	-0.07	0.04	0.20	
	(1.00)	(1.05)	(0.97)	(1.01)		
Total Savings ('000 UGX): 1% top-coded	121.61	120.69	132.12	93.46	0.08	
	(346.16)	(359.62)	(357.19)	(235.95)		
Total Income ('000 UGX): 1% Winsor	131.10	141.98	151.41	138.17	0.46	
	(229.95)	(242.81)	(234.08)	(217.35)		
p-value: treatments X all variables above						0.24
p-value: treatments X outcome variables only (indices, savings, income)						0.12
N	678	661	666	675	2680	2810
Panel B. Five-Year Endline						
Completed survey	0.70	0.71	0.69	0.71	0.85	
	(0.46)	(0.45)	(0.46)	(0.46)		
Baseline statistics for those completing survey:						
Female	0.42	0.40	0.43	0.40	0.62	
	(0.49)	(0.49)	(0.50)	(0.49)		
Age	24.07	24.74	24.19	24.56	0.47	
	(6.88)	(8.29)	(6.98)	(7.50)		
Education: Highest Level Completed	10.33	9.99	10.58	10.17	0.06	
	(3.65)	(3.55)	(3.58)	(3.67)		
Has Any Formal Account	0.39	0.34	0.36	0.38	0.42	
	(0.49)	(0.47)	(0.48)	(0.49)		
Household Head (1/0)	0.32	0.34	0.35	0.33	0.88	
	(0.47)	(0.47)	(0.48)	(0.47)		
Financial Knowledge Index	0.06	-0.11	-0.04	0.03	0.02	
	(0.99)	(0.97)	(0.95)	(0.99)		
Financial Planning Index	0.07	0.03	-0.06	-0.05	0.13	
	(0.98)	(0.98)	(1.03)	(1.04)		
Financial Agency Index	0.06	-0.01	-0.00	-0.03	0.51	
	(0.96)	(0.96)	(0.94)	(0.95)		
Financial Trust Index	0.03	-0.04	-0.05	0.07	0.17	
	(1.02)	(1.06)	(0.99)	(0.98)		
Total Savings ('000 UGX): 1% top-coded	134.74	128.82	145.70	105.22	0.19	
	(360.59)	(368.62)	(395.53)	(239.25)		
Total Income ('000 UGX): 1% Winsor	140.29	147.22	156.57	150.15	0.76	
	(231.24)	(248.72)	(239.74)	(231.82)		
p-value: treatments X all variables above						0.02
p-value: treatments X outcome variables only (indices, savings, income)						0.03
N	500	491	478	500	1969	2810

Notes: Unit of observation is the club member. We have many additional baseline variables but, for concision, limit the set here to key demographics and outcome variables. Regressions in Columns 5 and 6 also include stratification variables.

Appendix Table 4. Treatment Effects on Financial Knowledge Summary Measures and Index Components

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Summary measures		Index Components: Answered Knowledge Questions Correctly										
	Financial Knowledge Index - Same as Table 2 Col 1	Knowledge Questions Answered Correctly out of 20	Bank Regulation (10 questions)	Definition of Formal Budget (1 question)	Definition of Interest with Borrowing (1 question)	Definition of Wants as Spending Category (1 question)	Definition of Interest of Savings (1 question)	Definition of Rotating Savings (1 question)	Definition of Collateral (1 question)	Definition of Informal Budget (1 question)	Savings Interest Rate Calculation (1 question)	Interest Compounding Estimation (1 question)	Loan Interest Rate Calculation (1 question)
Panel A. One-Year Endline													
Account Access Only (T1)	0.01	0.10	0.04	0.01	0.01	0.01	-0.00	-0.12	0.03	0.02	-0.06	-0.01	0.06
	(0.06)	(0.17)	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
Education Only (T2)	0.17	0.46	0.11	0.12	0.03	0.15	0.15	0.1	0.01	0.1	-0.03	-0.06	0.01
	(0.06)	(0.17)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)	(0.05)	(0.05)	(0.06)
Account + Education (T3)	0.19	0.55	0.16	0.10	0.05	0.13	0.14	0.08	0.03	0.07	-0.05	0.02	0.04
	(0.06)	(0.16)	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)	(0.05)	(0.05)	(0.06)
Control Group Mean	0.00	9.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Control Group SD	1.00	2.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
N	2680	2680	2680	2680	2680	2680	2680	2680	2680	2680	2677	2680	2676
p-values: Account Access Only (T1) = Education Only (T2)	<0.01	0.03	0.26	0.05	0.62	0.03	<0.01	<0.01	0.77	0.17	0.70	0.37	0.31
p-values: T1 = T3	<0.01	<0.01	0.05	0.15	0.42	0.07	0.01	<0.01	0.99	0.42	0.91	0.64	0.64
p-values: T2 = T3	0.77	0.57	0.38	0.72	0.72	0.77	0.88	0.72	0.77	0.58	0.78	0.15	0.61
p-values: T1 + T2 = T3	0.96	0.97	0.94	0.73	0.86	0.72	0.96	0.20	0.83	0.53	0.58	0.26	0.69
p-values: Any Account = 0	0.72	0.42	0.27	0.88	0.77	0.92	0.87	0.08	0.54	0.87	0.35	0.33	0.26
p-values: Any Education = 0	<0.01	<0.01	<0.01	0.01	0.34	<0.01	<0.01	<0.01	0.84	0.07	0.70	0.69	0.79
Controls for Baseline Values	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No
Panel B: Five-Year Endline													
Account Access Only (T1)	-0.09	-0.19	-0.05	-0.05	0.01	0.02	-0.03	-0.04	-0.05	-0.13	-0.08	-0.06	0.03
	(0.07)	(0.18)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)
Education Only (T2)	0.05	0.24	0.11	0.05	0.09	0.03	0.00	-0.01	-0.05	-0.05	-0.08	-0.04	0.12
	(0.07)	(0.19)	(0.07)	(0.07)	(0.07)	(0.06)	(0.07)	(0.08)	(0.06)	(0.07)	(0.05)	(0.07)	(0.07)
Account + Education (T3)	-0.01	-0.03	-0.00	-0.10	-0.02	0.04	-0.02	0.03	0.01	-0.07	-0.1	0.07	0.09
	(0.08)	(0.21)	(0.07)	(0.08)	(0.07)	(0.07)	(0.07)	(0.08)	(0.06)	(0.07)	(0.05)	(0.07)	(0.07)
Control Group Mean	0.00	9.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Control Group SD	1.00	2.57	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
N	1969	1969	1969	1969	1969	1969	1968	1967	1969	1969	1969	1968	1968
p-values: Account Access Only (T1) = Education Only (T2)	0.05	0.02	0.04	0.13	0.26	0.85	0.69	0.74	0.99	0.21	0.98	0.83	0.19
p-values: T1 = T3	0.37	0.45	0.57	0.51	0.66	0.84	0.87	0.35	0.38	0.34	0.75	0.11	0.43
p-values: T2 = T3	0.39	0.21	0.15	0.04	0.13	0.98	0.81	0.53	0.36	0.80	0.75	0.13	0.67
p-values: T1 + T2 = T3	0.87	0.76	0.54	0.32	0.23	0.83	0.92	0.45	0.23	0.24	0.38	0.10	0.55
p-values: Any Account = 0	0.15	0.10	0.14	0.06	0.37	0.81	0.66	0.95	0.96	0.12	0.19	0.60	1.00
p-values: Any Education = 0	0.25	0.16	0.16	0.99	0.57	0.61	0.89	0.58	0.93	0.87	0.19	0.39	0.08
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 3-13 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. The bank regulation index (the components are not shown separately in this table) is the mean of non-missing standardized responses to the following 10 questions: "First, what is the name of the government institution of Uganda that regulates formal banks?", "Is Post Bank Uganda regulated by the government of Uganda?", "Is TEAM Bank regulated by the government of Uganda?", "Is FINCA Bank Uganda regulated by the government of Uganda?", "Is Centenary Bank regulated by the government of Uganda?", "Is [named local savings and credit cooperative (SACCO)] regulated by the government of Uganda?", "Is the World Bank regulated by the government of Uganda?", "Is Chase Bank regulated by the government of Uganda?", "Is PRIDE Microfinance regulated by the government of Uganda?", "Are all banks, SACCOs and microfinances in Uganda regulated by the government of Uganda?". The exact questions for Columns 3-13 following the order they presented in the table are as follows: "What is the word for a summary of estimated income and how it will be spent over a defined period of time?", "What is the word for the extra money that you have to pay if you borrow money from a bank?", "There are two general categories of things to spend money on. One is "needs", what is the other category?", "What do you call the extra money that banks give to people who have savings accounts?", "What do you call it when a group of people save together and the money they collect goes to a different member each month?", "What is the name for that thing that a person must promise to the bank in order for him to be able to get a loan?", "What do you call a plan for the money you expect to get and the money you expect to spend?", "Imagine you put 10,000 Shillings in a normal individual savings account in a regulated bank in Uganda. Guess about how much money you think would be in the account after one year.", "Imagine the following two options: Option A: You put some amount of money in a savings account that gives you 5% interest and you leave it there for 4 or 5 years. Option B: You put a LARGER amount of money in a savings account that also gives you 5% interest, but you only leave it there for 1 year. Is it possible that Option A would outgrow Option B and wind up being more money?", "Imagine you take a loan of 100,000 Shillings from a regulated bank in Uganda that you must pay back in one year. How much total do you think you will have to pay back to the bank after that year?". Standard errors in parentheses, clustered at the unit of randomization (the youth club). Unit of observation is a club member-endline. Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators.

Appendix Table 5. Treatment Effects on Financial Planning Index Components

	(1)	(2)	(3)	(4)	(5)
		Index Components			
	Financial Planning Index - Same as Table 2 Col 2	Regularly Keeps Track of Money Spent	Regularly Plans for How to Spend Expected Money	Ratio of Financial Plans Succeeded to Plans Made	Prepares for Emergencies
Panel A. One-Year Endline					
Account Access Only (T1)	0.03	-0.01	-0.02	0.03	0.08
	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)
Education Only (T2)	0.09	0.05	-0.02	0.04	0.12
	(0.06)	(0.06)	(0.06)	(0.05)	(0.07)
Account + Education (T3)	-0.06	-0.03	-0.12	-0.05	0.06
	(0.06)	(0.06)	(0.06)	(0.05)	(0.07)
Control Group Mean	0.00	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00	1.00
N	2680	2680	2680	2680	2680
p-values: Account Access Only (T1) = Education Only (T2)	0.40	0.25	0.89	0.82	0.60
p-values: T1 = T3	0.17	0.85	0.12	0.15	0.71
p-values: T2 = T3	0.03	0.15	0.12	0.08	0.40
p-values: T1 + T2 = T3	0.04	0.43	0.33	0.10	0.12
p-values: Any Account = 0	0.21	0.26	0.12	0.41	0.74
p-values: Any Education = 0	0.98	0.61	0.18	0.63	0.29
Controls for Baseline Values	Yes	Yes	Yes	Yes	No
Panel B: Five-Year Endline					
Account Access Only (T1)	0.08	0.09	0.01	0.1	0.01
	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)
Education Only (T2)	0.07	0.01	-0.03	0.05	0.13
	(0.08)	(0.06)	(0.08)	(0.08)	(0.07)
Account + Education (T3)	0.02	-0.00	0.04	0.04	-0.06
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Control Group Mean	0.00	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00	1.00
N	1969	1969	1969	1950	1969
p-values: Account Access Only (T1) = Education Only (T2)	0.92	0.23	0.62	0.50	0.06
p-values: T1 = T3	0.32	0.18	0.66	0.35	0.34
p-values: T2 = T3	0.45	0.82	0.39	0.93	<0.01
p-values: T1 + T2 = T3	0.16	0.26	0.57	0.30	0.04
p-values: Any Account = 0	0.81	0.43	0.45	0.36	0.06
p-values: Any Education = 0	0.94	0.38	0.97	0.91	0.49
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 2-5 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Columns 2-5 are standardized variables with the following underlying forms: Columns 2-3: indicator variables; Column 4: count of plans succeeded divided by a count of plans made; Column 5: four-point scale (Never, Rarely, Sometimes, Often).

Appendix Table 6. Treatment Effects on Financial Agency Index Components

	(1)	(2)	(3)	(4)
		Index Components		
	Financial Agency Index - Same as Table 2 Col 3	HH/Family would not be angry if saved alone	Involved in household's financial decisions	Always make decisions about own money
Panel A. One-Year Endline				
Account Access Only (T1)	-0.05	-0.02	-0.08	-0.01
	(0.06)	(0.06)	(0.06)	(0.06)
Education Only (T2)	0.01	-0.00	-0.01	0.03
	(0.06)	(0.06)	(0.06)	(0.06)
Account + Education (T3)	0.1	0.08	0.04	0.06
	(0.06)	(0.06)	(0.06)	(0.06)
Control Group Mean	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00
N	2680	2680	2680	2680
p-values: Account Access Only (T1) = Education Only (T2)	0.25	0.81	0.27	0.45
p-values: T1 = T3	<0.01	0.07	0.06	0.23
p-values: T2 = T3	0.12	0.15	0.41	0.67
p-values: T1 + T2 = T3	0.10	0.23	0.13	0.69
p-values: Any Account = 0	0.68	0.43	0.73	0.86
p-values: Any Education = 0	0.05	0.25	0.22	0.21
Controls for Baseline Values	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline				
Account Access Only (T1)	-0.03	-0.01	-0.08	0.03
	(0.07)	(0.06)	(0.07)	(0.06)
Education Only (T2)	-0.11	-0.21	-0.03	0.04
	(0.07)	(0.07)	(0.06)	(0.07)
Account + Education (T3)	0.08	-0.10	0.08	0.16
	(0.06)	(0.07)	(0.05)	(0.07)
Control Group Mean	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00
N	1969	1968	1969	1968
p-values: Account Access Only (T1) = Education Only (T2)	0.26	<0.01	0.52	0.96
p-values: T1 = T3	0.10	0.18	0.02	0.06
p-values: T2 = T3	<0.01	0.14	0.05	0.11
p-values: T1 + T2 = T3	0.02	0.22	0.04	0.38
p-values: Any Account = 0	0.10	0.33	0.73	0.12
p-values: Any Education = 0	0.99	<0.01	0.16	0.11
Controls for Baseline Values	Yes	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 2-4 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Columns 2-4 are standardized variables with the following underlying forms: Column 2: four-point response scale (Yes definitely, Probably, Probably not, Definitely) transformed into an indicator where the first two response options are mapped to 1; Column 3: four-option response scale (makes all financial decisions, involved in all financial decisions, involved in some financial decisions, not involved in financial decisions) transformed into an indicator where the first three response options are mapped to 1; Column 4: four-point response scale (Never, Rarely, Sometimes, Always).

Appendix Table 7. Treatment Effects on Financial Trust Index Components

	(1)	(2)	(3)
		Index Components	
	Financial Trust Index - Same as Table 2 Col 4	Trust that savings in formal bank would not be stolen	Trust that savings would be repaid if bank robbed
Panel A. One-Year Endline			
Account Access Only (T1)	-0.01	-0.01	-0.01
	(0.06)	(0.06)	(0.05)
Education Only (T2)	0.22	0.09	0.22
	(0.05)	(0.05)	(0.05)
Account + Education (T3)	0.32	0.21	0.25
	(0.05)	(0.05)	(0.06)
Control Group Mean	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00
N	2680	2680	2680
p-values: Account Access Only (T1) = Education Only (T2)	<0.01	0.05	<0.01
p-values: T1 = T3	<0.01	<0.01	<0.01
p-values: T2 = T3	0.07	0.03	0.57
p-values: T1 + T2 = T3	0.16	0.09	0.56
p-values: Any Account = 0	0.30	0.18	0.85
p-values: Any Education = 0	<0.01	<0.01	<0.01
Controls for Baseline Values	Yes	Yes	Yes
Panel B: Five-Year Endline			
Account Access Only (T1)	0.06	0.05	0.03
	(0.07)	(0.07)	(0.07)
Education Only (T2)	0.12	-0.00	0.16
	(0.06)	(0.06)	(0.06)
Account + Education (T3)	0.2	0.19	0.10
	(0.06)	(0.07)	(0.07)
Control Group Mean	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00
N	1969	1966	1968
p-values: Account Access Only (T1) = Education Only (T2)	0.39	0.44	0.04
p-values: T1 = T3	0.05	0.05	0.33
p-values: T2 = T3	0.19	<0.01	0.35
p-values: T1 + T2 = T3	0.77	0.12	0.36
p-values: Any Account = 0	0.13	0.01	0.70
p-values: Any Education = 0	<0.01	0.15	0.02
Controls for Baseline Values	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 2 and 3 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Columns 2-3 are standardized variables with a four-point scale response option (Very possible, Somewhat possible, Not very possible, Definitely not possible).

Appendix Table 8. Treatment Effects on Savings Locations

	(1) Total Number of Savings Locations	(2) Pocket (1/0)	(3) Box or Tin at Home (1/0)	(4) Hidden Place at Home (1/0)	(5) ROSCA (1/0)	(6) Savings and Credit Co-operative (SACCO) (1/0)	(7) Telecom Account (1/0)	(8) Formal Group Account (1/0)	(9) Formal Individual Account (1/0)	(10) Another Person (1/0)	(11) Resellable Assets (1/0)	(12) Business Investment (1/0)
Panel A: One-Year Endline												
Account Access Only (T1)	0.09	0.01	-0.02	-0.01	0.04	0.01	-0.01	0.05	0.01	-0.01	0.01	0.00
	(0.05)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)
Education Only (T2)	0.15	0.00	-0.00	-0.01	0.03	0.02	0.01	0.01	0.04	0.05	0.00	0.00
	(0.06)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)
Account + Education (T3)	0.14	0.00	-0.02	0.02	0.05	0.00	0.00	0.06	0.04	0.01	0.00	0.00
	(0.06)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)
Control Group Mean	1.28	0.04	0.19	0.21	0.10	0.14	0.03	0.01	0.16	0.16	0.12	0.04
Control Group SD	0.88	0.21	0.40	0.41	0.30	0.35	0.17	0.09	0.36	0.37	0.32	0.20
N	2680	2680	2680	2680	2680	2680	2680	2680	2680	2680	2680	2680
p-values: Account Access Only (T1) = Education Only (T2)	0.29	0.46	0.40	0.95	0.62	0.92	0.05	<0.01	0.27	0.02	0.83	0.92
p-values: T1 = T3	0.36	0.37	0.92	0.33	0.53	0.70	0.33	0.47	0.34	0.46	0.84	0.97
p-values: T2 = T3	0.86	0.88	0.49	0.33	0.23	0.62	0.31	<0.01	0.93	0.08	0.99	0.89
p-values: T1 + T2 = T3	0.20	0.35	0.86	0.33	0.68	0.45	0.76	0.82	0.59	0.35	0.79	0.77
p-values: Any Account = 0	0.30	0.46	0.24	0.65	0.03	0.94	0.24	<0.01	0.68	0.14	0.77	0.93
p-values: Any Education = 0	0.01	0.72	0.97	0.59	0.17	0.84	0.11	0.13	0.06	0.05	0.97	0.81
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline												
Account Access Only (T1)	0.15	0.02	-0.00	-0.02	0.04	0.05	0.03	-0.01	-0.00	0.03	-0.00	0.02
	(0.09)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.01)	(0.03)	(0.02)	(0.02)	(0.02)
Education Only (T2)	0.12	0.01	-0.03	-0.01	0.01	0.02	0.01	0.02	0.02	-0.02	0.02	0.03
	(0.09)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
Account + Education (T3)	0.18	-0.00	0.01	-0.01	0.01	0.03	0.00	0.00	0.04	0.04	0.03	0.03
	(0.08)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.01)	(0.03)	(0.02)	(0.02)	(0.02)
Control Group Mean	1.60	0.07	0.18	0.14	0.20	0.20	0.15	0.04	0.21	0.08	0.13	0.09
Control Group SD	1.14	0.25	0.39	0.35	0.40	0.40	0.36	0.20	0.41	0.28	0.33	0.29
N	1956	1956	1956	1956	1956	1956	1956	1956	1956	1956	1956	1956
p-values: Account Access Only (T1) = Education Only (T2)	0.77	0.58	0.44	0.58	0.19	0.45	0.43	0.06	0.44	0.05	0.36	0.57
p-values: T1 = T3	0.70	0.29	0.75	0.81	0.21	0.52	0.30	0.48	0.13	0.59	0.10	0.61
p-values: T2 = T3	0.49	0.58	0.25	0.76	0.95	0.84	0.80	0.21	0.41	<0.01	0.48	0.97
p-values: T1 + T2 = T3	0.50	0.31	0.36	0.70	0.27	0.30	0.31	0.51	0.51	0.26	0.52	0.47
p-values: Any Account = 0	0.09	0.78	0.50	0.42	0.23	0.19	0.50	0.19	0.63	<0.01	0.68	0.51
p-values: Any Education = 0	0.22	0.56	0.67	0.97	0.50	0.95	0.65	0.11	0.13	0.81	0.09	0.15
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. We do not include the two savings locations with very low frequencies: "other" (1.9% for the one-year endline and 1.6% at the five-year endline) and "hole in ground" (0% at both endlines).

Appendix Table 9. Treatment Effects on Expenditure and Consumption Index Components

	(1)	(2)	(3)	(4)
		Index Components		
	Expenditures and Consumption Index - Same as Table 6 Col 5	Human Capital Spending Last 12 months (UGX '000)	Total Spending Last 7 Days ('000 UGX)	Total Meals with Meat Last 7 Days
Panel A. One-Year Endline				
Account Access Only (T1)	0.02	0.03	-0.01	0.08
	(0.06)	(0.08)	(0.04)	(0.06)
Education Only (T2)	0.00	-0.01	0.01	0.09
	(0.04)	(0.05)	(0.05)	(0.05)
Account + Education (T3)	0.01	0.01	0.00	0.1
	(0.04)	(0.05)	(0.04)	(0.06)
Control Group Mean	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00
N	2680	2674	2680	2679
p-values: Account Access Only (T1) = Education Only (T2)	0.79	0.53	0.60	0.78
p-values: T1 = T3	0.96	0.72	0.63	0.66
p-values: T2 = T3	0.71	0.56	0.88	0.84
p-values: T1 + T2 = T3	0.96	0.88	0.91	0.41
p-values: Any Account = 0	0.69	0.54	0.77	0.28
p-values: Any Education = 0	0.98	0.68	0.68	0.14
Controls for Baseline Values	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline				
Account Access Only (T1)	0.11	0.15	0.04	0.10
	(0.07)	(0.07)	(0.07)	(0.08)
Education Only (T2)	0.15	0.14	0.11	-0.01
	(0.08)	(0.07)	(0.10)	(0.08)
Account + Education (T3)	0.07	0.06	0.06	0.12
	(0.07)	(0.08)	(0.07)	(0.08)
Control Group Mean	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00
N	1962	1915	1956	1969
p-values: Account Access Only (T1) = Education Only (T2)	0.63	0.91	0.50	0.19
p-values: T1 = T3	0.67	0.35	0.83	0.78
p-values: T2 = T3	0.39	0.40	0.60	0.11
p-values: T1 + T2 = T3	0.11	0.05	0.42	0.79
p-values: Any Account = 0	0.80	0.51	0.93	0.04
p-values: Any Education = 0	0.32	0.64	0.30	0.88
Controls for Baseline Values	Yes	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 2-4 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators.

Appendix Table 10. Treatment Effects on Patience Index Components

	(1)	(2)	(3)	(4)	(5)
		Index Components			
	Patience Index - Same as Table 6 Col 6	Chose 6K USH in 2 weeks over 2K USH now	Chose 8K USH in 2 weeks over 2K USH now	Chose 4K USH in 2 weeks over 2K USH now	Chose 6K USH in 4 weeks 2K USH in 2 weeks
Panel A. One-Year Endline					
Account Access Only (T1)	0.04	0.04	0.03	0.02	-0.01
	(0.05)	(0.05)	(0.07)	(0.09)	(0.06)
Education Only (T2)	-0.02	0.02	-0.05	-0.10	0.00
	(0.06)	(0.06)	(0.07)	(0.09)	(0.05)
Account + Education (T3)	-0.04	-0.05	0.01	0.10	-0.09
	(0.06)	(0.06)	(0.07)	(0.09)	(0.06)
Control Group Mean	0.00	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00	1.00
N	2677	2677	1676	1007	2677
p-values: Account Access Only (T1) = Education Only (T2)	0.32	0.68	0.27	0.19	0.78
p-values: T1 = T3	0.17	0.11	0.83	0.40	0.16
p-values: T2 = T3	0.67	0.28	0.36	0.04	0.07
p-values: T1 + T2 = T3	0.44	0.18	0.73	0.16	0.29
p-values: Any Account = 0	0.88	0.75	0.34	0.10	0.18
p-values: Any Education = 0	0.24	0.38	0.51	0.85	0.34
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline					
Account Access Only (T1)	0.07	0.09	0.09	0.07	-0.02
	(0.07)	(0.07)	(0.08)	(0.11)	(0.07)
Education Only (T2)	-0.09	-0.06	-0.08	0.02	-0.07
	(0.07)	(0.06)	(0.09)	(0.12)	(0.07)
Account + Education (T3)	-0.00	0.07	-0.01	-0.11	-0.05
	(0.07)	(0.07)	(0.08)	(0.11)	(0.07)
Control Group Mean	0.00	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00	1.00
N	1969	1969	1319	649	1968
p-values: Account Access Only (T1) = Education Only (T2)	0.02	0.03	0.04	0.61	0.41
p-values: T1 = T3	0.24	0.80	0.21	0.07	0.57
p-values: T2 = T3	0.24	0.04	0.39	0.28	0.78
p-values: T1 + T2 = T3	0.92	0.63	0.87	0.21	0.70
p-values: Any Account = 0	0.12	0.02	0.18	0.78	0.98
p-values: Any Education = 0	0.10	0.39	0.13	0.24	0.26
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 2-5 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Columns 2-5 are standardized indicator variables.

Appendix Table 11. Treatment Effects on Self-Control Index Components

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Index Components					
	Self Control Index - Same as Table 6 Col 6	Future based time inconsistency (Pos. is more consistent)	Present-biased time inconsistency (Pos. is more consistent)	Plans to do things and postpones (Pos. less often)	Acts without thinking about results (Pos. less often)	Spends money received too quickly (Pos. less often)	Puts most of money in safe place to avoid spending it
Panel A. One-Year Endline							
Account Access Only (T1)	0.03	-0.06	0.02	0.02	0.11	-0.03	
	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	
Education Only (T2)	0.01	-0.05	-0.02	0.01	0.09	0.00	
	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.05)	
Account + Education (T3)	0.07	-0.02	0.03	0.09	0.02	0.05	
	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	
Control Group Mean	0.00	0.00	0.00	0.00	0.00	0.00	
Control Group SD	1.00	1.00	1.00	1.00	1.00	1.00	
N	2680	2677	2677	2680	2680	2680	
p-values: Account Access Only (T1) = Education Only (T2)	0.81	0.93	0.51	0.78	0.80	0.48	
p-values: T1 = T3	0.40	0.55	0.80	0.26	0.13	0.14	
p-values: T2 = T3	0.26	0.62	0.39	0.18	0.18	0.32	
p-values: T1 + T2 = T3	0.65	0.28	0.65	0.50	0.02	0.28	
p-values: Any Account = 0	0.26	0.74	0.39	0.21	0.66	0.84	
p-values: Any Education = 0	0.44	0.83	0.91	0.39	0.95	0.25	
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	
Panel B: Five-Year Endline							
Account Access Only (T1)	-0.07	-0.09	0.07	-0.12	-0.05	-0.00	0.02
	(0.08)	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)	(0.09)
Education Only (T2)	0.01	0.07	0.04	-0.04	-0.03	0.03	-0.07
	(0.08)	(0.05)	(0.07)	(0.07)	(0.07)	(0.07)	(0.09)
Account + Education (T3)	-0.03	-0.07	0.09	-0.14	-0.03	0.06	0.02
	(0.08)	(0.06)	(0.06)	(0.08)	(0.08)	(0.07)	(0.09)
Control Group Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00	1.00	1.00	1.00
N	1969	1968	1968	1967	1966	1969	1423
p-values: Account Access Only (T1) = Education Only (T2)	0.27	0.02	0.64	0.30	0.76	0.63	0.33
p-values: T1 = T3	0.62	0.78	0.77	0.73	0.73	0.39	0.95
p-values: T2 = T3	0.54	0.03	0.46	0.17	0.96	0.73	0.31
p-values: T1 + T2 = T3	0.81	0.60	0.82	0.90	0.58	0.79	0.55
p-values: Any Account = 0	0.28	0.02	0.20	0.04	0.63	0.81	0.40
p-values: Any Education = 0	0.63	0.33	0.53	0.52	0.96	0.35	0.61
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 2-7 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Columns 2-7 are standardized variables with the following underlying forms: Columns 2-3: Indicator variable representing a combination of responses for two questions both with three response options (Chose Option A, Chose Option B, No preference); Column 4: four-point scale (Yes definitely, Probably, Probably not, Definitely not); Columns 5-7: four-point scale (Often, Sometimes, Rarely, Never).

Appendix Table 12. Treatment Effects on Risk Tolerance Index Components

	(1)	(2)	(3)	(4)
		Index Components		
	Risk Tolerance Index - Same as Table 6 Col 7	Less Risk Averse - 100% vs Coin	Less Risk Averse - Coin Choice	Less Risk Averse - Ambiguity
Panel A. One-Year Endline				
Account Access Only (T1)	0.02	0.02	0.04	-0.02
	(0.06)	(0.06)	(0.06)	(0.05)
Education Only (T2)	-0.07	-0.12	-0.00	-0.00
	(0.06)	(0.05)	(0.06)	(0.06)
Account + Education (T3)	-0.07	-0.04	-0.01	-0.07
	(0.06)	(0.06)	(0.06)	(0.05)
Control Group Mean	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00
N	2677	2677	2674	2677
p-values: Account Access Only (T1) = Education Only (T2)	0.18	0.01	0.44	0.76
p-values: T1 = T3	0.16	0.30	0.40	0.32
p-values: T2 = T3	0.98	0.16	0.92	0.21
p-values: T1 + T2 = T3	0.82	0.43	0.57	0.52
p-values: Any Account = 0	0.86	0.22	0.68	0.25
p-values: Any Education = 0	0.08	0.02	0.51	0.49
Controls for Baseline Values	Yes	Yes	Yes	Yes
Panel B: Five-Year Endline				
Account Access Only (T1)	0.11	0.02	0.05	0.15
	(0.06)	(0.06)	(0.07)	(0.06)
Education Only (T2)	0.04	-0.01	0.06	0.03
	(0.07)	(0.06)	(0.07)	(0.06)
Account + Education (T3)	0.08	0.07	0.06	0.05
	(0.07)	(0.06)	(0.06)	(0.07)
Control Group Mean	0.00	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00	1.00
N	1969	1965	1944	1968
p-values: Account Access Only (T1) = Education Only (T2)	0.30	0.66	0.86	0.07
p-values: T1 = T3	0.72	0.42	0.93	0.15
p-values: T2 = T3	0.52	0.19	0.92	0.76
p-values: T1 + T2 = T3	0.52	0.45	0.54	0.17
p-values: Any Account = 0	0.11	0.28	0.63	0.07
p-values: Any Education = 0	0.88	0.67	0.47	0.44
Controls for Baseline Values	Yes	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 2-4 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Columns 2-4 are standardized variables with the following underlying forms: Columns 2-3: Indicator variable representing a combination of responses for two questions both with three response options (Chose Option A, Chose Option B, No preference); Column 4: indicator variable.

Appendix Table 13. Treatment Effects on Altruism Index Components

	(1)	(2)	(3)
		Index Components	
	Altruism Index - Same as Table 6 Col 8	Chose More Altruistic Money Option	Willing to Make Sacrifices for People Around Them
Panel A: One-Year Endline			
Account Access Only (T1)	-0.08	-0.06	-0.05
	(0.06)	(0.06)	(0.06)
Education Only (T2)	-0.05	-0.01	-0.07
	(0.06)	(0.06)	(0.05)
Account + Education (T3)	-0.10	-0.04	-0.11
	(0.06)	(0.06)	(0.06)
Control Group Mean	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00
N	2680	2677	2680
p-values: Account Access Only (T1) = Education Only (T2)	0.70	0.37	0.63
p-values: T1 = T3	0.73	0.70	0.35
p-values: T2 = T3	0.46	0.61	0.56
p-values: T1 + T2 = T3	0.73	0.71	0.85
p-values: Any Account = 0	0.17	0.28	0.32
p-values: Any Education = 0	0.39	0.87	0.10
Controls for Baseline Values	Yes	Yes	Yes
Panel B: Five-Year Endline			
Account Access Only (T1)	0.05	0.08	0.00
	(0.07)	(0.07)	(0.08)
Education Only (T2)	-0.01	-0.01	-0.02
	(0.08)	(0.07)	(0.08)
Account + Education (T3)	0.04	0.08	-0.01
	(0.08)	(0.07)	(0.08)
Control Group Mean	0.00	0.00	0.00
Control Group SD	1.00	1.00	1.00
N	2810	2810	2810
p-values: Account Access Only (T1) = Education Only (T2)	0.42	0.22	0.76
p-values: T1 = T3	0.90	0.99	0.84
p-values: T2 = T3	0.51	0.25	0.90
p-values: T1 + T2 = T3	0.96	0.93	0.96
p-values: Any Account = 0	0.36	0.10	0.90
p-values: Any Education = 0	0.84	0.92	0.76
Controls for Baseline Values	Yes	Yes	Yes

Notes: To calculate the index in Column 1 we take the mean of its non-missing components in Columns 2 and 3 (each of which has control group mean zero and SD 1) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Columns 2-3 are standardized variables with the following underlying forms: Column 2: indicator variable; Column 3: four-point response scale (Yes definitely, Probably, Probably not, Definitely not).

Appendix Table 14. Treatment Effects on Other Mechanisms

	(1)	(2)	(3)	(4)	(5)
	Price Awareness Index	Basic Numeracy Index	Expected Future Standing in Community	Expects Emergency in Next 6 Months	Expects Emergency in Next 3 Months
Number of questions in index	8	3			
Panel A: One-Year Endline					
Account Access Only (T1)	-0.08	-0.03	0.09	0.01	0.05
	(0.07)	(0.06)	(0.13)	(0.03)	(0.03)
Education Only (T2)	0.08	0.02	-0.00	0.01	0.04
	(0.06)	(0.06)	(0.14)	(0.03)	(0.03)
Account + Education (T3)	0.10	0.07	0.34	0.03	0.05
	(0.07)	(0.05)	(0.13)	(0.03)	(0.03)
Control Group Mean	0.00	0.00	7.31	0.75	0.64
Control Group SD	1.00	1.00	2.11	0.43	0.48
N	2680	2680	2680	2680	2680
p-values: Account Access Only (T1) = Education Only (T2)	0.02	0.39	0.53	0.89	0.58
p-values: T1 = T3	0.02	0.07	0.06	0.52	0.93
p-values: T2 = T3	0.82	0.37	0.01	0.57	0.65
p-values: T1 + T2 = T3	0.34	0.31	0.18	0.94	0.33
p-values: Any Account = 0	0.52	0.81	0.03	0.53	0.11
p-values: Any Education = 0	<0.01	0.13	0.19	0.42	0.38
Controls for Baseline Values	No	Yes	Yes	No	No
Panel B: Five-Year Endline					
Account Access Only (T1)	0.01	-0.01	-0.05	0.03	-0.01
	(0.08)	(0.08)	(0.14)	(0.03)	(0.03)
Education Only (T2)	0.04	0.01	-0.07	0.01	0.01
	(0.08)	(0.07)	(0.14)	(0.03)	(0.03)
Account + Education (T3)	0.03	0.04	0.21	-0.02	0.02
	(0.09)	(0.07)	(0.13)	(0.04)	(0.03)
Control Group Mean	0.00	0.00	7.14	0.68	0.63
Control Group SD	1.00	1.00	1.93	0.47	0.48
N	1969	1969	1968	1965	1966
p-values: Account Access Only (T1) = Education Only (T2)	0.71	0.83	0.93	0.47	0.52
p-values: T1 = T3	0.78	0.52	0.07	0.14	0.22
p-values: T2 = T3	0.97	0.64	0.05	0.40	0.58
p-values: T1 + T2 = T3	0.90	0.69	0.10	0.19	0.47
p-values: Any Account = 0	0.94	0.82	0.28	0.91	0.94
p-values: Any Education = 0	0.60	0.59	0.33	0.42	0.32
Controls for Baseline Values	Yes	Yes	Yes	Yes	Yes

Notes: To calculate the indices in Columns 1 and 2 we take the mean of the index's non-missing standardized components (the components are not shown separately in this table) and then restandardize to SD=1 so that treatment effect estimates are in standard deviation units. Unit of observation is a club member-endline. Standard errors in parentheses, clustered at the unit of randomization (the youth club). Each column-panel in Panels A and B reports results for a single OLS regression of the dependent variable listed in the column heading on the treatment variables listed in the row headings (control group is the omitted category), the baseline value of the dependent variable if available (with a dummy for missing baseline value where needed), and the stratification variables for randomization: an indicator for the club's members having above median total savings at baseline and region indicators. Response options for Columns 3-5 are as follows: Column 3: 1-10 scale; Columns 4-5: indicator variables.

Appendix Table 15. Intervention Costs

	(1)	(2)	(3)	(4)
	Estimated Study Costs		Estimated Costs at Scale	
Intervention:	Financial Education	Account Access	Financial Education	Account Access
Fixed Costs				
Curriculum Development	15,000			
Variable Costs				
Training Staff Cost (for 120 clubs, 1,401 recipients)	72,618		28,672	
Marketing Staff Cost (for 120 clubs, 1,400 recipients)		40,568		13,485
Total Costs	87,618	40,568	28,672	13,485
Total Costs per Participant	63	29	20	10
Variable Costs per Participant	52	29	20	10

Notes: All costs in 2020 US dollars. Staffing costs based on price estimates provided by FINCA and IPA Uganda whereas curriculum costs are based on the actual cost of curriculum development for the financial education intervention. The estimates in Columns 1 and 2 assume that, as per the studied intervention, financial education trainers and marketers visit one club per day and five clubs per week and engage in one week of training before visiting any clubs. The estimates in Columns 3 and 4 instead assume that the financial education trainers and account marketers can visit three clubs per day and do not require a week of training. The training and marketing staff costs in all columns include travel and per diem costs as well as the cost of managers with the assumption that each of the four regions requires one manager.

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Structured Ethics Appendix

1. Policy Equipoise

Is there policy equipoise? That is, is there uncertainty regarding participants' benefits from each arm of the study relative to each other and to the best possible policy to which participants should have access? If not, then two questions on scarcity: (1) Was there scarcity, i.e., did the inclusion of multiple arms change the expected aggregate value of the programs delivered? (2) Do all ex-ante identifiable participants have equal moral or legal claims to the scarce programs?

We believe there was policy equipoise. Prior research has found both positive and null results from interventions akin to all three treatment arms (financial education, savings account access, and both). However, if one were to argue that the savings accounts were unambiguously better, the treatment arms with account access did not reduce the cost to participants for having a savings account. Instead, the treatment arms merely facilitated the opening of such accounts, and resources to conduct such facilitation are scarce. Furthermore, no ex-ante identifiable participants have more moral or legal claims to the scarce program. Thus, the scarcity conditions are met as well.

2. Role of researchers with respect to implementation

Are researchers "active" researchers, i.e. did the researchers have direct decision making power over whether and how to implement the program? If YES, what was the disclosure to participants and informed consent process for participation in the program? Providing IRB approval details may be sufficient but further clarification of any important issues should be discussed here. If NO, i.e., implementation was separate, explain the separation.

Researchers were active with respect to the financial education training and account marketing but not with respect to the group bank accounts provided by FINCA. Participants provided written consent to their participation in the study during the baseline survey and provided consent prior to each endline survey. The study had IRB approval from Yale University (#1002006384), Innovations for Poverty Action (IPA) (#113.10February-006) and the Uganda National Council for Science and Technology (#SS2302).

3. Potential harms to participants or nonparticipants from the interventions or policies

Does the intervention, policy or product being studied pose potential harm to participants or non-participants? Related, are participants or likely affected non-participants particularly vulnerable? Also related, are participants' access to future services or policies changed because of participation in the study? If yes to any of the above, what is being done to mitigate such risks?

The intervention poses limited harm to individuals, and all activities were voluntary. The primary cost to participants was their time spent in the meetings. Thus the main potential harm would be the opportunity cost of that time. The study did not directly target vulnerable populations.

4. Potential harms to research participants or research staff from data collection (e.g., surveying, privacy, data management) or research protocols (e.g., random assignment)

Are data collection and/or research procedures adherent to privacy, confidentiality, risk-management, and informed consent protocols with regard to human subjects? Are they respectful of community norms, e.g., community consent not merely individual consent, when appropriate? Are there potential harms to research staff from conducting the data collection that are beyond "normal" risks?

All data collection processes were approved by three IRBs (Yale University: #1002006384; Innovations for Poverty Action (IPA): #113.10February-006; Uganda National Council for Science and Technology: #SS2302). Data collection posed no unusual risks to research staff.

5. Financial and reputational conflicts of interest

Do any of the researchers have financial conflicts of interest with regard to the results of the research? Do any of the researchers have potential reputational conflicts of interest?

No.

6. Intellectual freedom

Were there any contractual limitations on the ability of the researchers to report the results of the study? If so, what were those restrictions, and who were they from?

The researchers had unrestricted intellectual freedom to report the results of the study.

7. Feedback to participants or communities

Is there a plan for providing feedback on research results to participants or communities? If yes, what is the plan? If not, why not?

This was not a norm at the time this study was conducted. However, had it been, costs may have been prohibitive (but given the group nature of the intervention, may have been viable).

8. Foreseeable misuse of research results

Is there a foreseeable and plausible risk that the results of the research will be misused and/or deliberately misinterpreted by interested parties to the detriment of other interested parties? If yes, please explain any efforts to mitigate such risk.

No.

9. <u>Other Ethics Issues to Discuss</u>
Are there any other issues to discuss?

No.