

Decentralized Delivery of Financial Education

Evidence from a Country-Wide Field Experiment

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Abstract

Can financial education delivery be successfully decentralized? This paper studies a large-scale field experiment with 200 Savings and Credit Cooperative Associations (SACCOs) in Rwanda, and tests competing models of local financial education delivery. One-third of SACCOs, randomly selected, were invited to a comprehensive training-of-trainers (TOT) workshop and stipulated to send the SACCO manager, a loan officer, and a board member to be trained. Another one-third were invited to the same workshop, but allowed free selection of trainers. The latter resulted in significantly more community members and fewer loan officers being trained as trainers. Within a year,

these trainers successfully disseminated content to 68,000 households, with higher session attendance in the autonomous selection group. Analysis from follow-up surveys finds stark differences in behavior change: recipients in the autonomous selection group show significant improvements in financial attitudes, rules of thumb, and planning, as well as budgeting and savings behaviors. In contrast, recipients in the fixed selection group show no significant improvements on any of the outcome measures. These results underscore the importance of community-led delivery of financial education programs.

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1. Introduction

Financial education programs have emerged as an integral component of the post-crisis reform agenda around the world.¹ Other macroeconomic and technological trends are also prompting such demand. With the explosive growth of financial inclusion programs and the emergence of mobile money, policymakers and NGOs are urging more widespread financial awareness and knowledge to enable the poor to better understand and utilize the new financial products at their disposal.²

Thus, a consensus has emerged around the need to expand financial education in the developed and developing world. Such policies may be critical not only to improving household welfare, but also to ensuring a stable financial system. Despite these perceived benefits, early studies on the causal impact of financial education showed limited impact (see Fernandes et al., 2014; and Miller et al., 2015 for literature reviews), from the lack of improvement in bank savings in Indonesia (Cole et al., 2011), to outright failure, such as a video and radio based financial education course that was discontinued due to logistical challenges and low take-up (Chong et al., 2010). Recent research, however, shows more promise with innovative delivery channels (Berg and Zia, 2017), complementarities with goal setting and counseling (Carpena et al., 2017), and a focus on specific target groups (Doi, McKenzie, and Zia, 2014; and Bruhn et al., 2016) all resulting in significant impacts of financial education on real financial outcomes.

This paper combines the instructional insights on curriculum design and delivery from these latter studies and tests a comprehensive financial education program for Savings and Credit Cooperative Association (SACCO) members in a country-wide field experiment involving 200 SACCOs in Rwanda. The program comprised a comprehensive *training-of-trainers* workshop, whereby staff and community members from 130 SACCOs were trained and then tasked with delivering content to their respective communities. SACCOs were provided with curriculum materials, some financial support, and initial supervision by master trainers.

¹ According to the 2017 Global Financial Inclusion and Consumer Protection Survey, national financial education strategies are reported to be in place in 44 jurisdictions and under development in a further 27 jurisdictions (World Bank, 2017). The Government of Rwanda itself launched a National Financial Education Strategy in 2013.

² See for example, “Financial Literacy: A Step for Clients towards Financial Inclusion,” Global Microcredit Summit Commissioned Workshop Paper, November 14-17, 2011.

The idea of decentralized delivery of financial education is very appealing from both a supply and demand perspective. Finding skilled instructors is often difficult especially in remote areas, and increasing coverage can become very expensive. Similarly, the demand for financial education can be very low (Bruhn, Ibarra, and McKenzie, 2014), likely reflecting the disconnect between content and the needs of the target populations. Decentralized delivery offers a means to relax both supply and demand constraints, specifically, financial education delivered through local representatives can be tailored to local contexts and integrated into existing training structures.

While we are not aware of any prior research on localized delivery of financial education, there is an extensive literature studying decentralized control of primary and secondary education. For instance, research on local decision-making about school resources finds both positive effects in Argentina (Galiani et al., 2008), the Gambia (Blimpo et al., 2015), and Senegal (Carneiro et al., 2015); and negative effects in cross-country comparisons across developing countries (Hanushek et al., 2013). Further, this literature shows that while local management of school resources can improve accountability (Bruns, Filmer, and Patrinos, 2011; Gertler, Patrinos, and Rubio-Codina, 2012), there may be binding competency gaps among community providers (Banerjee, et al., 2010). Hence, the overall impact of decentralized control over education provision is not clear cut and hinges on the ability of the local community to deliver content effectively.

Our study contributes to the literature by focusing on decentralized financial education delivery for adults. The research design tests two models of local content delivery: in the first model, 65 randomly selected SACCOs were invited to the *training-of-trainers* workshop and stipulated to send the SACCO manager, a loan officer, and a board member to be trained. In the second model, another 65 randomly selected SACCOs were invited to the same workshop, but allowed autonomous selection of trainers. The remaining 70 SACCOs served as the control group. Through this research design, we can test the effectiveness of the financial education program and assess whether a small variation in local control over who delivers the content leads to any meaningful differences in impact.

The analysis relies on primary household survey data on financial knowledge and behaviors that was collected over two rounds, six months and twelve months after the intervention. The paper also utilizes administrative data on savings balances obtained directly from SACCOs, for up to eighteen months after the intervention.

The data analysis finds stark differences in financial knowledge and behavior change among the two experimental groups. First, we find that the program was successfully disseminated by the trainers in both the autonomous selection (T1) and fixed selection (T2) groups to 68,000 community members over a twelve-month period (approximately 500 community members per SACCO, on average). Responses from the household surveys show that the take-up rate among SACCO community members in both groups was not statistically different (21 and 23 percent, respectively), however, the number of sessions attended varied, with recipients in T1 being 15 percent more likely to attend three or more sessions of the program. Hence, there were statistically significant differences in program take-up intensity.

On content effectiveness, our results show that while SACCO members in T1 were significantly more likely than the control group to score higher on composite scores of financial attitudes, financial rules of thumb, and financial planning, the coefficients for T2 are indistinguishable from zero. Furthermore, for both rules of thumb and financial planning scores, the differences between the coefficients of T1 and T2 are statistically significant (F-test p-value of 0.041 and 0.065, respectively).

Turning to financial behavior, the analysis finds that SACCO members in T1 were 20 percent more likely than the control group to have a written budget, and 6 percent more likely to adhere to the budget. The coefficients for T2 are less than half in magnitude and not statistically significant. For savings, we do not find any significant treatment effects for either T1 or T2 on the extensive margin – having a bank, SACCO, or VSLA account; or borrowing money from a financial institution. However, on the intensive margin, analysis from both survey and administrative data finds that T1 members saved almost 10 percent more than the control group as per their financial plan, and held 5 percent more deposits in their savings accounts. None of these behaviors are significant for T2

members, and the difference between T1 and T2 for deposit amounts is statistically significant (F-test p-value of 0.077).

These results highlight the importance of community-led delivery in the success of decentralized financial education programs. We next analyze the differences in trainer profiles to understand the reasons for the differential impacts. While the T2 group was stipulated to send the manager, a loan officer, and a community member on the SACCO board, we find that the T1 group was significantly more likely to send additional community members and significantly less likely to send loan officers to the training. Differences in gender of trainer or the number of trainers are not statistically significant.

Further qualitative analysis helps square the differences in quantitative effects. Interviews with SACCO members and officers suggest that operational loan staff were already working at near-maximal capacity and assigning them further responsibilities of training SACCO members without additional incentives was ineffective. Indeed, previous studies in the education literature have found improvements in outcomes when small incentives are provided to teachers (Duflo, Hanna, and Ryan, 2012; Muralidharan and Sundararaman, 2011). Conversely, the qualitative evidence suggests that community members selected as trainers in T1 had past experience in conducting community-level trainings or had a background in education dissemination. This evidence helps explain the finding that the community-led T1 group had significantly higher session attendance rates.

Overall, the findings of this study suggest that financial education can be successfully decentralized at scale, however, small differences in local leadership structure that tap different aspects of the local capacity to deliver can have meaningful impacts on the success of the program.

The remainder of this paper is organized as follows. Section 2 discusses the study context and curriculum design, and Section 3 explains the empirical design, timeline, and data. Section 4 presents summary statistics, and Section 5 discusses the empirical results. Finally, Section 6 concludes.

2. Context and Curriculum

2.1. Rwanda Context

Financial inclusion and financial education are a national priority in Rwanda, with the Government of Rwanda (GoR) announcing a National Financial Education Strategy (NFES) in 2013. According to the 2017 Global Findex, 50 percent of Rwandan adults (ages 15+) have an account with a regulated financial service provider, up from 33 percent in 2011. In comparison, the average rate of account ownership across Sub-Saharan Africa is 43 percent as of 2017.

SACCOs – member based cooperatives – have played a significant role in Rwanda’s financial inclusion progress. In response to the 2008 FinScope survey that found only 21 percent of adults were participating in the formal financial sector, the government of Rwanda set a policy goal of establishing a SACCO in each of the country’s 416 sectors, locally known as *Umurenge SACCOs*. By 2012, FinScope data showed a significant increase in financial inclusion indicators, with more than 20 percent of adults using a SACCO to save or borrow. The initiative was particularly successful in expanding financial inclusion outside of urban centers. According to the FinScope data, more than 80 percent of SACCO members are from rural areas and over 90 percent of Rwandans live within 5 kilometers of a SACCO.

As part of the GoR’s financial inclusion agenda, the NFES identifies SACCOs as a key delivery channel for financial education given their wide reach and “newly-banked” membership base. SACCOs also offer an opportunity to leverage “teachable moments” in the delivery of financial education as SACCO clients are already engaged in the selection and use of financial services.

Beginning in December 2014, the Ministry of Finance and Economic Planning (MINECOFIN) led the design and piloting of the *Financial Education through SACCOs* program with financial and technical support from the World Bank. The goal of the program was to establish a consistent, interactive financial education program that could be sustainably delivered to SACCO members through a decentralized delivery model.

2.2. Financial Education through SACCOs Curriculum

The *Financial Education through SACCOs* program was finalized following a scoping exercise and pilot in 2015. The program was designed to reflect curriculum and delivery elements that had proven to be successful in other financial education interventions, notably ‘edutainment’ and ‘rules of thumb’ approaches. The program also used a learning cycle approach to ensure reinforcement of a consistent set of messages. The curriculum content areas were aligned with the product offerings of SACCOs (mainly savings and credit) and areas of identified financial capability gaps. The six curriculum content areas were (a) setting financial goals; (b) making a savings plan; (c) making a budget; (d) deciding where to save; (e) what to know before you borrow; and (f) borrowing honestly and responsibly.

In May 2016, MINECOFIN began implementation of the *Financial Education through SACCOs* program, in collaboration with the Rwanda Cooperative Agency (RCA). The implementation followed a *training-of-trainers* model, where three representatives from each SACCO attended a three-day training by master trainers at the Rwanda Institute of Microfinance, Entrepreneurship, and Cooperatives (RICEM) in the capital city, Kigali. These trainings were staggered over a seven-week period during May and June 2016. SACCO representatives received training on the program curriculum itself, as well as adult learning techniques, key facilitation skills, peer teaching guidance, and action planning.

The central theme of the curriculum was the phrase “*Nawe Birakureba*” or “it’s up to you!” which encourages members to take charge of their own finances and financial futures. The curriculum centered on a group of main characters representing the core target group of SACCO members. This cast of characters was repeated in all delivery mechanisms, and focused around stories of a typical, rural Rwandan family and neighborhood, who face every day financial issues.

The program curriculum material included ‘edutainment’ radio dramas, classroom training manuals, take-home workbooks, and posters spanning the six content areas (see Appendix Table 1 for a summary of all curriculum material). The ‘edutainment’ radio dramas were 5-8 minute audio episodes following the lives of the main characters as they confront and resolve common financial issues. The radio dramas were recorded using voice actors from a popular Rwandan radio

drama *Urunana*.³ Each episode concluded with simple and actionable ‘rule of thumb’ messages, for example “Save even one coin every day” or “Before you spend, ask yourself: is this a need or a want?” (see Appendix Table 2 for a tabulation of key messages included in the curriculum). Each item in the curriculum package reinforced the same key messages about saving, using financial services, budgeting, and borrowing wisely.

A four-part learning cycle methodology was applied when designing the six sessions. Each session began with simple questions to get participants thinking about the topic, and how it related to their lives. The second step in each session was guided listening to a radio drama episode, in which the participants were guided through a series of questions that began simply and became more analytical. Next, participants reflected on and practiced a new skill (e.g. making their own savings plan). Finally, they thought about how they would use their new skills and knowledge outside of class. Each session also included a worksheet to help participants apply their new skills at home, as well an emphasis on rules of thumb that are easy to remember, simple, and actionable.

A learning cycle plan was used too so that adult learners would not just learn new information skills, but also link them to their own experiences, practice them often, and apply them to realistic situations.⁴ The curriculum package was designed to ensure that key messages would be reinforced both actively (through face-to-face learning) and passively (through seeing posters, listening to audio outside of class).⁵

Following the *training-of-trainers*, the SACCO representatives assumed responsibility for end-user training at their respective SACCOs. Participating SACCOs were given a goal of training 500 SACCO community members within a six-month period. Each participating SACCO was given curriculum materials (trainer manuals, participant workbooks, audio files, speakers, pencils, pens, attendance sheets) and an early implementation grant of USD 500 to help cover administrative

³ Over 70 percent of Rwandans regularly listen to the *Urunana* radio program, and piloting revealed that these voice actors are instantly recognizable to most Rwandans.

⁴ Four-part learning cycles also promote teaching to a variety of different levels and learning styles in one classroom as the four steps model not only the ways in which adults move from an old behavior to a new behavior, but also cover what McCarthy (1994) called dynamic, imaginative, analytic and common-sense learners.

⁵ See Appendix Figure 1 for an example of a curriculum poster.

costs. Following the *training-of-trainers*, RICEM master trainers provided regular follow-up support and supervision via onsite visits and telephone calls to ensure the timeliness, consistency, and quality of program delivery.

3. Study Design, Timeline, and Data

3.1. Study Design and Timeline

The research design is based on a randomized control trial methodology and a pre-analysis plan recorded with the AEA RCT registry. Randomization was done by computer at the SACCO level, stratified by province. Rwanda has one *Umurenge* SACCO in each of its 416 sectors, across thirty districts and five provinces.⁶ Of these 416 SACCOs, 179 had recently participated in a financial education program prior to our study and another 5 were included in the piloting of the *Financial Education through SACCOs* program. Hence, these SACCOs were excluded from the study sample. Of the remaining 232 SACCOs, we randomly selected 200 to be part of our study sample.

The research design comprises two treatment arms and one comparison arm. The two treatment arms differ in the amount of local community control over trainer selection. Specifically, the three groups are as follows:

T1: SACCO community members received the full financial education program. The delivery of financial education at the SACCO level was led by three representatives from each SACCO, who were selected by SACCOs themselves and trained to teach the program. There were 65 SACCOs in this autonomous trainer selection group.

T2: SACCO community members received the full financial education program. The delivery of financial education at the SACCO level was led by the SACCO manager, a loan officer, and a board member, who were all trained to teach the program. There were 65 SACCOs in this fixed trainer selection group.

⁶ Rwanda has both *Umurenge* SACCOs (those established by the GoR beginning in 2009) and non-*Umurenge* SACCOs. The program and evaluation studied in this paper cover only the *Umurenge* SACCOs (which far outnumber non-*Umurenge* SACCOs). Note that we use the terms “SACCO” and “*Umurenge* SACCO” interchangeably.

Control: These SACCOs served as a comparison group, and community members did not receive the financial education program during the evaluation period. There were 70 SACCOs in this group.

In terms of timeline, the program development and piloting began in December 2014 and continued for most of 2015 in select out-of-sample communities. The *training-of-trainers* program was implemented in May and June 2016, and we conducted two endline household surveys at six months (October and November 2016) and twelve months (May and June 2017) after program delivery.

3.2. Data and Analysis Weights

The analysis presented in this paper is based on two sources of data: household surveys of SACCO community members that we conducted six months and twelve months after the intervention;⁷ and quarterly administrative data on savings at the SACCO level for both baseline and up to eighteen months after the intervention that was obtained directly from RCA.

The household survey methodology was as follows. First, for treated communities, we obtained the full roster of SACCO community members and matched them with the attendance sheets for the financial education training sessions. This enabled us to divide SACCO members into *trained* and *untrained*. Within each of these two categories, we randomly selected 10 members per category for our surveys, giving us 20 community respondents per SACCO. For control communities, we likewise obtained the full roster of SACCO community members and randomly selected 20 community respondents per SACCO. Overall, this sampling strategy resulted in a total of 4,000 respondents per survey round.

The stratified sampling approach in treated communities was adopted to ensure that half of our interviewees in each community were recipients of the financial education training program. Given that the proportion of trained and untrained members in each treated community was unequal, we

⁷ We did not conduct a baseline household survey for the sample due to cost and logistical considerations.

correct all survey-based regression analyses for survey weights. Survey respondents in treated communities who attended financial education training are assigned survey weights $\frac{t_i}{t_i + nt_i}$, and respondents who did not attend training are assigned survey weights $\frac{nt_i}{t_i + nt_i}$. t_i represents the total number of community members in SACCO community i who were trained, and nt_i is the total number of community members in SACCO community i who were not trained. Hence, the sampling weights are proportional to category population size.

3.3. Empirical Specification

We pool both endline household survey rounds for the regression analyses. Based on the random assignment, we measure the impact of the financial education program using the following intention-to-treat (ITT) OLS regression:

$$Y = \alpha + \beta_1.Treatment1 + \beta_2.Treatment2 + \delta.Strata + \theta.SurveyRound + \varepsilon \quad (1)$$

where Y is the outcome of interest, β_1 and β_2 are the treatment coefficients of interest for autonomous selection (T1) and fixed selection (T2) groups, respectively, and δ captures province stratification controls since we stratified the randomization at the province level. All regressions with survey data further include survey round dummies and analytical weights, as described in section 3.2. Standard errors in all specifications are clustered at the SACCO level.

We also analyze treatment-on-treated (TOT) estimates where we instrument take-up of financial education with treatment assignment in the first stage, and then use the predicted values to estimate second stage outcome regressions of Y on program take-up in T1 and T2.

4. Summary Statistics and Program Take-up

Table 1 presents the summary statistics and tests of randomization from both administrative and survey data. Administrative data on savings deposits is available for two periods prior to the intervention, August 2015 and March 2016. Since we did not conduct a baseline household survey, we present summary statistics and tests of randomization for fixed respondent attributes.

The administrative data show that SACCO deposits are balanced across the three experimental arms in both baseline periods. Survey data show that 46% of our respondents are male, 56% have completed at least primary education, are 46 years of age on average, and have an average household size of 5 members. All these attributes are balanced across the three experimental arms, as represented by the insignificant p-values in columns (6) and (7) of Table 1.

For the household surveys, the attrition rate between the two endline rounds was less than 4% and uncorrelated with treatment status.

We analyze take-up at both the aggregate level and the household survey level. On aggregate, more than 68,000 SACCO members received training under the program, with an average attendance rate of 3.5 sessions pooled across both treatment arms. Weighted analysis using household survey data show that 27% of SACCO community members sought financial advice in the past year, and 21-23% attended at least one financial education training session at their respective SACCO. Both these variables are balanced across the two treatment arms.

Take-up of the program is, of course, endogenous but the low rates of program attendance could also be partly due to the sheer scope of the overall program and the large SACCO membership size – on average there were 5,526 community members per SACCO in our sample prior to program implementation. Hence, reaching wider program coverage within the SACCO community could take longer than a year. For this reason, we present TOT results for all outcome variables alongside the main ITT analysis below.

Further on take-up, Table 2 shows how fixed respondent characteristics influenced take-up and we find that while gender did not vary, those who have completed primary school, are younger, and come from larger sized households were significantly more likely to attend financial education training at their SACCO. Analyzing attendance records in Table 3, we find that the frequency of attendance is significantly different across the two treatment arms. Conditional on attendance, 63 percent of community members in T1 attended more than two sessions of the financial education program, while this figure is only 54 percent in T2. The difference between these attendance rates is statistically significant at the 5% level, as shown in column (3) of Table 3. Likewise, column (4)

finds similar significant differences in the total number of sessions attended. These differences in attendance rates provide valuable insight on the mechanism behind differential treatment effects, as we discuss next in Section 5.

5. Results and Discussion

Tables 4-9 present the ITT regression analysis, progressing from financial attitudes and beliefs to financial behaviors. Appendix Tables 1-6 present the corresponding TOT results.

First, Table 4 analyzes financial attitudes. The household survey asked two questions on attitudes, adapted from Carpena et al (2017), that present hypothetical financial situations to respondents and ask them to select the best option out of a menu of potential responses. For instance, the first question presents a scenario where a family is trying to decide how to pay for their young child's future schooling costs, and saving up to pay school fees is the preferred option.

Column (1) presents the results for the composite score and columns (2) and (3) present analysis for individual questions. We find a 1.8 percentage point improvement in financial attitudes for respondents in T1 over the control group, statistically significant at the 5 percent level. The coefficient for T2 is lower in magnitude and not statistically significant, although the two coefficients (T1 vs T2) are not statistically distinguishable from each other. The corresponding estimates for attending financial education are shown in the TOT regressions in Appendix Table 1. The estimates are scaled higher for attendance, with take-up in T1 resulting in a 8.8 percentage point improvement in financial attitudes over the control group. The coefficient for T2 is about half the magnitude and not statistically significant.

Table 5 examines financial rules of thumb where we do detect statistically significant differences across the two treatment groups. Rules of thumb refer to simple, intuitive statements that refer to good financial decision-making, for example separating business and household accounts, or never borrowing beyond one's own means for repayment. Column (1) of the table presents results for the composite score across individual questions and finds that the score on financial rules of thumb improves by 1 percentage points in T1, and the effect is very close to zero in T2.

The corresponding TOT regressions in Appendix Table 2 show a similar pattern, with take-up of financial education in T1 accounting for a 4.6 percentage point improvement in the financial rules of thumb score, significant at the 5 percent level, and not significant effect in T2.

Importantly, both Table 5 and Appendix Table 2 show that the coefficients of T1 and T2 are statistically distinguishable, as reflected in the significant F-test p-values reported in the bottom row of each table.

Table 6 and Appendix Table 3 explore treatment effects on financial planning. Similar to rules of thumb, we find statistically significant differences between T1 and T2 in the financial planning composite score, with a 3 percentage point higher composite scores in T1 relative to the control group and no significant treatment effects in T2. The TOT estimates follow the sample pattern and are scaled up, with a 14.2 percentage point improvement for T1 over the control group.

Next, we study budgeting in Table 7. Both having a written budget and adhering to a budget show significant treatment effects for T1, a 3 percentage point improvement, and no significant effects for T2. In fact, the magnitudes of coefficients in T2 are less than half. Note that the magnitude of the treatment effect in T1 for having a budget represents a 20 percent improvement over the control group where 15.5 percent of respondents kept a written budget.

The TOT estimates in Appendix Table 4 are scaled much higher. Take-up of financial education in T1 led to a 15.4 percentage point improvement in the budgeting composite score, reflecting a 45 percent improvement over the control group average. The coefficients for T2 are small and insignificant, and the difference between T1 and T2 is statistically significant at the 10 percent level.

Finally, we turn to savings and borrowing behavior. Both Table 8 and Appendix Table 5 show that there are no statistically significant treatment effects for either T1 or T2 on having a bank account, a SACCO account, or a VSLA; or for having borrowed money in the past 3 months, from a regulated or unregulated source. On the intensive margin, however, Table 9 finds that community members in T1 were 3.7 percentage points more likely to save regularly as per their financial plan,

and the analysis of administrative data shows that T1 members had 4.8 percent higher savings deposits than the control group. Neither of these outcomes are significant for T2 and the coefficients on deposit amounts are significantly different between T1 and T2, with an F-test p-value of 0.077.

The TOT estimates in Appendix Table 6 confirm a similar scaling effect as the previous outcomes, with T1 attendees 17.7 percentage points more likely than the control group to save regularly per their financial plan – a sizable 45% improvement; and hold 47% higher savings deposits in their SACCO accounts as per the administrative data.

Overall, these findings show clear beneficial effects of the financial education program in T1 and fairly muted effects in T2. The crucial difference between T1 and T2, as detailed previously, was in the autonomy given to SACCOs to select the trainers who attended the *training-of-trainers* workshop. In T1, the selection was left up to the SACCO whereas in T2, the selection was imposed by the program.

Table 10 explores differences in trainer profiles between the two groups to help trace the mechanism behind these differential treatment effects. While the number of trainers per SACCO and the gender of trainers are similar across the two groups, we detect significant differences in the role the trainers played in their communities. Specifically, we find that unlike the fixed selection group, SACCOs in T1 were significantly more likely to send additional SACCO community members to the *training-of-trainers* workshop and significantly fewer loan officers. Moreover, our qualitative findings suggest that more experienced educators and those with relevant experience conducting trainings were selected as trainers in T1.

These differences in the trainer selection process are quite consequential. Qualitative interviews with community members and SACCO administrative staff reveal that most loan officers faced considerable time constraints in delivering financial education. Loan officers typically have a full set of work requirements and goals; assigning them the further task of teaching financial education in T2 was likely quite burdensome. Qualitative interviews also suggest that the larger pool of

SACCO members which were drawn from in T1 included skilled and experienced trainers who were available to deliver financial education.

These findings suggest that small differences in the structure of decentralized delivery have important implications for the success of financial education programs.

6. Conclusion

Policymakers around the world are increasingly prioritizing financial education, including to support broader financial inclusion objectives. Yet much remains unknown about the most effective approaches to deliver financial education. The results presented in this paper demonstrate that a decentralized approach can be effective in delivering financial education at scale. Further, our results find that small differences in local control over content delivery can lead to substantial differences in impact.

From a policy perspective, the results of this study suggest that involving the local communities in the delivery process can net significant program impacts. Our qualitative analysis further points to the importance of ensuring that those tasked with the delivery of financial education have the capacity and willingness to do so and are properly incentivized. Identifying the types of incentives and levers that can relax such constraints for financial education delivery at the community level is an important and open question for future research.

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Appendix Figure 1: Sample Poster from *Financial Education through SACCOs Curriculum*



Appendix Table 1: Summary of *Financial Education through SACCOs* Curriculum Materials

Material	Description
Training-of-trainers manual (used by Master Trainers to train SACCO representatives)	Manual for a three-day training-of-trainers workshop that includes core content as well as practice of key facilitation skills, peer teaching guidance, and a session on action planning.
Trainers guide (used by SACCO representatives to train SACCO members)	Simple outline of each module, corresponding to the radio drama, instructing trainers what to say, when and how long to play audio, and what key rules to emphasize Also includes examples for practice, which can either be copied down or distributed separately as worksheets
Six radio drama episodes of 5-8 minutes each	Radio drama 'edutainment' episodes based on the financial lives of a fictional Rwandan community form the basis for face-to-face training, as trainers will guide a learning session based on stories of the characters to emphasize the key messages or "Key Rules" of each training module Audio recorded using the voices of actors from the radio drama <i>Urunana</i> Radio dramas can be used independently, depending on the preference and technological constraints at each SACCO, e.g. SACCO waiting room or passed via mobile phone to members.
Participant workbook	A take-home workbook for SACCO members to reinforce curriculum and encourage follow-up action (e.g. budgeting).
Posters	6 simple, picture-based financial education posters linked to the classroom curriculum and reinforcing "Key Rules" to be displayed in SACCOs. Graphics produced by Kigali-based firm.
Training Support Materials	Early implementation grant (USD 500), audio speakers, attendance punch cards, pens, paper.

Appendix Table 2: Key *Financial Education through SACCOs* Curriculum Messages

Topic / Session	Key Messages
1. Setting Financial Goals	<ul style="list-style-type: none"> • Make a clear plan for your future and write it down • Before you spend, ask yourself: Is this a need or a want?
2. Make a Savings Plan	<ul style="list-style-type: none"> • “Igiciri cy’ijana” – save a little – even one coin! – every day for one hundred days • Reduce just one part of an unnecessary expense each week and put that money away – it is another way to build your savings!
3. Make Your Budget	<ul style="list-style-type: none"> • Follow the 10/20/70 Rule • Keep your personal and business accounts separate
4. Where Should I Save?	<ul style="list-style-type: none"> • Save in a place that is safe, accessible, and gives a return
5. What to Know Before You Borrow	<ul style="list-style-type: none"> • Never take a loan you cannot afford to repay – remember your 10/20/70 rule! • Try to borrow for business, investment, rather than for consumption. Remember: once you’ve “eaten” that money, it can’t work for you! • Shop around so you can compare loans and select the best one for you
6. Borrowing Honestly and Responsibly	<ul style="list-style-type: none"> • Can you answer yes to Key Questions? • Talk to your lender if you are having trouble repaying

Table 1: Summary Statistics and Tests of Randomization

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Full Sample Mean	Standard Deviation	Control Group (C)	Autonomous Selection of Trainers (T1)	Mandatory Selection of Trainers (T2)	P-value T1 = C	P-value T2 = C
<u>Administrative Data</u>							
<i>Number of SACCOs</i>	200		70	65	65		
Log of Total Deposits (August 2015)	18.68	0.53	18.67	18.74	18.64	0.41	0.68
Log of Total Deposits (March 2016)	18.61	0.51	18.58	18.67	18.61	0.25	0.74
<u>Survey Data</u>							
<i>Number of Respondents</i>	4,030		1,403	1,319	1,308		
Gender (Male = 1)	0.46		0.47	0.46	0.46	0.90	0.77
Completed Primary School	0.56		0.56	0.55	0.56	0.86	0.76
Age	45.57	13.51	46.01	44.83	45.36	0.11	0.33
Total Household Size	5.41	2.28	5.44	5.36	5.39	0.48	0.71

This table presents summary statistics for administrative data at the SACCO level and weighted summary statistics for survey data at the household level. Administrative data for periods prior to the intervention are used. Since we do not have household survey data prior to the intervention, the table presents summary statistics for fixed individual level attributes. Columns (1) and (2) present mean and standard deviations for the full sample. Columns (3)-(5) present average values by treatment status and subsequent columns present p-values for equality of means tests across treatments.

Table 2: Takeup of Financial Education

	(1)
	Attended Financial Education Training at SACCO
Autonomous Trainer Selection (T1)	-0.027 (0.018)
Gender (Male = 1)	0.025 (0.016)
Completed Primary School	0.072*** (0.015)
Age	-0.002*** (0.001)
Total Household Size	0.008*** (0.003)
R-squared	0.021
N	5148
Dependent Variable Mean in Fixed Trainer Selection (T2)	0.234

This table presents analysis for takeup of the financial education program by household recipients. Data comes from the household survey and is restricted to the two treatment groups, T1 and T2, over two endline survey rounds. The regression controls for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 3: Analysis of Attendance

	(1)	(2)	(3)
	Autonomous Trainer Selection (T1)	Fixed Trainer Selection (T2)	P-value T1 = T2
Sought Financial Advice in Past Year	0.27	0.27	0.81
Attended Financial Education Training at SACCO	0.21	0.23	0.13
<i>If Attended:</i>			
Attended More than Two Training Sessions	0.63	0.54	0.04 **
Number of Training Sessions Attended (out of 6)	3.59	3.28	0.10 *

This table presents analysis of attendance records for the financial education program by household recipients. Columns (1) and (2) present weighted averages for T1 and T2; and column (3) presents the p-value for the equality of means test between T1 and T2.

Table 4: Financial Attitudes

	(1)	(2)	(3)
	Financial Attitudes Composite Score	Q1: Saving for Child's Education	Q2: Take Out Smaller Loan
Autonomous Trainer Selection (T1)	0.018** (0.009)	0.022 (0.014)	0.014 (0.009)
Fixed Trainer Selection (T2)	0.011 (0.009)	0.012 (0.014)	0.010 (0.010)
R-squared	0.749	0.469	0.754
N	7885	7885	7885
Dependent Variable Mean in Control Group	0.443	0.446	0.440
F-test (p-value): T1 = T2	0.421	0.489	0.598

This table presents analysis for financial attitudes using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 5: Financial Rules of Thumb

	(1)	(2)	(3)	(4)
	Financial Rules of Thumb Composite Score	Q1: Productive Loans are Better than Consumption Loans	Q2: Separate Business and Household Accounts	Q3: Never Borrow Beyond Means
Autonomous Trainer Selection (T1)	0.010** (0.004)	0.005* (0.003)	0.016 (0.010)	0.008 (0.007)
Fixed Trainer Selection (T2)	-0.001 (0.005)	0.003 (0.003)	-0.006 (0.013)	0.000 (0.007)
R-squared	0.046	0.965	0.006	0.722
N	7885	7885	7885	7885
Dependent Variable Mean in Control Group	0.606	0.502	0.889	0.427
F-test (p-value): T1 = T2	0.041	0.411	0.092	0.345

This table presents analysis for financial rules of thumb using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 6: Financial Planning

	(1)	(2)	(3)	(4)
	Financial Planning Composite Score	Q1: Have a Plan to Achieve a Financial Goal	Q2: Written Financial Plan	Q3: Adhere to Financial Plan
Autonomous Trainer Selection (T1)	0.030** (0.013)	0.031** (0.015)	0.033* (0.017)	0.025* (0.015)
Fixed Trainer Selection (T2)	0.005 (0.013)	-0.003 (0.016)	0.012 (0.017)	0.006 (0.015)
R-squared	0.014	0.012	0.009	0.010
N	7885	7885	7885	7885
Dependent Variable Mean in Control Group	0.567	0.859	0.222	0.622
F-test (p-value): T1 = T2	0.065	0.025	0.278	0.228

This table presents analysis for financial planning using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 7: Budgeting

	(1)	(2)	(3)
	Budgeting Composite Score	Q1: Have a Written Budget	Q2: Adhere to Budget
Autonomous Trainer Selection (T1)	0.032** (0.012)	0.031** (0.015)	0.033** (0.015)
Fixed Trainer Selection (T2)	0.010 (0.011)	0.015 (0.014)	0.006 (0.013)
R-squared	0.044	0.011	0.054
N	7885	7885	7885
Dependent Variable Mean in Control Group	0.341	0.155	0.526
F-test (p-value): T1 = T2	0.117	0.364	0.071

This table presents analysis for budgeting using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 8: Savings and Borrowing -- Extensive Margin

	(1)	(2)	(3)	(4)	(5)	(6)
	Have a Bank Account	Have a SACCO Account	Belong to a VSLA	Borrowed Money in Past 3 Months	Loan From a Regulated Financial Institution	Loan From an Unregulated Financial Institution
Autonomous Trainer Selection (T1)	-0.034 (0.024)	-0.001 (0.004)	0.010 (0.022)	0.003 (0.020)	0.006 (0.012)	-0.004 (0.021)
Fixed Trainer Selection (T2)	-0.041 (0.026)	-0.003 (0.004)	0.013 (0.023)	-0.008 (0.018)	-0.005 (0.012)	-0.007 (0.019)
R-squared	0.020	0.004	0.018	0.046	0.003	0.055
N	7885	7885	7885	7885	7885	7885
Dependent Variable Mean in Control Group	0.286	0.993	0.731	0.555	0.086	0.499
F-test (p-value): T1 = T2	0.777	0.732	0.908	0.616	0.394	0.897

This table presents analysis for savings and borrowing outcomes using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 9: Savings -- Intensive Margin

	(1)	(2)
	Saving Regularly as per Financial Plan	Log of Total Deposits
Autonomous Trainer Selection (T1)	0.037** (0.017)	0.048* (0.027)
Fixed Trainer Selection (T2)	0.023 (0.019)	-0.004 (0.026)
R-squared	0.008	0.506
Sample Size (N)	7885	1191
Dependent Variable Mean in Control Group	0.394	18.637
Dependent Variable SD in Control Group		0.484
F-test (p-value): T1 = T2	0.450	0.077
<i>Data Source</i>	<i>HH Surveys</i>	<i>Administrative</i>

This table presents analysis for savings outcomes using both household survey data across two endline rounds and administrative data from SACCOs. All regressions control for survey round (or time) dummies and include stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 10: Trainer Characteristics

	(1)	(2)	(3)
	Autonomous Trainer Selection (T1)	Fixed Trainer Selection (T2)	P-value T1 = T2
Number of Trainers per SACCO	2.84	2.85	0.863
Trainer is Male	0.73	0.68	0.269
Trainer is SACCO Manager	0.26	0.25	0.739
Trainer is SACCO Loan Officer	0.29	0.36	0.019 **
Trainer is SACCO Member	0.46	0.39	0.067 *

This table presents summary statistics on characteristics of trainers. Columns (1) and (2) present average values by treatment status and column (3) presents p-values for equality of means tests across the two treatments. The tests account for clustering standard errors at the SACCO level. Statistically significant p-values are highlighted by: ** (5% significance level), * (10% significance level).

Appendix Table 1: Financial Attitudes - IV Specification

	(1)	(2)	(3)
	Financial Attitudes Composite Score	Q1: Saving for Child's Education	Q2: Take Out Smaller Loan
Takeup in Autonomous Trainer Selection (T1)	0.088** (0.044)	0.108 (0.066)	0.068 (0.044)
Takeup in Fixed Trainer Selection (T2)	0.045 (0.039)	0.049 (0.062)	0.041 (0.041)
R-squared	0.748	0.468	0.753
N	7885	7885	7885
Dependent Variable Mean in Control Group	0.443	0.446	0.440
F-test (p-value): T1 = T2	0.333	0.413	0.491

This table presents instrumental variable analysis for financial attitudes using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 2: Financial Rules of Thumb - IV Specification

	(1)	(2)	(3)	(4)
	Financial Rules of Thumb Composite Score	Q1: Productive Loans are Better than Consumption Loans	Q2: Separate Business and Household Accounts	Q3: Never Borrow Beyond Means
Takeup in Autonomous Trainer Selection (T1)	0.046** (0.021)	0.024* (0.013)	0.076 (0.048)	0.038 (0.036)
Takeup in Fixed Trainer Selection (T2)	-0.004 (0.021)	0.011 (0.014)	-0.025 (0.054)	0.002 (0.031)
R-squared	0.043	0.965	0.003	0.722
N	7885	7885	7885	7885
Dependent Variable Mean in Control Group	0.606	0.502	0.889	0.427
F-test (p-value): T1 = T2	0.032	0.322	0.08	0.317

This table presents instrumental variable analysis for financial rules of thumb using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 3: Financial Planning - IV Specification

	(1)	(2)	(3)	(4)
	Financial Planning Composite Score	Q1: Have a Plan to Achieve a Financial Goal	Q2: Written Financial Plan	Q3: Adhere to Financial Plan
Takeup in Autonomous Trainer Selection (T1)	0.142** (0.063)	0.149** (0.072)	0.158* (0.084)	0.121* (0.072)
Takeup in Fixed Trainer Selection (T2)	0.022 (0.056)	-0.013 (0.068)	0.053 (0.071)	0.026 (0.064)
R-squared	0.024	0.010	0.022	0.015
N	7885	7885	7885	7885
Dependent Variable Mean in Control Group	0.567	0.859	0.222	0.622
F-test (p-value): T1 = T2	0.048	0.019	0.224	0.19

This table presents instrumental variable analysis for financial planning using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 4: Budgeting - IV Specification

	(1)	(2)	(3)
	Budgeting Composite Score	Q1: Have a Written Budget	Q2: Adhere to Budget
Takeup in Autonomous Trainer Selection (T1)	0.154** (0.062)	0.148** (0.073)	0.160** (0.075)
Takeup in Fixed Trainer Selection (T2)	0.043 (0.048)	0.062 (0.061)	0.024 (0.057)
R-squared	0.056	0.025	0.056
N	7885	7885	7885
Dependent Variable Mean in Control Group	0.341	0.155	0.526
F-test (p-value): T1 = T2	0.091	0.297	0.059

This table presents instrumental variable analysis for budgeting using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level)

Appendix Table 5: Savings and Borrowing -- Extensive Margin - IV Specification

	(1)	(2)	(3)	(4)	(5)	(6)
	Have a Bank Account	Have a SACCO Account	Belong to a VSLA	Borrowed Money in Past 3 Months	Loan From a Regulated Financial Institution	Loan From an Unregulated Financial Institution
Takeup in Autonomous Trainer Selection (T1)	-0.163 (0.117)	-0.005 (0.018)	0.049 (0.107)	0.014 (0.096)	0.030 (0.059)	-0.020 (0.102)
Takeup in Fixed Trainer Selection (T2)	-0.174 (0.110)	-0.011 (0.017)	0.055 (0.096)	-0.034 (0.078)	-0.022 (0.050)	-0.030 (0.080)
R-squared	0.001	0.007	0.025	0.045	0.000	0.054
N	7885	7885	7885	7885	7885	7885
Dependent Variable Mean in Control Group	0.286	0.993	0.731	0.555	0.086	0.499
F-test (p-value): T1 = T2	0.921	0.767	0.953	0.629	0.396	0.922

This table presents instrumental variable analysis for savings and borrowing outcomes using household survey data across two endline rounds. All regressions control for survey round dummies as well as stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 6: Savings -- Intensive Margin - IV Specification

	(1)	(2)
	Saving Regularly as per Financial Plan	Log of Total Deposits
Takeup in Autonomous Trainer Selection (T1)	0.177** (0.082)	0.471* (0.267)
Takeup in Fixed Trainer Selection (T2)	0.097 (0.079)	-0.031 (0.217)
R-squared	0.016	0.504
Sample Size (N)	7885	1191
Dependent Variable Mean in Control Group	0.394	18.637
Dependent Variable SD in Control Group		0.484
F-test (p-value): T1 = T2	0.339	0.063
<i>Data Source</i>	<i>HH Surveys</i>	<i>Administrative</i>

This table presents instrumental variable analysis for savings outcomes using both household survey data across two endline rounds and administrative data from SACCOs. All regressions control for survey round (or time) dummies and include stratification controls. Standard errors, clustered at the SACCO level, are reported in parentheses. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).