Impact Assessment of Savings Groups

Findings from Three Randomized Evaluations of CARE Village Savings and Loan Associations programs in Ghana, Malawi and Uganda

Final Report

Innovations for Poverty Action

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EXECUTIVE SUMMARY

Researchers from IPA, along with CARE staff and their implementing partners, conducted a randomized evaluation of Village Savings and Loans Association (VSLA) programs in Ghana, Malawi, and Uganda to examine two questions: Who joins savings groups? And, what is the impact on households from programs that promote savings groups?

The evaluation used a randomized control trial (RCT) design, in which eligible communities were randomly divided into two sets: a set of villages with access to a VSLA program (the treatment group) and a set of villages where the program was not implemented during the study (the control group). The study started in Ghana in 2008 and in Malawi and Uganda in 2009, and the final data collection took place in 2011 in the three countries.

Each site included a panel survey in which households were surveyed before the start of the program implementation and again two or three years later. Over 15,000 households in almost 950 communities were surveyed. The surveys covered a large variety of topics, including health, education, income-generating activities, asset holdings, food consumption, non-food expenditure, intra-household decision making and community involvement.

At the time of the endline survey, after an average of two years of program implementation in the three sites, one third of respondents had joined a VSLA group. On average, members had been part of a group for 15 months and 61% of members had gone through a full savings cycle, normally lasting between 8 and 12 months. The evaluation should thus be thought of as assessing the relatively short-term impacts of the intervention.

We first tested whether VSLAs change the financial behavior of participants. We find that they do. Savings group participation increases substantially in treatment villages compared to control villages. Moreover, VSLAs do not seem to be dominated solely by the better-off community members, although wealth, education, age and business ownership are correlated with participation.

We find evidence of replication of the savings group approach across villages, with little evidence that replicated groups lose quality relative to the groups formed in targeted villages. Moreover, in the control areas, we see about 6% of respondents participating in VSLAs. This diminishes our ability to detect impact somewhat, but also points to the popularity of the program and the eagerness of community members to join VSLAs.

VSLAs substantially increase the portfolio of financial services available to participants. More people have access to savings and loans, and average deposit and loan volumes increase as a result of the program. Saving balances increase significantly, even after subtracting outstanding debits.

The increased access to financial tools, and perhaps the social aspect of the VSLAs, helps women invest in their businesses. We find that women with access to VSLAs are much more likely to take out a loan for commerce and are significantly more likely to own a business. Income from businesses increases as well. However, this increase in business activity is accompanied by an increased likelihood to experience business failure. This is consistent with savings groups helping to enable more businesses, even though some do fail.

The presence of savings groups leads to improvements in women's intra-household decision-making power, but we observe little change in women's involvement in the community.

We see no significant changes in households' ability to mitigate economic shocks, but we do witness some small improvements in food security, with households less likely to reduce the food consumption of adults in the household.

We find that households access more credit for a variety of investment purposes, including for agriculture, health and education. There is some evidence, although not robust to alternative econometric analysis, that the intervention increased the enrollment of children of primary-school age. However, we do not detect changes in agricultural production, livestock holdings or the accumulation of household assets. In addition, use of health services and health expenditures remain unaffected, and we see no impacts on housing conditions, food consumption or non-food expenditures.

As the follow-up survey was conducted two to three years after the baseline, and the program was not launched immediately after the baseline survey in all locations, we cannot exclude that more time is needed for the short-term changes we observe to lead to longer term changes in agricultural incomes, non-financial asset holdings, health improvements and consumption increases. Thus, we conclude that the long-term welfare impacts of the VSLA program are in need of further research.

SECTION 1. INTRODUCTION

In an analysis of financial diaries of low-income respondents around the world, Collins et al. (2009) show that the poor manage surprisingly complex financial portfolios and use a large set of financial instruments that can be quite complicated. They find that the poor need access to financial services in order to help manage this complexity. These financial services are intended to help clients achieve three goals. First, they allow clients to save money in good times, in order to help them maintain their average consumption levels during difficult times (known as consumption smoothing). Second, they help clients weather unexpected economic shocks, such as illness, drought or crop failure. Finally, financial services allow clients to save for the future. Being able to handle these diverse problems, both in the short and the long term, is vitally important to moving out of poverty.

The quest to improve access to financial services has generally fallen into two broad categories: providing access to credit through microcredit enterprises, and saving mechanisms. Credit, savings, insurance products, and transfers contribute in different ways to the capacity of the poor to conduct these activities. When Mohammed Yunus created the Grameen Bank in 1983, he did so with the knowledge that a gap existed between the financial products offered by conventional banking and those demanded by the poor. The success of the Grameen model led to the proliferation of the microcredit industry around the world.

Recent randomized evaluations show that microcredit provision can spur business investment and help firms reduce risk. However, the available evidence has not found that microcredit programs lead to an overall reduction in poverty amongst beneficiaries and their broader communities, nor do they significantly affect education outcomes, health care usage or female empowerment (Bauchet et al. 2011).[1] These findings support the observation that although credit can be an important resource for the poor, other tools, particularly savings and insurance, are also likely important for improving the financial management capacity and welfare of the poor.

Collins et al. (2010) observe that the financial tools available to their financial diary respondents are often expensive and inadequate for their financial needs. Grameen-style group loans are often mismatched relative to the cash flow needs of their members. A Rotating Savings and Credit Association (ROSCAs), a merry-go-round savings group, can be unreliable and excessively rigid. Moreover, many of these informal financial mechanisms operate on a short-term basis. This limits the availability of the large lump sums needed for significant capital investments.

In 1991, CARE developed a new savings group program in Niger that attempted to overcome the difficulties of offering access to credit and savings to the rural poor. The structure of this new program, called a Village Savings and Loans Association (VSLA) built on the ROSCA model to create groups of people that could pool their savings as a source for lending funds to group members, but with more flexibility than a ROSCA.

At its core, the VSLA program promotes the creation of self-managed and self-financed microfinance groups. Each member contributes regular savings deposits to a common pot; members are then able to take out loans from those savings. Loans are paid back to the group with interest. At the end of each cycle – typically 8 to 12 months – the fund is shared out, with members receiving back their accumulated deposits plus interest. While similar characteristics can be found amongst a range of informal associations present in the developing world, VSLAs provide the framework and well-tested methodologies that arguably make these savings groups more flexible, democratic and durable than ROSCAs, or other types of Accumulating Savings and Credit Associations (ASCAs).

VSLAs are normally comprised of 15-30 members who have chosen to be a part of the program. At every meeting, usually on a weekly basis, members save by purchasing shares. The amount of each share is set by the group. Each share is marked in a logbook given to all members, simplifying accounting procedures. Depending on their ability to save in a given week, members can decide whether to save one share, or more (with a maximum of 5).

In addition to providing members with a flexible and safe way to save, VSLAs allow members to take loans from the group, with a term and interest rate decided by the group at the beginning of each cycle. Loans are normally collected and distributed on a monthly basis and maximum amounts

[1] Bauchet et al. (2011), "Latest Findings from Randomized Evaluations of Microfinance", CGAP, FAI, IPA and J-PAL

are determined by the group as a multiple of the total share contribution of the member.

To ensure the autonomy and sustainability of the group, the promoting organization only provides training and support – generally limited to the first cycle – to the members of the association. At the beginning of each cycle, VSLA members elect a management committee, composed of 5 members, that manages the transactions of the group. The money deposited with the group is kept in a locked box, with 3 keys held by different group members to ensure security. In some cases, especially towards the end of the cycle when the group's funds may be considerable, the group may decide to deposit the funds in a financial institution.

The meetings continue regularly for a cycle that is set to last for a specific amount of time, normally between 8 and 12 months. At the end of each cycle, the money saved, plus the interest earned on loans made by the group, is shared by group members.

Most groups also establish a social or emergency fund as an insurance and solidarity mechanism. This social fund gives members facing emergencies or financial shocks, access to small amounts of funds. Disbursements of the social fund are approved by the group and generally made in the form of a grant or an interest-free loan.

According to Allen and Staehle (2007), VSLAs complement the role of traditional formal institutions by providing the "means to intermediate small amounts of local capital on flexible terms and transact frequently at no cost."[2] They function like small, unregulated financial institutions, providing their members with an accessible source of credit, a safe place to save regularly, and a solidarity fund functioning as a cushion for emergencies. Given these advantages, VSLAs have a greater potential to bring financial services to poorer and more remote clients than formal financial institutions.[3]

In 2008, Innovations for Poverty Action (IPA) began a series of randomized evaluations of CARE's savings group model, to rigorously measure its impact on the lives of the people in the program communities. These impact studies were conducted for CARE's Village Savings and Loans Associations, in Ghana (where the program was called ESCAPE) and in Malawi and Uganda (where it was known as Save Up). The Saving for Change program in Mali, implemented by Oxfam USA and Freedom from Hunger, is a similar savings program, but is not evaluated in this report. The evidence collected in these four sites will provide an important contribution to knowledge about the impacts of savings groups.

Section 2 briefly describes the VSLA intervention and its scale-up methodology. Section 3 presents the design of the study and describes the data collected for the study. In Section 4, we examine program take-up, the profile of VSLA members, and the uses of VSLA share-outs, loans received from the group and the social fund. In Section 5, we present the findings of the impact evaluation of the VSLA. Section 6 summarizes the main findings of the study and concludes.

[2] Allen and Staehle, 2007, "Programme Guide. Field Operations Manual", VSL Associates, Version 2.92.
[3] Ashe, J. (2010), "The Savings-Led Revolution", in *Financial Promise for the Poor*, Wilson et al. eds.

SECTION 2. THE INTERVENTION

In 2008, the IPA research team and CARE offices worked together to design a program that would scale up VSLA operations in Ghana, Uganda and Malawi. CARE and its implementing partners worked jointly with the IPA team to plan the roll-out of these scaled-up activities in a randomly assigned set of communities. By randomly assigning communities to either receive the VSLA program (the treatment group) or not to receive it during the study period (the control group), IPA is able to rigorously assess the impact of the VSLA model by comparing treatment communities to statistically similar communities in the control group.

In total, the study in Ghana, Uganda and Malawi involved a sample of over 15,000 households spread over almost 1,000 villages. The study period in Ghana spanned April 2008 to May 2011, while the studies in Uganda and Malawi began in April 2009 and concluded in June 2011. CARE obtained funding for a second roll-out of the program in the study's control areas, and VSLA implementation in these areas began after the conclusion of the study in each country.

In **Ghana,** the study was carried out in five districts in the north. (The location of these districts is shown on a map in Appendix 1). This part of the country is sparsely populated. The majority of households rely on agriculture as their main livelihood, and less than 10% of households own a business. Almost two-thirds live on less than $1.25 per person a day, and education is limited. In addition, it is one of the least banked regions in the country.

IPA administered a baseline survey between April and June 2008 in 175 sample villages across Ghana. A take-up analysis in September 2009 found lower than expected take-up in treatment villages and substantial take-up in control villages. Since this situation made it more difficult for researchers to cleanly identify the program's effects on treatment communities, the sample was increased in the endline survey scheduled for February 2011. The endline survey randomly selected households to be added to the sample to reach a sample size of 7,073 households in the same communities.

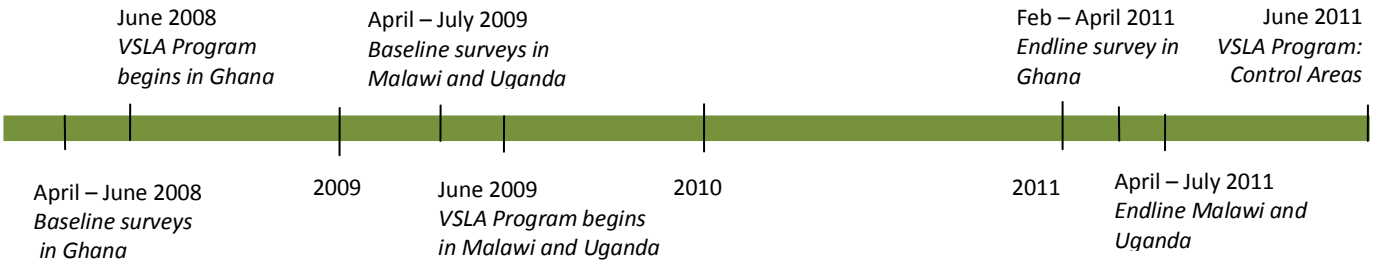
In the Garu Tempane, Bawku and East Mamprusi districts in the northeast, CARE partnered with Presbyterian Agricultural Services to promote VSLAs and train participants. CARE partnered with Rural Aid Action program in Lawra, and CARE implemented the program directly in Builsa district. The study covers approximately 30 months of VSLA programming in the 88 villages assigned to receive the intervention.

In **Malawi** the study was conducted in 4 of the 7 districts covered by Care's Access Africa scale-up program. As can be seen in Appendix 1, these districts have a wide geographical spread, covering each of the 3 major regions of the country. In each region, the study covered areas where VSLA or Savings Group promotion programs had not taken place before, either under the aegis of CARE or any other organization.

The Malawi sample is comprised of villages with an average population of approximately 840 people. Infrastructure is poor, and cattle herding is most respondents' primary livelihood. About 40% of households owned a business at the time of the baseline and 66% live on less than $1.25 per person a day.

After a baseline survey that took place between April and June 2009, program activities started in the 95 clusters of villages assigned to receive the program.

Figure 1 - Timeline



The implementing partners working in the study areas were: Catholic Development Commission in Malawi (Mzuzu and Lilongwe), Evangelical Lutheran Development Program and Emmanuel International. Fieldwork, starting with sensitization of targeted communities, began – on average – two weeks after the end of baseline data collection and continued for approximately 22 months before the endline data collection started in April 2011.

In **Uganda**, the study was conducted in 7 of the 13 districts covered by the Save Up scale-up program. The study areas were selected among those with no known existing or planned savings group programming by CARE or other organizations.

The project was carried out by 7 implementing partners in 98 clusters: Rucode and Build Africa in the East; and Parents Concern, Covoid, Aprocel, Rudfa, and KIRDP in the West. Baseline data collection ended in mid-June 2009. Implementation began within a few weeks of the completion of data collection, with the sensitization of communities and the recruitment and formation of the first groups. Endline data was collected starting in April 2011, approximately 22 months from the beginning of the program.

At the time of the baseline, 30% of the households owned a business, and approximately 45% of our sample lived on less than $1.25 per person a day.

Box 2.1 - Village Agent Replication

In Malawi and Uganda, the program implementation focused on the scale up of the program and demand-driven replication of VSLAs beyond the village boundaries.

Village Agents (VAs) are VSLA members with particular leadership qualities who are selected from the initial set of VSLA groups established by the implementing partner organization (IPO). These VAs become promoters of new VSLAs and help train leaders of the new VSLAs. This replication model stems from observing the natural spread of savings groups in other countries. The simple presence of a VSLA was enough to spur the spontaneous creation of new VSLAs.

The VA model is designed to maintain the quality and core elements of the VSLA methodology for these new VSLA offshoots and to develop a team of trainers who can sustainably replicate the model through a fee-for-service arrangement in which group members pay for the training services provided by the VA. These funds are then used to cover the cost of running the VSLA.

In **Malawi** Field Officers from the IPO were each asked to create 12 groups and follow them through their first savings cycle. From each of these groups, officers selected, on average, one member to be trained to become a Village Agent (VA). At the end of this initial cycle, the field officers transition into a supervisory role monitoring between 10 and 15 VAs. Each VA forms a minimum of 8 new groups on a fee-for-service basis by the end of the second year.

CARE implemented the Village Agent model in **Uganda** as well. However, program delivery was organized in a different way. IPOs employed Community Based Trainers (CBTs) who resided in the program areas. Each CBT had the responsibility of forming and overseeing a target number of 24 groups by the end of the third year. After the second year of implementation, each CBT was tasked with identifying and training 5 VAs throughout the life of the project, each in charge of forming 3 new VSLAs. The activities of VAs in Uganda were not captured in the timeframe of the study.

SECTION 3. THE STUDY

An impact evaluation should assess how people's lives changed because of an intervention. Ideally, an evaluation should compare the experiences of people who participated in the intervention with similar people who did not participate, as this would mean that any differences between the two groups should be attributable exclusively to the intervention. Randomized controlled trials (RCTs) are the most rigorous way of identifying statistically similar groups of people and determining the effect of an intervention.

To evaluate the impact of the VSLA program, we conduct an RCT, randomly assigning part of our study sample to receive the program and part to serve as the control group. By randomly assigning groups to receive the VSLA program, we can ensure that participation in the program is not driven by other underlying characteristics of the people participating. For instance, if implementing partner organizations could choose the villages in which to offer the VSLA program in a non-random manner, they might select villages that are easier to reach by road. These villages might systematically differ from more remote villages in many ways, meaning that a simple comparison of VSLA villages to non-VSLA villages would not cleanly identify the impact of having a VSLA, but would also capture other underlying differences unrelated to the VSLA. It would not be possible to tell which of the differences between the villages was attributable to the VSLA, and which would have existed anyway. Randomization solves this problem.

In this evaluation, the VSLA program is offered to households in communities that are randomly chosen from each country's sample. In each village, the program rolls out naturally, with village members coming together to form groups. These groups are then trained, based on the availability of trainers or agents in the community. This study design is known as a clustered randomized controlled trial, or randomized program placement (Karlan and Goldberg[4]).

In designing the evaluation of the VSLA program, it is important to consider that not all households in treatment communities actually participate in the VSLAs, and that not all VSLA members begin participating in the savings groups at the same time. The officer or village agent sent by a partner to set up a VSLA does not select the specific people who will form a group. Instead, people self-select into groups on their own time when given the opportunity.

An important advantage of this study design is that it allows us to document and analyze the take-up trends of the program, and to compare the characteristics of community members who joined a VSLA group against the broader community. As our survey respondents are selected to be representative of their communities, we are confident that our results are applicable to the entire community studied.

In Ghana, our study covers a sample of 175 communities. Of these, 87 were assigned to serve as a control group, and 88 were assigned to receive the visits of a trainer from the ESCAPE program, to form VSLAs in the village. In each village, we sampled 30 households to participate in the study.

The VSLA scale-ups in Malawi and Uganda focused heavily on a replication model, aiming to form new groups in surrounding villages when demand for the program exists (Box 2.1). In this case, rather than randomly assigning specific villages to receive the VSLA program (as we did in Ghana), we created clusters of villages as the randomization unit. In each cluster, we selected a primary village that would be targeted as the initial center of activities by the implementing partner. A secondary community was then selected within a 4 kilometer radius of the primary village. The locations of secondary villages were not disclosed to implementing partners in order to avoid targeting of these villages. The data collected on households from these secondary villages allows us to measure the extent to which the program extends beyond the primary village selected for implementation.

The Uganda sample comprises 391 villages, divided over 196 clusters. In each cluster, we collected data for 15 households in the primary village and 8 in the secondary village. In Malawi we identified 190 clusters, for a total of 380 villages. We surveyed 15 households in primary villages and 9 in secondary villages.

In each country, IPOs implemented the VSLA program in control group communities after the endline data collection was finished, in order to allow those communities to receive the benefits of VSLA participation.

[4] Karlan and Goldberg (2011),"Microfinance Evaluation Strategies", in *The Handbook of Microfinance, pp.33-36*

Data Collection

Time-Frame. Baseline data collection was conducted between April and June 2008 in Ghana and between April and June 2009 in Uganda and Malawi. Endline data collection took place between February and May 2011 in Ghana and between April and June 2011 in Uganda and Malawi. This allowed us to collect data over a period of 30 months in Ghana and 22 months in Uganda and Malawi.

In both the baseline and endline rounds, four separate surveys were administered. First, at the household level, respondents were asked about household indicators such as agricultural production, income-generating activities, economic shocks, etc. In addition, an adult survey was administered to selected adults in every household, covering a variety of questions about their individual experience of gender issues, community involvement and questions on savings and loans activities. Third, a village survey was administered to village leaders, asking about various characteristics of their community. Finally, a market questionnaire allowed IPA surveyors to record the prices of a variety of staple foods at the market, to allow us to impute the market prices of food that respondents grew themselves.

One critical difference between the baseline and endline surveys was the method by which surveying was conducted. While paper surveys were used at the baseline, surveys at the endline were conducted exclusively on netbook computers, using specialized software for computer-assisted interviewing (CAI). The use of CAI helped ensure data of a high quality that could be rapidly translated into analysis results.

Attrition. Each household was asked to respond to both the baseline and endline survey. Overall, 13,555 households were surveyed across the three countries for the baseline: 4,487 households in Ghana, 4,529 in Malawi and 4,539 in Uganda. At endline 15,397 households were surveyed: 7,073 in Ghana, 4,130 in Malawi and 4,194 in Uganda. The sample size in Ghana was increased for the endline to mitigate worries about low take-up rates in treatment villages and the proximity of control villages to treatment villages, which caused some control villages to adopt the VSLA program.

Considerable efforts were devoted to tracking down baseline households for the endline survey, as revealed by the survey's low attrition rates. The overall attrition rate over the pooled sample of three countries was 8.8% (7.6% in Uganda, 9.5% in Malawi and 9.2% in Ghana). A test presented in Table A1 (Appendix IV) shows how attrition rates were uncorrelated with the treatment. Such high quality data allows us to determine with confidence that any changes in the treatment groups' behavioral and welfare outcomes can reliably be attributed to the VSLA program.

Questionnaires

In order to determine the impact of savings groups on individuals, households and communities, we administered the following four questionnaires:

1. Household Questionnaire

This questionnaire asked a person knowledgeable about the household, usually a household head or spouse, for information about the characteristics of both the household as a whole, and individual members of the household. Questions covered a wide set of topics including education and health status of household members, income generating activities, and the household's reactions to economic shocks.

2. Adult Questionnaire

After administering the household questionnaire, our survey staff asked to speak privately and confidentially with one or more adult household members.

In the baseline survey, adult surveys were conducted in Uganda and Malawi with both the household head and his/her spouse. Efforts were made to interview all adult women privately in Ghana. For the endline survey, only one adult was interviewed in depth. We randomly selected either the male or female adult baseline respondent as the adult respondent for the endline survey in Uganda. In Malawi, we tracked the female adult respondent from the baseline, while in Ghana we randomly selected one female adult respondent to participate in the endline survey.

The adult questionnaire asked for information about the primary respondent's current savings and loan use, as well as her participation in savings groups, other community activities, and about her interactions with other members of the household.

3. Village Questionnaire

Our survey staff also administered a questionnaire to community leaders in every village, usually the community chair, or chief, in addition to village council members.

This survey covered the characteristics of the village as a whole, including its distance from roads and the presence of

schools and other facilities. The survey also asked for the village population and primary income generating activities of villagers. We asked the leaders about common crops and livestock in the village and used their responses to estimate the prices of these items. In addition, we inquired about any savings groups that existed in the village during the previous two years.

4. Market Questionnaire

In order to estimate the value of agricultural production and food consumption, our survey staff conducted a market survey on the prices and quantities of a long list of food stuffs. We administered 15-25 market surveys in the same districts and at the same time as the household, adult and village surveys.

Baseline Characteristics

Over the three country sample, the typical household contains 5 to 6 members, with at least one of these members being under the age of 5 in Malawi and Uganda. The probability of these households having a female head varies from country to country, from a low of 4% in Ghana to nearly 23% in Uganda. (Table A in Appendix IV)

In addition to the higher likelihood of the household head being a female, the Malawi and Uganda samples also display a higher level of literacy amongst female primary respondents: while a little over 10% report being able to read and write in Ghana, the corresponding statistic is close to 60% in the other two countries. The primary female respondent is also substantially more likely to have had five years of schooling in Malawi and Uganda (65% and 45% respectively) than in Ghana (7%). This is in contrast to the numbers for primary female enrollment, which are marginally higher for Ghana as opposed to Malawi, and secondary female enrollment, which is only marginally less in Ghana than in Malawi and Uganda. Mediating these numbers is the fact that only 32% of the villages in Malawi report having a primary school in the village, as opposed to 51% of the villages in Uganda and nearly 60% of the villages in Ghana.

Nearly every household across the three countries reports being engaged in some farming activity. However, the sample in Ghana reports considerably less involvement in non-farming income activities: just over 9% of respondents in Ghana own a business at the baseline, compared to nearly 30% in Uganda and 40% in Malawi. Similarly, while only 16% of the baseline respondents in Ghana engage in paid labor, over half the respondents do so in Malawi and Uganda.

Ownership of assets does not follow a similar pattern by country; for instance, while only 15% of households in Ghana report owning cell phones as opposed to 25% in Malawi and 31% in Uganda, 76% own bicycles in Ghana, compared to 57% and 40% in Malawi and Uganda respectively.

This within-country variance in household assets is also observed in the housing characteristics of sample households: while a household in Uganda is substantially more likely to have an iron sheet roof than a household in Ghana or Malawi (64%, compared to 16% and 18% respectively), it is also less likely to have electricity than a household in Ghana (1% in Uganda, compared to 7% in Ghana).

The three countries are more similar on baseline savings metrics. The percentage of women that report holding savings ranges from 35% in Ghana to 49% in Malawi and 62% in Uganda. However, less than 5% of women report holding savings in formal environments – such as banks and microfinance institutions. Given the low levels of formal savings at the baseline, the sample was well suited for the VSLA program. With only 19% of the female respondents across the three countries having received a loan at the baseline, there is also a potential need for the emergency lending facilities that a VSLA allows for.

Balance Check

As Table A demonstrates, most of the key characteristics that could affect the outcomes of the VSLA program are well balanced between treatment and control groups across all three countries. Households in the treatment group are slightly wealthier than those in the control group, and women are slightly better educated. In substantive terms, however, these differences are small. More importantly, we observe significant differences in school enrollment between the treatment and control groups. School enrollment for children of primary school age is significantly and substantively higher in the treatment areas. This imbalance is mostly driven by an imbalance in the Ghana data, but school enrollment is slightly higher in the treatment group in Malawi as well. It is important to keep this imbalance in mind, since it will have implications for the interpretation of our estimates of the impact of the VSLA program on school enrollment.

SECTION 4. UPTAKE AND USES OF VSLAS

To be able to study who joins a VSLA and who doesn't, the first task at hand is to identify VSLA members in our sample. This is not an obvious task, since many types of savings groups exist, respondents don't know the term VSLA and, if respondents are in a savings group that was formed by an NGO, they often don't know the name of the organization that provided training.

In our adult surveys, we asked primary respondents whether they had saved in a group in the two years leading to the endline survey. If they had, we asked about the various characteristics of the group to determine whether it was a ROSCA, VSLA or other type of ASCA. By asking respondents if the money accumulates in their group, or if one person takes the entire pot at each meeting, we distinguish between a ROSCA and an ASCA. We then define VSLAs as ASCAs that meet on a weekly basis, keep group funds secure in a box, allow members to take a loan from the group, and were formed with the help of a trainer.

Characteristics of VSLAs:

a. Money accumulates over time
b. Members meet on a weekly basis
c. Members are allowed to take a loan from the group
d. Members have received or expect to receive a share-out
e. Groups were formed with the help of a trainer
f. Groups deposit funds in a box

In this section, we will first compare characteristics of VSLA members to those of non-members and attempt to identify predictors of VSLA membership. Next, we describe how members report using the financial instruments provided by the VSLA. We then present take-up figures and look at the trends of group formation and replication beyond the primary villages in Malawi and Uganda.

4A - Characteristics of VSLA Members

Before getting to the quantitative comparison of members' and non-members, we briefly discuss the findings of a set of focus groups discussions conducted in Malawi 17 months after the launch of the program. The goal of these focus groups was to determine why members had joined a VSLA, while others in the community had not.

Overall, frequency of meetings and geographic proximity were presented as the main reasons to join a VSLA. Discussions conducted amongst people in program communities who had not yet joined a group revealed that these people were initially distrustful, or had misunderstood how such groups worked. After their initial hesitance however, many of the participants were waiting for the opportunity to start a group. Anecdotally, we were not able to detect important differences in the focus group between VSLA members and nonmembers in terms of socio-economic status, education levels and ties with the community. *(Appendix II)*

In a quantitative analysis, we compared baseline characteristics of VSLA members with those of non-members in our sample. Our findings are presented in Table D. Data from the pooled dataset of study participants across the three countries show significant differences between the two groups. The comparison shows that the women who joined a VSLA had a larger household at the baseline, with slightly older children than non-members. Their households were significantly wealthier, as shown by a 0.36 standard deviation difference in the asset index - a principal components index of assets owned by the household.

A comparison of ownership of selected assets confirms this difference in wealth. Members' households are 4.4 percentage points more likely to own a cell phone and a bicycle at the baseline, and 4 percentage points more likely to have a roof made from an iron sheet. Members are also more likely to have had access to electricity in their house at the baseline.

While we do not find a statistically significant difference in the pooled sample for indicators of business ownership, both Malawi and Uganda show that VSLA members were significantly more likely to have had a business at the baseline, by 10.4 and 5.6 percentage points respectively.

There are no statistically significant differences in age and literacy levels between members and non-members in the pooled sample. These results are largely being driven by strong variation in how education affects participation in VSLAs at the country level. In Uganda and Malawi, more educated community members are more likely to participate

and members were more literate than non-members, by 12 and 10 percentage points respectively. In Uganda 51% of members had attended school for at least 5 years while only 40% of non-members had done so. Members in Uganda were also on average 2 years older than non-members. By contrast, neither educational attainment nor age is correlated with VSLA participation in Ghana.

Members are 6 percentage points more likely than non-members to have held any savings at the baseline survey; this difference is particularly significant in Uganda where 73% had some savings compared to 58% of non-members. In Malawi members were 3 percentage points more likely to have a savings account with a formal institution. We find similar differences in credit use: members across the three countries were 4 percentage points more likely to have received a loan before the baseline survey.

A comparison of the community integration index shows that members were more likely to be more integrated into the community than non-members at the baseline.[5] Members in Malawi and Uganda were also significantly less likely to be able to influence decisions taken by the household than non-members.[6] We see no impact of the degree of women's empowerment on VSLA participation in Ghana.

To conclude, members and non-members differ significantly when we compare the two groups based on baseline characteristics. Members are wealthier, more literate and also have more access to, or experience with, financial tools. In addition, they are more integrated into the community, and in two countries, report more influence when taking decisions in the household.

In addition to comparing unconditional means between members and non-members, we run a multivariate analysis where we regress VSLA take-up on a set of baseline household, individual and village characteristics. For these regressions, we use the treatment group only. The findings are presented in Table E.

The pooled sample shows that primary respondents in households that had at least one business at the baseline are 4.2 percentage points more likely to join a VSLA. The coefficient is 13.7 and 12.7% in Ghana and Malawi, respectively, while the point estimate is positive, but not significant, in Uganda.

We divide our respondents across four income quartiles based on the asset index discussed above. We find that respondents in the richest quartile are 3.5 percentage points more likely join a group than their peers. Wealthier respondents are more likely to join groups in all three countries, with members of the top quartiles in Ghana and Malawi being 11.0 and 7.5 percentage points more likely to join a group, respectively, and members of the third quartile in Uganda being nearly 5 percentage points more likely to join a VSLA.

Respondents in the 26 to 40 year-old age bracket appear to be significantly more likely than both their younger and older peers to join a VSLA. Literacy is a strong predictor of membership in Malawi and Uganda, where literate respondents are 8 percentage points more likely to become a member of a group. However, literacy is not a significant predictor of VSLA membership in Ghana.

In Ghana, use of credit is a particularly strong predictor for membership where respondents that had received a loan before the program are 19.8 percentage points more likely to join a VSLA group. In Uganda the same group is 5.4 percentage points more likely to join a VSLA. Holding savings at the baseline in Uganda leads to a 9.5 percentage point higher likelihood to be in a VSLA; this is the only country where we find a link between savings before the program, and VSLA membership.

Higher integration and participation in the community also appear to be significant predictors of membership in a VSLA in the Malawi and Uganda samples.

We conclude by presenting a couple of country-specific predictors that are not available for all three sites. In Uganda, we collected information on VSLA take-up for primary men as well as women. Not surprisingly, we find that women are much more likely to become VSLA members (10 percentage points). Finally, the Malawi baseline included a set of questions to measure respondents' aversion to risk and to determine whether an individual was present-biased. We find that members that were more risk averse at baseline are significantly (5.2 percentage points) more likely to join a group.

[5] see Appendix III for index definition.
[6] ibid.

4B - Uses of Financial Tools

In this section, we provide information reported by members of VSLAs on the financial instruments that they use and the ways in which they spend funds from the groups. Focus group discussions conducted in Malawi sought to gather qualitative information on the ways in which VSLA members contributed to and benefitted from the groups. Respondents reported having taken loans from VSLAs in order to take advantage of new business opportunities as well as to weather emergencies and support food consumption in difficult times. Share-outs provide members with a means to invest in productive activities; Malawian respondents report using share-outs for expenditures ranging from agricultural inputs and business investments to house repairs and education. *(Appendix II)*

The survey data collected in the three countries that comprise our study confirms these qualitative observations. *The timeline of data collection activities is in Section 2*. Table B presents the ways in which members use the financial instruments provided by VSLAs. The pooled sample shows that share outs are most commonly used to fund education expenses (16%) and food consumption (16% as well). In addition, 14% spent the funds on non-fertilizer agricultural inputs while 13% used the funds to pay for business expenses. About 61% of members had received a share-out at the time of the endline survey while 68% had taken at least one loan from the group. The most common reported uses of loans are business investments (29%) and food and education expenditures (13% each.)

In most instances, VSLAs also give members access to an emergency fund, used by the group to assist members in difficult situations. The pooled sample reveals that about 38% of members had received assistance from the group through this tool. The most common uses of these funds are for health expenses (56%) and funeral expense (17%).

In the following paragraphs, we discuss in detail the share of members that has accessed the financial products offered by the VSLAs in each of the three countries and discuss the more common uses of the funds made available by the groups.

In **Ghana**, members typically contribute about one Ghana Cedi ($0.66) per week to the VSLA. As Table C shows, median contribution levels are consistent across time and do not seem to increase significantly with the age of the group.

Of current VSLA members, 70% had completed an entire cycle in Ghana and had received a share-out. Of those, 36% had completed multiple cycles and received more than oneshare-out. The median share-out amount in Ghana was $31.9. Respondents used this money in diverse ways: 19% said they used it for their business, 18% for agriculture spending (not including fertilizer), and an additional 14% for education.

Ghana Summary Table: Uses of VSLA Financial Instruments

Share-outs	Loans	Social Fund
Business: 19%	Business: 42%	Health: 41%
Agriculture: 18%	Food: 18%	Funerals: 33%
Education: 14%	Health: 9%	Food: 5%

Half of the VSLA participants in Ghana reported having received loans from the group. On average, credit recipients had received 1.29 loans. The median loan size is $19.7, the median expected interest reported on these loans is 10% of the value of the loan. Credit from VSLAs provides a vehicle for business investment, with 42% of recipients investing the loan in business activities. Loans also provide a stop-gap against food insecurity, with 18% of recipients reporting using loans to purchase food.

Social funds are not as universal in Ghana's VSLAs; 76% of VSLA members reported having access to such a fund. In total, 23% of respondents had received help from the fund at least once. This money is given out as an interest-free loan rather than as a grant: 86% of these members had paid back the money to the group. The most common uses of the loans from the social fund are for health emergencies (41%) and funerals (33%).

As in Ghana, median VSLA contributions per weekly meeting are $0.66 for VSLA members in **Malawi**. Table B suggests a slight increase in average contribution levels for members of older groups.

The median share-out in Malawi is $47.9, with 57% of VSLA members having received a share-out at the time of the endline survey. On average, share out recipients had received only 1.2 share outs at the time of our follow up survey. The most common use of a share-out is to fund food purchases (30%). Spending on fertilizer (23%) and other

agricultural items (12%) are reported as uses for these funds as well, while 19% report having spent the funds on house repairs.

About two-thirds of members in Malawi had taken out at least one loan from the group at the endline, with an average of 1.9 loans. The median loan size is $18.2, and members paid back - or expected to pay back - 10% interest on the principal. Consistent with the profile described above, the majority of VSLA loans are used for business investments (40%). Food consumption is the second most important loan use, with an 18% share, while health and education are rarely mentioned.

The data shows that aid from the social fund in Malawi is mostly distributed in the form of a grant. While nearly every group has a social fund, 27% of the respondents reported having ever received a transfer from the fund. The fund is mostly accessed for health (61%) and funeral expenses (10%), but it is also helpful for paying for educational expenses (8%) and for food consumption (7%).

In **Uganda,** the median weekly deposit amount is $ 0.84, the breakdown for which is presented in Table C and suggests that members of more mature groups increase their contributions slightly. The median for groups formed in the second semester of the program is $1.05.

Malawi Summary Table: Uses of VSLA Financial Instruments

Share-outs	Loans	Social Fund
Food: 30%	Business: 42%	Health: 61%
Fertilizer: 23%	Food: 20%	Funerals: 26%
House: 19%	Agriculture: 8%	Food: 5%

Similar to Malawi, 56% of VSLA members in Uganda have completed a whole cycle and gone through at least one share-out. Among these members, the average number of share-outs is 1.3. The median share-out size is about $42.2. Respondents use these funds for education expenses (27%), livestock purchases (17%), food consumption and house repairs (16% each).

Uganda Summary Table: Uses of VSLA Financial Instruments

Share-outs	Loans	Social Fund
Education: 27%	Education: 24%	Health: 59%
Livestock: 17%	Health: 18%	Education: 10%
Food: 16% Health: 16%	Business: 13%	Food: 9%

In Uganda, 85% of members declare having taken out a loan from the group at least once, with a median loan amount of $20.8 per person. Members paid back, or expected to pay back, about 10% more than the principal loan. On average, each borrower took out 2.1 loans from the VSLA at the time of the endline survey. Loans are mainly used to fund education (24%) and health (18%) expenses, although 13% of loan recipients report having invested funds in their business.

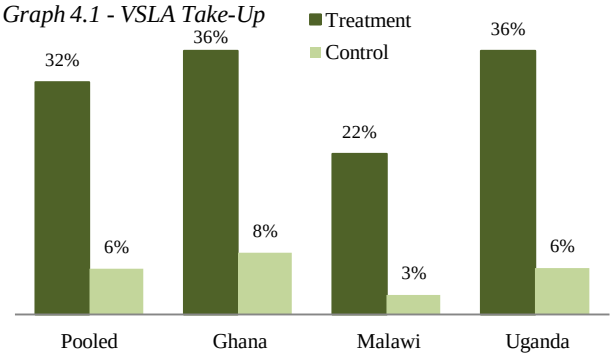
Finally, 93% of VSLA members in Uganda say that their VSLA has a social fund. The fund is most commonly disbursed in the form of an emergency loan that members have to pay back to the group. A high percentage of members (61%) had received one of these loans at the time of the endline survey. Paying for health expenses was by far the most common use of credit from the social fund (59%).

4C - Uptake and Replication

Across the three countries included in this study, we find that 31.2% of female primary respondents participate in a VSLA in treatment areas at the time of the endline survey. In the control areas, we find 6.2% of women participating in a VSLA. (*Table 1.A.*)

In the next paragraphs, we discuss take-up country by country. Take-up figures are presented in Table C.

Graph 4.1 - VSLA Take-Up



In **Ghana,** we collected endline data approximately 30 months from the beginning of the program. In treatment areas, 35.7% of female primary respondents report participating in a VSLA during the past two years, while a relatively high 8.4% of women in control areas report participation. As Table B shows, the median number of participants in a savings groups in Ghana is 23. Given the earlier start of the program implementation in Ghana, most groups were older than the ones in the other two countries: the average group member had been part of the group for about 20 months. One tenth of VSLA members also partake in another type of ASCA, while 2% are also members of a ROSCA. In Ghana, about 3 out of 4 members say that their VSLA has a social or emergency fund.

In **Malawi**, 21.8% of female primary respondents in treatment areas participate in VSLAs. We find very little take-up in the control areas in Malawi, with only 2.6% of respondents in the control group having joined a group that has the characteristics of a VSLA. As Table C shows, take-up in the control group seems to be a fairly recent phenomenon, attributable to a spillover of program activities beyond a cluster's borders, or due to households travelling to treatment villages to join a group. Groups in Malawi are smaller than the ones in the other two countries, with a median of 19 members in each group. The average group was formed about 12 months before the endline survey. Only 2% of VSLA members also reports being part of a ROSCA, and a similar percentage is also a member of another ASCA.

In treatment clusters in **Uganda**, we find that 35.5% of women are part of a VSLA at the time of the endline survey. Take-up in control areas is 6.4%. VSLAs have a median size of 30 members and were created, on average, 14 months before the endline survey. Uganda displays higher levels of diffusion of informal groups compared to the other two sites. This is evident when looking at the percentage of VSLA members that are part of other groups. Table B shows that 32% of VSLA members are also part of another ASCA; of these, about one-third is part of more than one VSLA. The penetration rate of ROSCAs is also high, with 26% of VSLA members also part of a ROSCA.

Control group uptake

Our follow up survey found take-up in control areas, with 6.2% of respondents reporting being members of a VSLA. Take-up in the control areas is likely caused by a combination of factors.

First, other implementers may have initiated VSLAs in control areas. In our village survey, we asked village leaders for the names of the organizations that trained community members to organize the savings groups. This data was difficult to collect as respondents often did not know or remember if the trainer was affiliated with a particular organization. Despite the selection of areas with no ongoing VSLA programming, some of our research areas might still have groups formed before the study that continued their activity.

Second, VSLAs are designed to be self-replicating and self-sustaining. Members of existing groups may wish to start new groups in surrounding communities. In addition, other communities may witness the benefits of the savings groups and begin to organize the groups on their own. This spontaneous replication may have contributed to the creation of the savings groups present in control areas at the time of our follow up survey.

Third, community members may travel to treatment areas to participate in VSLAs. The take-up rates presented in this

study reflect the share of individuals that partake in the savings groups – regardless of where these groups are located. Despite our efforts to choose treatment and control areas that were adequately far apart from each other, it is possible that community members in control areas would travel to participate in the groups.

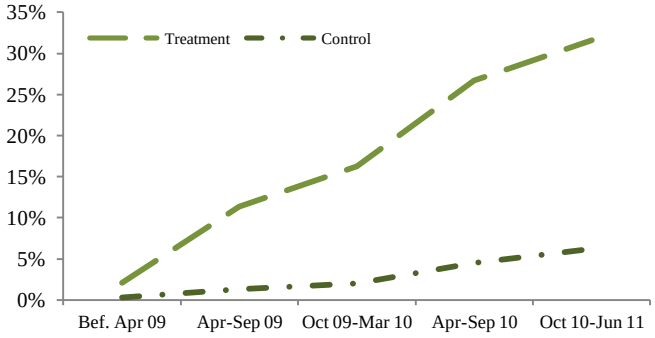
Finally, it is also possible that trainers from implementing organizations and village agents did not adhere to the research protocol and supported groups beyond the assigned program areas.

It is difficult to assess the relative contribution of these different factors. As mentioned earlier, respondents did not always know the full name of the person who trained their group, and often did not know whether the trainer was affiliated with a particular organization. As groups continue to replicate, it becomes less clear as to which groups are products of the efforts of an organization, and which should simply be credited to entrepreneurial community members.

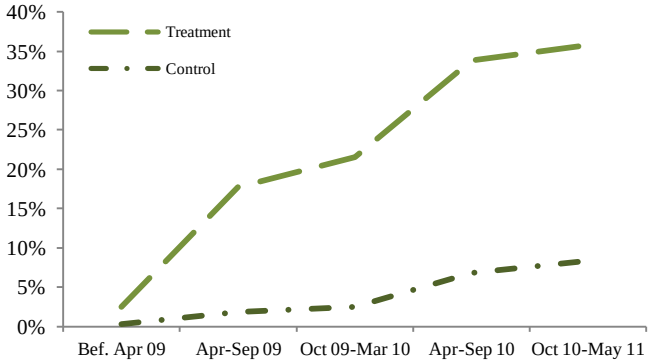
In response to our discovery of VSLAs in the control areas in Ghana, our research staff revisited these communities to further investigate the creation of these groups. We found that some of the trainers were indeed trained by staff of implementing partners. This shows how, as the surrounding communities learn from the experience of the program areas, demand for VSLAs develops in control villages and it becomes increasingly difficult for implementing partners to enforce research protocols.

The trend of respondents joining VSLAs over time, presented in the tables below and in Table C, shows a steady increase of uptake in control areas. This trend suggests that spillovers from program activities might actually increase *parallel* to program activities and saturation of target communities. While program uptake in control areas may lead to a reduction in statistical power of the program, the spillover of program activities beyond treatment areas is an indication of the replication potential of the program.

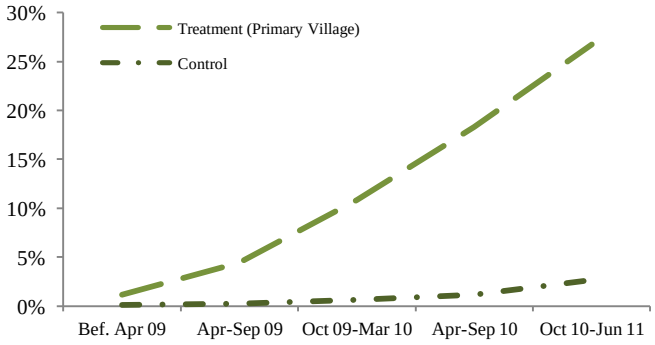
Graph 4.2 - Take-up over time (Pooled Sample)



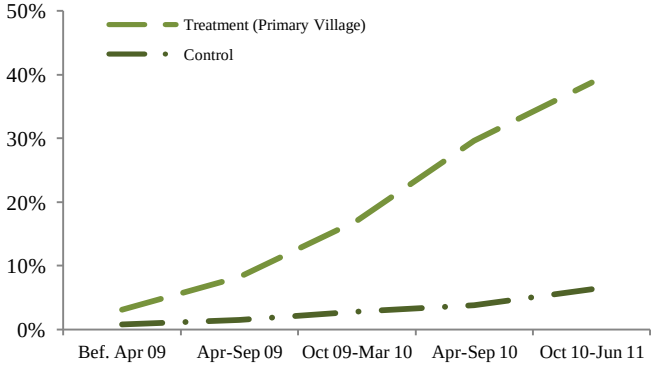
Graph 4.3 -Take-up over time (Ghana)



Graph 4.4 - Take-up over time (Malawi)



Graph 4.5 - Take-up over time (Uganda)



Replication

Adhesion to VSLAs in treatment communities increased steadily throughout the study period. This trend is clearly illustrated in Table C, and the graph below presents the share of respondents that joined a VSLA over time.

Two mechanisms are likely to contribute to the spread of VSLAs over time. The first is an increase in demand for VSLAs. This may increase gradually as people in the village become familiar with the groups and their utility by observing the experience of early adopters. Focus group discussions with non-members in Malawi confirm that most respondents became interested in joining a VSLA after witnessing their peers take out loans and collect share-outs. Having seen their friends and family afford school fees and buy assets and fertilizer, non-members became aware of the potential of the program, and some of them contacted the village agents and asked to be trained.

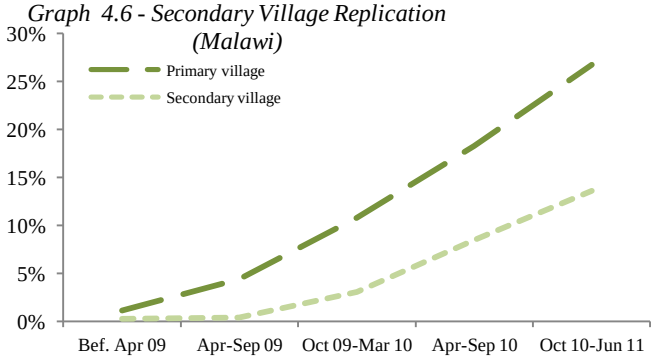
The second mechanism is a supply-based one. After an initial set of groups is formed and trained, trainers and field officers can begin forming new groups. As discussed above, the fee-for-service village agent (VA) model has the potential to multiply the capacity of the program to supply village members, with training and supervision, to form VSLAs. Anecdotal evidence from the focus groups shows that supply-side limitations are an important determinant of uptake. In focus groups conducted in Malawian communities 17 months after the beginning of the program, community members explained that they were waiting for an opportunity to be trained by a village agent, as the existing groups in their community had already reached the maximum number of members. *(Appendix II)*

The remainder of this section will look at replication in Malawi and Uganda. In these two sites, the Access Africa program explicitly included a focus on replication of the program in the communities surrounding a primary target village. This involved the deployment of village agents (VAs) – group members trained to become facilitators and trainers of new groups – in Malawi, and community based trainers (CBTs) in Uganda.

As discussed in detail in Section 3, our research clusters in Malawi and Uganda were explicitly designed to capture the replication of the program beyond the primary communities. The objective was to understand the extent to which the program spreads in the areas surrounding the village. In each cluster, we collected information on households in a secondary village located within a radius of 4 km from the primary village. The location of these secondary villages was not disclosed to the implementing partners in order to avoid targeting.

As the operational strategies for replication and the recruitment of village agents were different across the two sites, we present these statistics on a country level. Table C breaks down take-up rates for these two countries in primary and secondary villages. The two charts below illustrate take-up trends in primary and secondary villages. We compare group characteristics in primary and secondary villages for each country.

Graph 4.6 - Secondary Village Replication (Malawi)



In **Malawi**, the IPOs' Field Officers (FOs) were asked to form an initial group in the primary villages and to select a village agent (VAs) from each group, who was in turn tasked to form 8 more groups in the primary village and the cluster surrounding it. Secondary village uptake is therefore fully attributable to the spread of the VAs' activity.

The take-up rate in secondary villages in Malawi averages 14% - equivalent to approximately half of the take-up rate reached in the primary villages. Group formation in secondary villages materializes only during the second and third semester of the program. This is consistent with the VA replication model, as VAs are identified and trained from groups formed during the first months of the program by the partner organization's field officers.

As Table F shows, an average VSLA member in secondary villages in Malawi had been in the group for 9.7 months at the time of the survey, about 3 months less on average than her peers in primary villages. When comparing group characteristics, we find that most differences between groups in the two areas can be explained by the fact that groups in treatment areas were formed more recently.

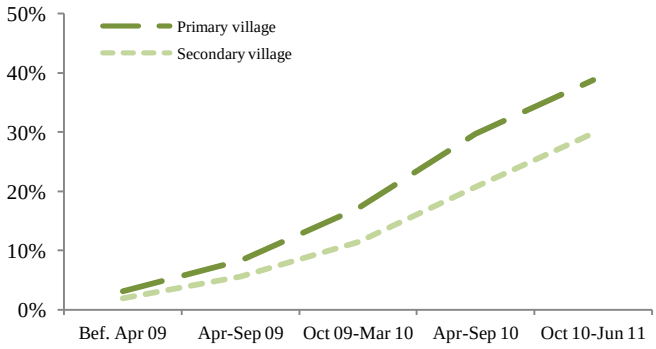
The relatively short duration of the groups in the secondary villages most likely leads to the differences in the median size of loans in primary ($19.9) and secondary ($13.3) villages. This is consistent with lower balances accumulated in the newer groups. Not surprisingly, only 42% of secondary village groups had shared out at the time of the endline survey, 15 percentage points less than in the primary villages.

Characteristics of the group that do not correspond with group duration show no difference between the village types. The median number of members is identical in primary and secondary villages. Loan use and access to the social fund do not differ significantly across the two sites, nor does the weekly contribution amount, or the size of the share-outs that were received.

Perhaps because of the relatively limited access to VSLAs, we find that VSLA members in secondary villages are more likely to also be part of a ROSCA. This is consistent with our findings – presented in the impact section of this report – that the presence of VSLAs crowds out ROSCA membership slightly.

In **Uganda,** community based trainers (CBTs) were invited to begin forming groups in primary villages. CBTs were tasked with creating 24 groups in 3 years (the endline survey falls at the end of year 2 for most CBTs) within each cluster. In order to achieve this target, they worked in multiple communities within each cluster.

Graph 4.7- Secondary Village Replication (Uganda)



The data shows fairly high rates of group formation beyond the primary target village. At the time of the endline survey, 29.8% of adult respondents in the secondary villages were participating in a VSLA. This take-up rate is relatively high compared to the take-up in primary villages (39.8%).

By comparing the characteristics of VSLAs across the two sets of villages, we find that groups in the secondary village groups tend to be slightly younger, but have the same structure in terms of number of members and average contribution levels. As in Malawi, the differences between the two groups do not indicate any visible change in the structure or quality, but are consistent with relatively younger groups.

On average, VSLA members in secondary villages had participated in their savings group for 12.8 months, significantly shorter than the average length of 14.5 months in primary villages. As in Malawi, we find that the relatively young nature of the groups leads to differences in loan size and receipt of share-outs. The median value of loans taken by participants in secondary villages was $16.9, significantly lower than the median $21.1 loan size in primary villages. Likewise, only 48% of members in secondary villages had gone through an entire cycle and received a share-out, while 59% of primary village VSLA members had done so.

Again, we find that characteristics of the group that do not correspond with group maturity do not differ significantly between primary and secondary villages. Median group size remains at 30 members and median contributions stay around 2,000 UGX ($0.84). Likewise, loan, share-out, and emergency fund uses do not vary significantly between the two groups.

The median group sizes, contribution levels and features of the groups hold consistent beyond the initial months of the program in both sites. From this analysis, we conclude that the replication process in both countries is successful in forming groups of comparable quality both in target and secondary villages. The context and operational differences between the two models explain the differences in forming groups in the areas surrounding the primary communities.

SECTION 5. IMPACT ASSESSMENT

In this section, we present our findings of the impacts of the VSLA program on the households in our sample. We first set forth a theory of change to describe how savings groups might affect participants, their households and their communities. VSLAs can lead to changes in the tools that respondents use to manage expenditures and investments. These short-term changes in behavior, and the prolonged usage of a wider set of financial tools, may in the long run lead to the creation of wealth and ultimately, changes in the well being of households.

Our results are organized around this theory. We test for impacts on each of the areas below:

a. *Financial Management*
b. *Income Generating Activities*
c. *Women's Empowerment*
d. *Reactions to Shocks and Food Security*
e. *Expenditures and Consumption*
f. *Education*
g. *Health*
h. *Asset Accumulation*

We present impact estimates for the individual countries (Table 2) as well as for the pooled sample (Table 1).[7] The large sample size of the pooled sample allows us to detect impacts that are significant in the overall sample but might be present on too small a scale in each individual country to be detected there. Furthermore, in spite of some operational differences in the program implementation, the program in the three countries was very similar and our theory of change and hypotheses about impacts are the same for the 3 countries. For these two reasons, our preferred analysis is based on the pooled sample.

This study reflects a snapshot in time along the theory of change. We collected data approximately 30 months after implementation had begun in Ghana and after roughly 22 months in Uganda and Malawi. The pooled sample across the three sites shows that about 31.2% of respondents were part of a VSLA at the time of the endline survey. While it is possible to test whether the creation of VSLAs led to a change in the use of financial tools and other behaviors directly affected by the instruments and opportunities created by the groups, the study timeline is likely too short to yield significant welfare impacts from the program.

As discussed in the previous sections, when thinking about the potential impacts of the program, it is important to note that VSLAs form over time. At the time of the endline survey, members had participated in a group for an average of 15 months, and about 61% of them had already completed their first cycle. With cycles normally lasting between 8 and 12 months, our sample is mostly comprised of members of fairly young groups.

Our analysis measures the impact of the program on the people living in communities assigned to receive the program, regardless of whether and when any member of the household joined a VSLA. This estimated impact is called the intent-to-treat (ITT) effect, since it represents the average impact on all individuals who were "intended" to receive the service. All impacts presented in Tables 1 and 2, and discussed in this section will be ITT estimates. In Part C of this section, we discuss approaches to estimate the VSLA's direct effect on participating households. We will discuss pros and limitations of each of these tools, and present findings in Table 3. As a general point, the impact on the households who participate is likely to be larger than the average impact on everyone in a village, as long as the direct impact of participation is stronger than any "spillover" impact, i.e., the benefits one accrues from merely being in a village that receives a VSLA but not participating in a VSLA oneself. However, the main discussion focuses on the ITT analysis.

Appendix III presents a glossary of the terminology used in the analysis with respects to the sample of reference, statistical significance and currency conversion. The appendix also lists the variables that comprise the indices constructed for the analysis.

[7] The impact estimates presented in the tables were obtained by running ordinary least squares (OLS) regressions of the outcome variable on a treatment indicator and a set of district dummies. When available, the baseline value of the outcome variable is included as a control variable. No further control variables were included. The clustering of standard errors is at the level at which the randomization was conducted – i.e. the village in Ghana and the cluster of primary and secondary villages in Malawi and Uganda.

5A - Theory of Change

The mechanism by which VSLAs may affect people's lives can be thought of as a chain of events, with short-run behavioral changes from the program potentially leading to welfare impacts in the long-run. In this section, we discuss a theory of change, outlining our hypotheses about the impacts of VSLAs and their sequencing.

As discussed above, VSLAs have three main components: savings, loans and a social welfare fund. Thus, we begin by testing whether this increased access to financial tools leads to an overall change in the way VSLA members manage their personal finances and the tools they use to finance expenditures and investments. We define these as **short-run behavioral changes**, immediate impacts that could materialize over the first months of group membership and to grow in tandem with the group financial portfolio, and the confidence and trust that members have in it. If these changes occur as a result of the program, we would expect to be able to detect them for members that have been in a group between 6 months and 2 years.

The groups function as commitment devices for regular **savings** accumulation. We hypothesize that VSLAs will not perfectly substitute for membership in other savings groups and savings through other channels. As a result, we expect members to save more on a regular basis, with the VSLA being both an additional savings channel as well as a commitment device to put money aside regularly, protecting it from temptation and the reach of family and friends.

Access to loans from the VSLA may lead to an overall extension of credit to individuals with no previous access to loans and an increase in the average loan amounts received by respondents. Loans could be used to **invest** in income generating activities, such as the purchase of agricultural and business inputs. Improved credit and access to the group's emergency or social fund may allow members to smooth the impacts of economic **shocks**, unforeseen **health** expenditures and guarantee **food security** to the household. Loans could be used to fund **education** expenses as well.

The regular interaction with other group members and the control gained over the financial options offered by the group may render women more confident and increase their ability to **influence decisions** in their households and their **communities**. This is likely to be a gradual process that might take a year or two of membership to be detected.

At the end of the 8 to 12 month cycle, VSLA members receive a **share-out** of the savings accumulated, as well as interest earned from the loans taken by group members during the cycle. The availability of this large lump sum may offset some of the reduction in expenditures that could result from adopting a regular savings regime and may substantially increase most of the outcomes above.

Growing savings and loan volumes in more mature groups, as well as long-term behavioral changes could lead to substantial improvements in **welfare** outcomes over time. Higher investment levels could lead to higher yields in **agriculture** and to **growth in business ownership** as well as increased **profits**. Access to savings groups may alleviate the impact of **shocks** on the household, and easier access to lump-sums through savings and loans may translate to improvements in **health indicators** and **education levels**. Households might also begin accumulating larger **assets**. **Food security**, intra-household **decision-making** and – more generally – members' **involvement in the community** are also hypothesized to improve with time.

The creation of welfare impacts in the longer-term is largely dependent on the VSLA program's ability to lead to significant and relevant changes in short-term behavioral indicators, such as usage of financial services to improve investments and smooth financial shocks and expenditures. On average, households that had joined a VSLA at the time of the endline survey had been members for 12 months in Malawi, 14 in Uganda, and 20 in Ghana. These numbers place our study sample at a point in our theory of change where we can test many of the behavioral impacts described above. It might be too early, however, to detect significant impacts on welfare outcomes. Groups might reasonably take two to three years before we could observe measurable changes in welfare indicators.

In the remainder of this section, we present our findings, following the sequence of potential changes as outlined by the theory of change. We start by testing impacts on financial management, investments in income generating activities, reactions to shocks, expenditures, consumption smoothing, empowerment, and community participation. We then look at impacts on risk coping, health and education, and asset accumulation.

5B - Impacts

1. Financial Management

We begin our analysis on the impact of the VSLA program by examining whether respondents in treatment communities change the way they manage their finances. We find that the VSLA program increases members' savings deposits and use of credit, with an overall increase in net savings balances (calculated by subtracting outstanding loans from current total savings).

Focus Group Discussions

The focus group discussions conducted in both Malawi and Uganda indicate that respondents in the study areas desire to accumulate savings to mitigate highly seasonal incomes and to afford lump sum expenditures. Many of the focus group respondents currently save, but safety, accessibility and cost are considerable barriers that limit their ability to accumulate savings. Discussants note that formal savings institutions such as banks and savings and credit cooperatives often charge high fees, are far away, and may intimidate community members. More informal means of savings such as keeping money with family and friends may lead to disagreements as well as loss of income. Finally, keeping money at home leaves these savings vulnerable to temptation spending or pressure from other household members to spend.

Focus group discussants also report limited access to credit to fund unexpected expenses and smooth irregular income flows. Formal financial institutions are often difficult to access and impose considerable screening processes. Lack of understanding and mistrust are common barriers to access for these institutions that, added to significant transportation costs, lead respondents to prefer other credit sources. Friends and relatives are the most common source of credit, while moneylenders and traders, while considered accessible, are generally treated as a last resort as they are believed to lend at unfair terms. Informal savings groups were also fairly common in Uganda at the time of the baseline, but group mismanagement, barriers to entry and liquidity constraints for loans were frequently cited issues for these groups. A summary of focus group discussions is provided in *Appendix II.*

VSLAs are designed to expand the financial portfolios of community members by offering a safe, convenient mechanism for accumulating savings and by providing easy and convenient access to credit. The ability to meet the weekly deposit commitment was presented as an important achievement by VSLA members in focus groups discussions in Malawi. Members explained that through the groups, they have understood the importance of regular savings and begun to work hard every week to find money to deposit, or pay back the loans from the group.

This observation supports one of the basic assumptions of our theory of change of the VSLA program: deposits in VSLAs do not simply substitute for savings that would have otherwise been held in other environments. VSLA members might in fact increase total savings through the commitment to regular minimum deposits, and the restricted access to these deposits for the duration of the cycle.

If participants were already saving as much as they desired before the VSLA intervention, we would expect to see a reduction in the use of other savings channels, such as say savings held at home or in banks. However, if respondents were constrained in their ability to save by high entry or transaction costs or other barriers, we may see a net increase in saving and perhaps a reduction in non-essential expenses or transfers.

A similar reasoning can be applied to the impact of VSLAs on access to credit and transfers received from others. If the available alternatives for borrowing money were too limited for the needs of the household, we may find a net increase in overall borrowing because of the program.

Findings on Financial Management

We find that VSLAs increase overall savings levels, and largely do not crowd out savings in locations outside of the VSLA, except for a small negative effect on membership in ROSCAs. Average savings held by women in program areas is significantly higher than for women in the control group.

The VSLA program led to an increase in the number of women that took out a loan over the last year. On average, women in treatment areas borrowed significantly more as well, thanks to an increased reliance on savings groups.

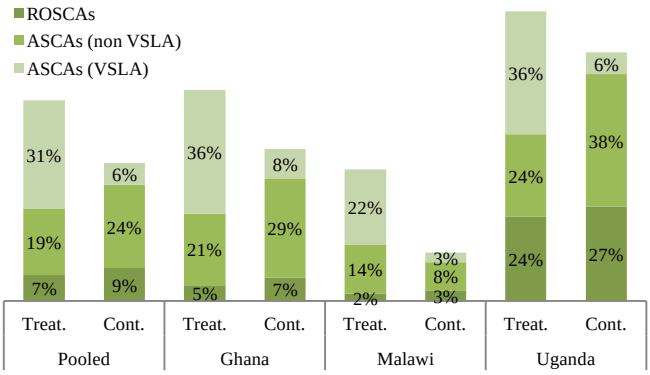
We find suggestive evidence that net savings balances, calculated by subtracting outstanding loan balances from savings, are higher in treatment communities than in control areas.

The improved access of financial survey and higher liquidity available to women in VSLA villages, make them more likely to have given at least a loan or a transfer to another household both in and outside of the village.

Savings

We conducted a privately administered survey about participation in savings groups that included detailed questions about the characteristics of those savings groups. We distinguish between accumulating savings groups (ASCAs) where members accumulate funds until a scheduled share-out, and rotating savings and credit associations (ROSCAs) where a member takes the pot at each meeting.

Chart 5.1 - Informal Savings Groups



Overall participation in any savings groups – any ROSCA or ASCA – increased in the treatment group in all three countries. The percentage of women in the treatment group who belong to at least one savings group rose to 53.5%, compared to 36.6% in control areas. This impact is greatest in Malawi, where 37.4% of treatment group members participated in a group, compared to 13.6% in the control group. In Ghana, membership in one or more informal savings groups increases from 41.8% to 59.2%, while participation rates in Uganda increase from 60.3% in control areas to 68.1%.

The data shows a slight crowding out of informal savings groups in favor of VSLAs. We see an average 2 percentage point decline in ROSCA participation in areas that received VSLA training, although this estimate is only statistically significant in Ghana. We note that ROSCAs represent a particularly important type of savings association in Uganda, where one out of four respondents was enrolled in a ROSCA at the time of the endline survey.

Participation in ASCAs (VSLA and otherwise) grew substantially in the treatment areas in all three countries, going from 30.4% in the control group to 50.5% in the treatment areas. This increase is mostly explained by an increase in VSLA participation. VSLA participation reached 31.2% in treatment communities, compared to only 6.2% in control communities. VSLA participation is very similar in Ghana and Uganda (35.7% and 35.5% respectively), but somewhat lower in Malawi (21.8%). This is in comparison to control-group take-up rates of 8.4% in Ghana, 6.3% in Uganda and 2.6% in Malawi.

In order to assess whether increased membership in savings groups led to overall growth in financial savings, we need to ascertain that the savings accumulated in the new groups is not simply shifted from other savings channels. To test this hypothesis, we calculate the deposits held in savings groups. We then add this to the reported savings balances in other savings channels and calculate an estimated total saving balance.

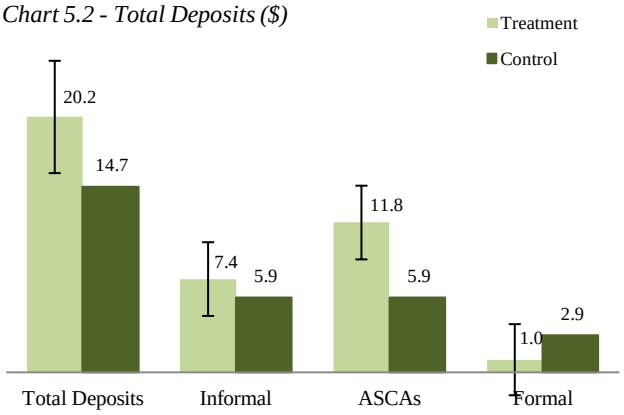
We begin by looking at the overall average weekly contributions to all savings groups by our primary respondents. Women in treatment areas doubled their weekly contributions compared to the control areas, going from $0.32 in the control areas to an average of $0.61. This significant increase in deposits suggests that the VSLA's requirement that its members deposit regularly has been successful in increasing savings rates among participants.

For VSLAs and other ASCAs, we asked women to report their current savings balance in the group. We estimate that the average savings balance in savings groups is $5.90 for respondents in control areas, and $11.84 for respondents in the treatment areas. The program has thus increased balances of savings held in ASCAs by $5.94.

We asked respondents if they held savings in other savings environments, including savings kept at home, savings given to others for safekeeping or deposited in financial institutions.[8] Current savings balances held outside of savings groups did not change significantly in treatment areas, confirming that the VSLA program increased overall deposits.

Estimated total savings balances for respondents in the treatment group average $20.19, a $5.51 increase compared to control areas. Country-level balances for treatment areas average $13.75 (compared to $9.81 in the control group) in Ghana, $17.07 ($11.09 control) in Malawi, and $41.09 ($34.05 control) in Uganda, although the increase in Uganda is not statistically significant.

Chart 5.2 - Total Deposits ($)



This increase in financial savings may be due to a substitution away from in-kind savings held in grain stocks and livestock. Below, however, we do not find significant differences in livestock holdings between the treatment and control groups, supporting the interpretation that savings accumulation increased in treatment communities.

There are at least three possible sources for the increase in savings balances discussed above. The first option is that respondents take out more loans and transfer part of the loan into their savings accounts; this would be a fairly expensive way to save, as members pay interest on their loans. Savings could also come from increased income deriving from higher investment in income generating activities or from a reduction in current expenditures to guarantee smoother longer-term expenditure and consumption levels.

Loans Received

The VSLA program increased use of credit for respondents in treatment communities. In these communities, 41.7% of women obtained a loan in the 12 months before the endline survey, an increase of 10.6 percentage points compared to the control group. The average amount taken out over the last 12 months is $3.58 higher in treatment communities ($18.24 in treatment and $14.66 in control groups).

It is worth noting that, while the total amount borrowed increases for the pooled sample, Ugandan respondents tend to rely more heavily on borrowing, with an average of $38.78 borrowed over the last year in the control group compared to totals of less than $10 per respondent in Malawi and Ghana. Breaking down the impact regression by country, we find that in Malawi, the program led to a significant $5.43 increase in the amount borrowed over the previous year. In Uganda the estimates are positive but not statistically different from zero, while in Ghana we find no differences between the two groups.

This increase in loan use appears to be driven mostly by an increase in the number of loans taken from savings groups. Respondents in treatment areas took on average 0.48 loans from savings groups, an increase of 0.28 loans compared to respondents in control areas. This impact is larger in Malawi (increase of 0.31 loans) and Uganda (increase of 0.34) than in Ghana (increase of 0.21).

Reliance on loans from other sources including family and friends, moneylenders and financial institutions is unaffected by the program. On average, each respondent in our study sample had received 0.16 loans from sources other than savings groups at the time of the endline survey, with no significant differences between the treatment and control groups.

Loans Outstanding and Net Savings Balances

In order to estimate the net amount saved by respondents in both the treatment and control groups, we subtract the total amount of respondents' loans from their total savings bal-

[8] The list includes a home or other secret place, family or friend, village or religious leader, cooperative or credit union or SACCO, farmers association, bank or MFI, shopkeeper or employer. Respondents were prompted to specify savings in other possible environments.

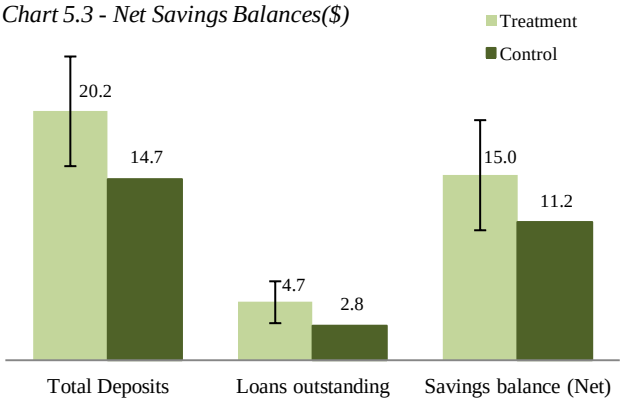
ances. This calculation is based on the respondents' full portfolio of outstanding loans and savings.
e estimated the value of current outstanding loans using the reported information on expected time to pay the loan back, and amounts of repayment for each loan taken out by respondents. To construct this variable, we had to assume that individuals paid back an equal share of the loan and the interest each month.

Estimated total outstanding loans average $4.72 for respondents in the treatment group and $2.81 in control areas, a significant difference attributable to the increase in access to credit introduced by VSLAs. The impact on outstanding loans varies by country, with debt growing in Uganda by $5.5 from $9.3 in the control group. Ghana and Malawi show lower levels of debt overall, with outstanding loans growing from $1.2 and $1.6 to $1.8 and $2.0, respectively.

Finally, we calculate respondents' net savings balances by subtracting these outstanding loans from the total amount respondents have saved at the time of the endline survey. We find that respondents in both the control and the treatment group are *net savers*. Net savers are those respondents whose savings balances are higher than their outstanding loans. Encouragingly, we find suggestive evidence that net savings are larger for respondents in program communities. The average net savings balance for treatment group respondents is $15.0 compared to $11.2 in the control group; this difference is statistically different from zero only at the 10% level.

The impact on respondents' net savings balance is positive and significant in Malawi, where it led to an increase of $5.6 (from a control mean of $9.3), and Ghana, with an increase of $3.4 from a control mean of $8.3. In Uganda, we do not detect a positive impact on net savings, possibly due to the increase in outstanding debt for respondents in VSLA villages.

Chart 5.3 - Net Savings Balances($)



Loans and Transfers Given

Finally, we asked respondents about loans given to others in the past 12 months and about transfers (both in cash and in kind, such as food) that they sent to other households in the last 30 days.

We find that the VSLA intervention increases the probability that a woman gives a loan to another household. The share of respondents that lent money out to others increases by 1.9 percentage points. Likewise, we find a similar 1.6 percentage point increase in the share of women that sent money or an in-kind transfer to another household. This may mean that VSLA members become increasingly active as providers of informal finance to other members of their communities as they expand their own set of financial tools.

2. Income Generating Activities

Almost all households in our sample rely on agriculture for a large part of their livelihood. At the time of our endline survey, 94% of households owned at least one plot while 16% rented at least one and 8% cultivated at least one plot for no charge. Only half of the households in the control areas use chemical inputs such as fertilizer and pesticides, which leads us to believe that there is still a large margin for improving yields and overall returns from farming.

It is less common for respondents to own a business, or work part-time for an employer in order to generate additional income. About 18% of women in control areas owned a business and 20% engaged in paid labor in the 12 months preceding the endline survey.

In program areas, improved access to credit can lead to more investments in business and agricultural activities. As was mentioned before, these income generating activities (IGAs) are reported as one of the main uses of loans from VSLAs. Expanded access to credit materializes from the first months of activity of a group, very first months of membership, with such loans increasing in size over time. It is also likely that the share-outs at the end of the group cycle will contribute to increased investment. In the long run, greater investment in IGAs could lead to higher profits and an improvement in household welfare.

Findings on Income Generating Activities

We find that the VSLA intervention increases the likelihood that women run a business. Income from businesses also increases significantly.

We find suggestive evidence that women are taking more loans for agricultural purposes. Expenditures on agricultural inputs or agricultural production are not affected by the intervention.

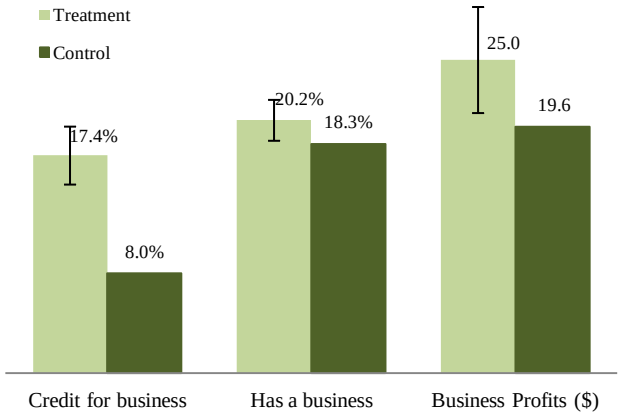
Business

When investigating loan uses of primary respondents, we find that respondents in the treatment group are significantly more likely to have taken a loan for their business over the last 12 months. In the treatment group, 17.4% of the women borrowed for business purposes, compared to 8% in the control group. This impact is largest in Malawi, where women in treatment areas are 13.6 percentage points more likely to take out a loan for their enterprise.

Higher investment levels may lead to an increase in the size of existing businesses, as well as to an increase in the number of businesses. To investigate these anticipated effects, we collected information on non-agricultural businesses owned by all working-age female household members. We collect information on profits, sales and expenditures over the past month and ask a series of questions about the seasonality of the business, allowing us to calculate annual profits.

We detect a small but significant increase in the likelihood that a woman runs a business. The pooled sample shows a 1.9 percentage point increase in the fraction of women that run their own business, corresponding to a shift from 18% in the control group to 20% in treatment areas. When looking at the individual countries, we find a positive increase of similar magnitude in all three sites. Only in Uganda, however, can we conclude that the 2.7 percentage point differential is statistically different from zero.

Chart 5.4 - Business



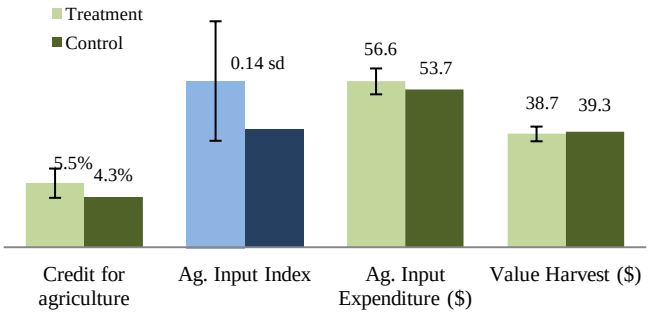
Increased investment is also reflected in a significant increase in business income over the last 12 months. Business profits increase by $5.37, from $19.64 in the control group to $25 in treatment communities. The figures for yearly income from businesses seem small. Note, however, that these figures are averages over all women, many of whom do not have businesses and so have zero profits. As for the number of businesses, the impact on

business income is only statistically significant in Uganda, where the impact is also the largest.

Agricultural Inputs

We find suggestive evidence that the intervention has led to a slight increase (1.2 percentage points) in the share of respondents taking a loan for agricultural inputs.[9] The fact that this increase is surprisingly small might be explained by the seasonality of spending for agricultural inputs. VSLA members are likely to need cash for agricultural inputs at the same time of the year; as a result, VSLA groups may not have sufficient capital to meet demands from all members.

Chart5.5 - Agriculture



We asked households in our sample about their use of agricultural inputs (such as hired labor, fertilizer and pesticides) and the expenditures on such inputs over the past 12 months.[10] We collapse the usage variables into a standardized index that allows us to more comprehensively capture change across a set of indicators. We do not find evidence of an increase in the use of agricultural inputs. On average, expenditures on agricultural inputs over the past 12 months increased slightly, but the difference is not statistically significant. The only country where we observe an increase in the agricultural input index is Malawi.[11] The index is 7.5% of a standard deviation higher in the treatment than in the control group.

Thus, we don't find clear evidence of an increase in agricultural investment and use of agricultural inputs. This finding is in line with the finding reported above that women in treatment areas are only marginally more likely to have taken out a loan for agricultural purposes. Impacts on agricultural investment would thus have to come from savings share-outs at the end of the group cycle. But since just over half of VSLA members had gone through a share-out at the time of our survey, more time may be needed for these effects to become detectable.

Given the lack of changes observed in agricultural investment levels, it is unsurprising that we do not find impacts on agricultural production over the 12 months before the endline survey.[12]

[9] This impact is only significant at the 10% level and should therefore be considered suggestive.

[10] We collected information on use and amount spent on chemical fertilizer as well as herbicides for all three sites. In Malawi and Ghana, we also collected information on insecticides and hired labor.

[11] See Appendix III for index definition.

[12] We asked respondents in detail about the harvested quantities of each of the crops they cultivated over the last year and then calculated the monetary value based on market surveys collected at the time of the endline survey.

3. Women's Empowerment

The empowerment of women is a key area of focus for VSLA programming. The intervention may improve the self-confidence of participants by both increasing the frequency of their interactions with peers in the community, and improving their abilities to manage their finances independently from their husbands.

Through regular interaction with other group members and access to the financial options offered by the group, VSLA members may improve their influence over decisions within their household. Women may also become more engaged in their communities by participating more in public life, groups, and community initiatives. These changes might also lead to improvements in women's perception of their influence in their communities.

Findings on Women's Empowerment

We find that women in treatment areas increase their influence on decisions over business actions in the household. We also find suggestive evidence of improved decision-making power on food and education decisions.

In program areas, women's participation in community meetings increases slightly, but we do not find a general increase in participation and social capital of respondents in treatment areas. Women's own perceptions of their role in the community and empowerment are not affected by the program.

Influence over Decisions in the Household

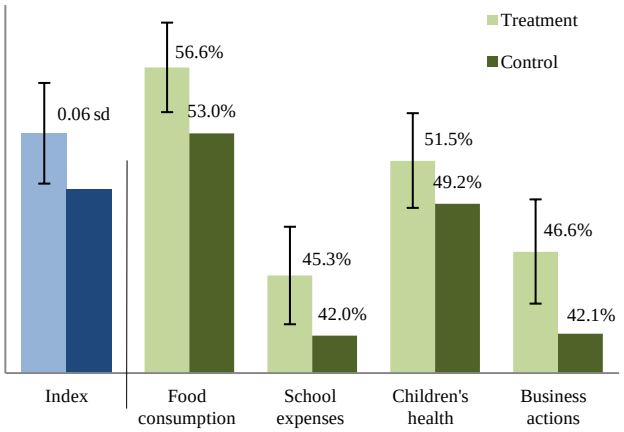
In order to measure intra-household decision making, we privately and confidentially ask the female primary respondents about their influence over decisions taken in their homes. We inquire about decisions concerning food choices for the household, children's school expenses, their personal health, their children's health, visits to their friends, and business actions. For each category, we ask women to indicate to what degree they believe that they can influence the decision. We then recode their answers into a binary variable representing whether the respondent feels she has little or no control about decisions, or whether she has a high degree of influence. We then combine these binary variables into a standardized index in order to capture the overall impact of the program on women's influence over intra-household decisions.[13]

We find that women in treatment communities have a significantly higher degree of influence on household decisions. The index on decision-making increases by 6% of a standard deviation.

Disaggregating impacts by specific decision areas shows a large 4.5 percentage point improvement in the share of women who have a high degree of control over business decisions. The share of women who report having a say on food consumption and school expenditures is 3 percentage points higher in treatment areas than in control areas. For decisions about children's health, we only find suggestive evidence of a 2 percentage point increase in the fraction of women with a high degree of influence. We find no effect on the ability to decide independently to visit a friend.

When looking at these findings at the country level we find that all three sites display point estimates of positive similar magnitudes. However, Malawi is the only site where we find statistically significant impacts in all of the indicators discussed above. Ghana shows no significant increases in the proportion of women with high influence over household decisions. Likewise, in Uganda, business decisions form the only realm in which we see women increasing their decision-making influence, although we see suggestive evidence of an increase over decisions about children's health expenditures as well.

Chart 5.6 - Share with high degree of influence over household decisions



[13] See Appendix III for definitions.

Community Participation and Social Capital

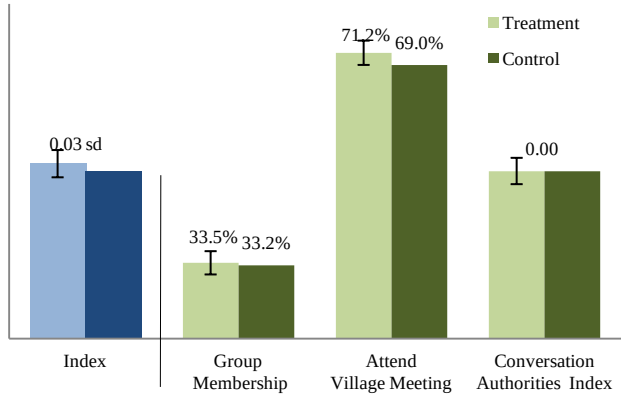
We asked respondents a set of questions regarding their engagement in groups other than savings groups, and their participation in community activities and events, in order to measure whether the program had any impacts on the community engagement and social capital of women in treatment areas.

In order to assess the impact of the program in this area, we created a standardized index reflecting changes in indicators such as women's participation and level of engagement in other groups and village meetings, as well as the frequency in which they raise issues with authorities and peers.[14] The index shows that, at the time of the endline survey, the program had not had a significant impact on community participation. The treatment impact estimate is positive but not different from zero.

Looking at women's participation in non-VSLA community groups, we see no significant increase in the number of women that participate in other groups. The share of women that attended at least a village meeting over the last 12 months increased significantly by 2 percentage points, going from 69.0% of respondents in control areas to 71.2% in treatment communities.

We finally ask primary respondents to indicate how often they speak with various community leaders such as the village chief or council members, the president of the women's committee, or government officials. We find no significant impacts on the frequency of conversation with authority figures.

Chart 5.7 - Community Participation



Perception on Community Empowerment

The last area where we could see impacts from the program is the perception of the women's own roles and influence in the community. In order to measure potential changes in this area, we ask women to express their level of agreement on a 4-point scale with a set of statements about their abilities to create change in, or receive support from, their communities. We combined these responses to form a standardized index, where a positive value would imply an increase in perceived empowerment for women in the treatment group.[15] We find that the program had no effect on the women's own perceptions of their empowerment level in the community.

[14] See Appendix III for index definition.

[15] See Appendix III for index definition.

4. Shocks and Food Security

Food security and unforeseen shocks are important concerns for households in the study areas. The majority of households experienced at least one large shock that affected their living standards in the 12 months leading up to the endline survey. Over half of the respondents declared not having had enough food at least once over the same period.

While we probably would not see an impact of savings groups on the occurrence of exogenous shocks such as a bad harvest, theft or injuries, VSLAs could enable their members to absorb the impact of these shocks using financial tools without having to sell down productive assets. This could be a direct impact of improved availability of credit as well as access to the social fund managed by the group. Eventually, an increase in income and asset accumulation through profitable investments in business and agriculture would improve the household's capacity to absorb shocks effectively.

While the study timeline was likely too short to detect possible effects of the program on agricultural production and availability of food for the household, VSLAs may provide households in treatment areas with access to loans and emergency funds, which could in turn be used to purchase food. At the time of the endline survey, these changes in credit access might have led to improvements in households' food security levels in treatment communities.

Shock Reactions

We asked households how they reacted to the shocks they experienced in the last year. For each shock incurred, we asked respondents to list the main tools used to react to such shocks from a list of possible coping strategies.

We created an index to capture overall change in the way households react to shocks and whether they successfully absorbed the shock without having to reduce their stock of potential income-generating assets.[16] This index presents the share of households that reacted to at least one shock by selling tools, crops, stocks or taking the children out of school. At the time of the endline survey, the VSLA program had not led to a significant reduction in the percentage of treatment households that responded to shocks by selling productive assets or reducing educational expenditures on children.

Findings on Shocks and Food Security

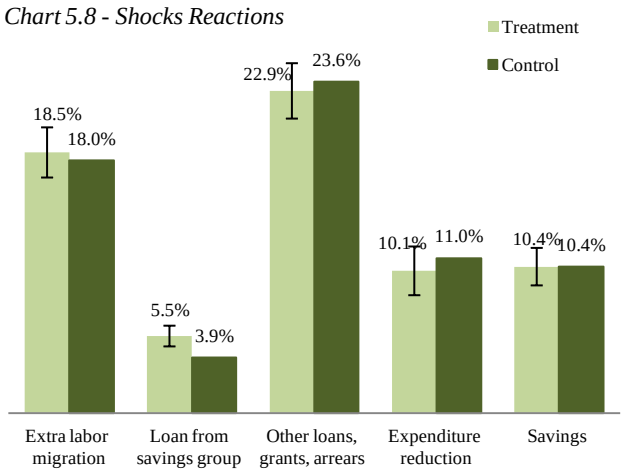
Households in program areas do not engage less in costly shock-coping strategies when hit by a shock. They do use loans from savings groups more often to cope with shocks and purchase food, but the magnitude of this increase is small (although statistically significant).

We find an increase in the share of households experiencing business failures. This finding is likely related to the 'business generation' effect of the program. More women start businesses but not all of them are successful.

Food security and overall frequency of economic shocks were not significantly affected by the program.

When looking in more detail at the strategies adopted by households to react to shocks, we find a significant 1.5 percentage point increase in the share of households using loans from savings groups to respond to shocks, from 3.9% in the control communities to 5.4% in treatment. However, it is still much more common for households in both treatment and control groups to sell assets and stocks in order to cope with shocks (26.4% and 27.9% respectively, with no statistically significant difference between treatment and control). Just under a fourth of households in both treatment and control areas had resorted to loans from sources other than savings groups, arrears, or support from family or friends.

Chart 5.8 - Shocks Reactions



[16] See Appendix III for index definition.

Looking at the three different sites separately, we find that Ugandan households are most likely to switch to loans instead of expenditure reductions in order to cope with shocks. While the shock absorption index does not show a significant change overall, we do see a significant shift from expenditure reduction and sale of assets towards an increased reliance on credit from savings group (an increase from 12.6% in the control areas to 16.4% in treatment groups). Indeed, was find a significant decrease from 20.1% to 15.1% in the share of households that reduce their expenses to absorb a shock in control and treatment areas, and suggestive evidence of a decrease in asset and stock sales.[17] When we examine the responses for Malawi, we find that 1.2% of households in treatment areas took out a loan from a savings group to react to a shock compared to 0.5% in the control group. We do not however find significant impacts on other types of shock reactions. When examining Ghana independently, we find no impacts from the program on shock reactions.

Shock Impact

In our survey we collected information about the intensity of economic shocks in order to assess whether households participating in the VSLA program are better able to weather such shocks. We asked households that reported having experienced a shock if the shock had a "big impact" on the economic condition of their household, as well as the time it took the household to recover from this particular shock.

We do not see significant differences in the impact of shocks between households in treatment and control areas. Almost two-thirds of households (64%) said that at least one shock they experienced in the last 12 months had a "big impact" on their economic condition. In addition, 9% of households experienced a shock from which it took more than 3 months for household consumption levels to return to normal.

As hypothesized, we do not see any difference in the occurrence of shocks such as droughts or death, as these events are beyond the control of households. However, we do find that respondents in the treatment group were more likely to experience business failures than respondents in the control group. This is a logical corollary of our finding that respondents in treatment areas were more likely to own or start a business, as some of these businesses might fail. In fact, this finding suggests that our results on the rate of business creation might actually understate the impact of the VSLA program on business creation, as some businesses which were started in the 12 months preceding the endline survey may have failed by the time the survey was implemented.

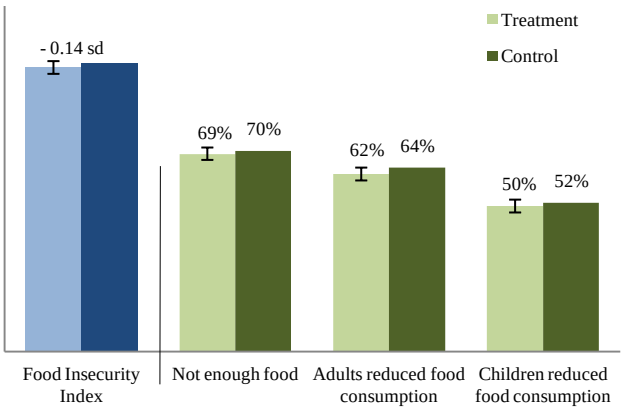
When looking at this finding, we should note that the significant impact in the pooled sample is driven by the data from Uganda, with an increase in business failure from 20.5% in the control group to 25.0% in treatment households. Recall that Uganda is also the country with the largest impact on businesses owned by female household members.

Food Security

VSLA members list food purchases as an important use of loans from VSLAs. We find, in fact, that 12.1% of primary female respondents in treatment communities took a loan for food expenditure over the last 12 months. This is a significant increase of 3.6 percentage points compared to control communities. However, given that these figures still represent small minorities of households that access credit for the purposes of food purchases, we expect to be able to measure only a small impact on food security levels.

In order to measure impacts on food security, we asked households how often they lacked enough food to feed the household, and how often they skipped or reduced meals in the past year. We created a food insecurity index combining these variables to detect any change in this area that we can attribute to the program. We cannot conclude that the program had a significant impact on food security at the time of the endline survey. The point estimate of the food insecurity index is negative, suggesting an improvement, but not statistically distinguishable from zero.

Chart 5.10 - Food Security (last 12 months)



[17] Expense reduction comprises of reduction in food and nonfood expenditures as well as taking children out of school. Assets / Shock short-selling includes livestock, grain stock, tools, property, business capital and advance sale of harvest

When comparing food security among household members of different ages, we find that the share of households that report adult members who reduce their food intake at some point during the last year dropped slightly from 63.8% to 61.5%. We find no change in the share of households that had children reduce meals.

5. Expenditures and Consumption

In the sections above, we find that overall savings balances for female primary respondents in treatment areas increased significantly, even after accounting for an increase in borrowing levels. We posit that an increase in savings may come from a combination of an increase in income generation and a reduction in expenditures and food consumption.

We test for changes in consumption and expenditure levels at the time of our endline survey. If, in the long run, households experience income growth and an improvement in their ability to absorb economic shocks, then we might expect to see a rise in consumption and expenditures. As anticipated above, a markedly different mechanism might operate in the short-run: to fulfill the commitment to regular deposits in the groups, families might reduce consumption and expenditure levels slightly.

Findings on Consumption and Expenditures

We do not detect significant differences between the treatment and the control groups in food consumption or in non-food expenditures.

Expenditures

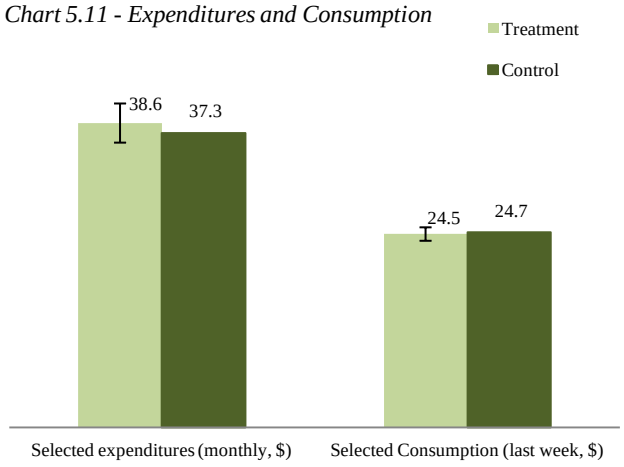
We asked households about selected recurrent expenditures (transport, wood and charcoal, phone credit, etc.) as well as about a few larger, less frequent expenditures, such as house repairs, marriages and funerals. We find that the program leads to neither a significant decrease in aggregate expenditures nor in any subcategories of expenditures. This suggests that the increased savings balances, noted above, are not being driven by reductions in expenditures.

*Food Consump*tion

In order to detect a possible change in food consumption levels, we asked households about their consumption of a selected list of food items – covering foodstuffs that are typically consumed by sample members – over the previous week.[18]

We collected information for food items that were purchased, as well as food that was grown and consumed at home. The latter is converted to a dollar value based on data from the market surveys. This information was then used to calculate a dollar equivalent for each household's food consumption. Ultimately, we find that the VSLA program did not have any impact on the food consumption levels of the households in treatment areas.

Chart 5.11 - Expenditures and Consumption



[18] A 7-day recall period is typically used to get reliable estimates from households on food consumption.

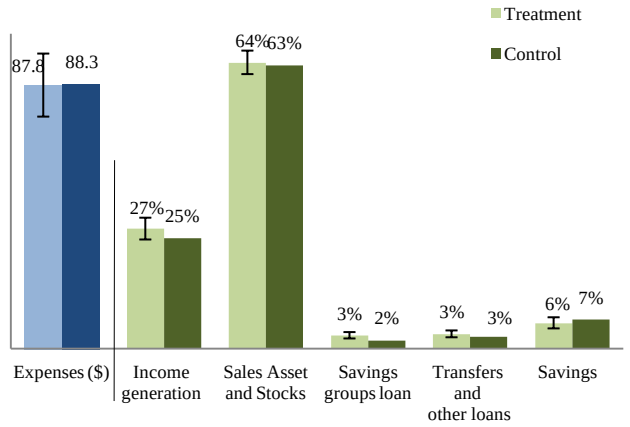
6. Education

Educational attainment is fairly low throughout the sample, with just over half the household members over the age of 6 in Malawi and Uganda able to read and write; the percentage of literate members in Ghana is even lower, at 24%. Enrollment rates average over 80% for children of primary school age, and 76% and 79% for girls and boys of secondary school age respectively.

We test whether the VSLA program leads families to increase investment in their children's education. This could happen through one of four channels: (1) the increased ability to accumulate savings then makes lump-sum investments more feasible, (2) borrowing from the group, (3) eventually, profits from any increases in enterprise or agricultural output, if the VSLA leads to profitable firm or farm investments, and (4) increased intra-household decision-making power of the adults in the household. Through focus group discussions in Malawi, we anecdotally learned of one member who reported using the savings to cover school expenditures for her children.[19]

Findings on Education
We find evidence that households use loans and share-out from the VSLAs to partially fund education expenses. However, we do not find a statistically significant difference in the amounts spent by households in treatment areas compared to those in the control. There is suggestive evidence of an increase in primary school enrollment for boys as well as for girls.

Chart 5.12 - Financing of education



Financing of Education Expenses
We do not find a statistically significant impact on educational expenditures. Households do not seem to have increased investment in education compared to the control group.

When examining education financing, we only consider the pooled sample of households in Ghana and Uganda. In Malawi, the survey only asked about education financing for school fees. Given that only very small group of households pay school fees, we decided that this information was not comparable to Ghana and Uganda, where we asked about education financing for both school fees and other educational expenses. For every child attending school, we asked the household respondent to list how the child's educational expenditures – including school fees and other costs, such as uniforms and transport – were met. We find that a larger proportion of households in a VSLA used loans from savings groups to pay for educational expenses.

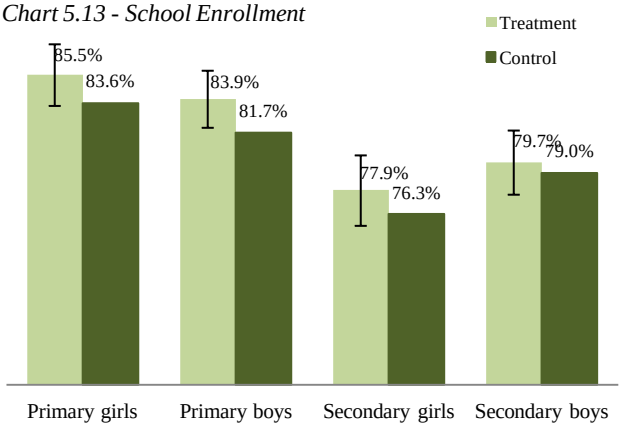
When examining each country individually, we find that the pooled result is mostly driven by Ugandan households. We detect a significant increase (4 percentage points) in the fraction of households that use income sources to pay for school expenses. This increase likely reflects the impact of share-out income, as well as higher returns from businesses. As seen in Table B, 27% of the VSLA members in Uganda that had already gone through a share-out, reported having spent these funds on education expenses.

School Enrollment
Despite the fact that we were not able to find a significant impact on expenditure levels for children, there is evidence of an increase in school enrollment levels. We see a significant increase of 2.3 percentage points on primary school gross enrollment for boys and a suggestive increase of 1.9 percentage points on primary school gross enrollment for girls. These results are largely driven by the Ghana data. While there is a suggestive increase in primary school enrollment for boys in Malawi (2.6 percentage points) and increases across all three sites, we only find statistically significant increases in Ghana. However, this result is not robust to an alternate econometric specification, and thus we consider this result as suggestive and in particular need of

[19] However, it should be noted that a non-randomized study in Tanzania finds evidence of an increase in child labor for households participating in VSLA leads to a negative impact on school attendance (Allen, 2009).

further focus in future studies.[20] Ghana is also the only country where educational expenses are seen to increase, although not with statistical significance. With these caveats in mind, there is some evidence – albeit only suggestive – of an overall increase in educational investment in Ghana.

Chart 5.13 - School Enrollment



[20] Throughout our analysis, we include a lagged variable in our regressions, to control for baseline values of outcome variables. An alternative specification, a difference-in-difference model, directly compares the differences at endline to the differences at baseline. This specification is not used through much of the analysis as it reduces statistical precision. In general, we find little difference in our results using the two specifications. The baseline imbalance in the treatment and control groups with respect to educational outcomes in Ghana leads to the lack of robustness in our results here.

7. Health

Health is a primary concern for households in our sample. In Malawi and Uganda, almost all households had at least one ill member in the 30 days before the endline survey. In Ghana, this percentage was closer to two-thirds.

We test whether VSLAs lead to an increase in the household's health investments. The VSLA program allows families to access funds in case of unexpected health emergencies through loans and grants from the group's social fund. Indeed, half the members that accessed the social fund reported having used it to pay for health expenses. Regular group loans are also commonly used for health expenditures. This might lead to an increase in medical spending as well as a reduction in the cost of these emergencies for the household. Households might move away from other, more expensive, emergency loans and from the advance sale of crops and productive assets.

In the long run, an increase in income from profitable investments in business and agriculture could lead to a greater demand and usage of health services and improvements in health outcomes through investments in preventive care and an improved diet.

Findings on Health

We find evidence of an increased use of financial services offered by the VSLAs, particularly loans and the emergency fund, to fund health expenses. We witness a small shift in the way households finance health expenditures. Members use VSLAs to substitute away from drawing down savings; there is also suggestive evidence that members are less likely to sell assets to fund health expenses. Overall expenditures and use of health services are not affected by the program.

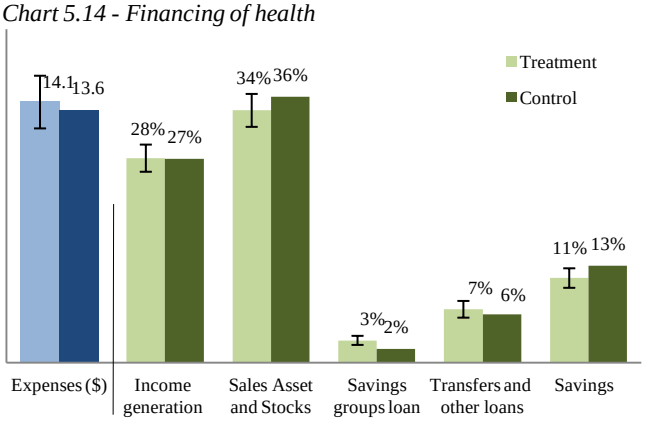
Financing of Health Expenses

We collected information about all illnesses in the household occurring in the 30 days preceding the endline survey. We find no significant impacts from the program on usage of, and expenditure on health services.

Despite the lack of impacts on expenditure levels, we find that a larger proportion of households used loans from savings groups to fund health expenditures in the treatment group (3.0%) than the control group (1.9%). This is a small, but statistically significant increase that offsets a reduction in the drawing down of savings to fund health expenditures by 1.7 percentage points. In addition, there is suggestive evidence that loans from savings groups reduce the need for households to sell off assets, livestock and crops in order to pay for health expenses. Our endline survey did not distinguish between the use of standard VSLA loans and assistance from the social fund (in Ghana and Uganda, these are almost always interest-free loans repaid to the group, while in Malawi these tend to be mostly grant contributions).

When examining each country individually, we find that the pooled result is mostly driven by Ugandan households. The Uganda data shows a 3.8 percentage point drop in the share of households that draw down their savings in order to pay for health expenses, and a suggestive – though not strongly significant – decrease in households that need to sell assets, livestock or crops. These changes are accompanied by a significant shift in the percentage of households that use loans from savings groups to pay for health expenditures, increasing from 6.5% in the control group to 9.3% in the treatment. However, we do not find a significant substitution away from other sources of health financing when looking at Ghana or Malawi individually.

Chart 5.14 - Financing of health



Health Outcomes

On average, 80% of households in the control group report having had at least 1 member fall ill in the previous month. We find no significant improvement on this metric for households in the treatment group; this is unsurprising, given that we did not observe any shifts in medical expenditures on aggregate.

8. Asset Accumulation

The households in our sample are quite poor, with the majority living under the $1.25/day poverty line. Ownership of livestock is common in our sample; households rely on these animals to provide a significant share of their livelihood. Housing conditions in all three countries show room for improvement.

We test for impacts of the VSLA program on asset accumulation, livestock and home improvements. This could happen through one of three mechanisms: (1) the increased ability to accumulate savings then makes lump-sum investments more feasible, particularly through end-of-cycle savings share-outs, (2) the social fund and loans from the group substitute sales of assets and livestock as a means to react to shocks and afford other necessary expenses, and (3) the growth of enterprise or farm outputs if the VSLA leads to increased and profitable investments.

The strength of these mechanisms and their impact are likely to increase over time as groups grow, allowing households to access larger loans and accumulate larger sums.

Findings on Asset Accumulation

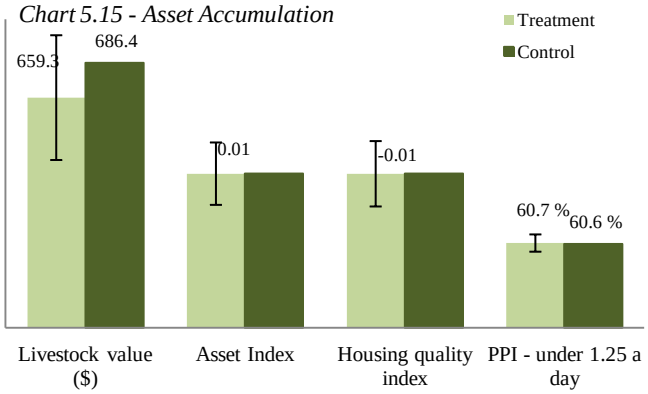
We find no impacts of the program on asset accumulation. Livestock ownership does not change significantly as a result of the program. Over the timeframe of the study, VSLAs did not lead to an improvement in housing quality or estimated poverty levels.

Livestock

We asked households about a comprehensive list of livestock in each country, investigating the number of each animal owned as well as the number sold and purchased during the last 12 months. We then used data from our market surveys on the value of each type of livestock in that village, to determine the value of the livestock owned by the households.

As expected, we do not find significant changes in the number and value of livestock owned by the household. When looking at the individual country tables, we find a significant increase in the number of fowls owned by the households in program areas in Malawi. Treatment group households on average own 6.2 fowls, compared to 5.6 in control communities.

Chart 5.15 - Asset Accumulation



Assets

We prompted respondents to tell us how much of each of a long list of assets – including household equipment, vehicles and agricultural equipment – their household owned. We find no significant effects on asset accumulation.

Housing

We also investigated the characteristics of respondents' homes. We combine the quality indicators of floor, roof, walls and lighting, with energy availability, toilet quality and drinking water access to form a standardized housing quality index. This indicator did not improve significantly during the timeframe of this study.

PPI Index

Finally, in all three countries, we collected a set of 10 indicators to create the Progress out of Poverty Index (PPI), developed by the Grameen Foundation. This is a rapid assessment tool designed to estimate the poverty level of potential microfinance clients. The set of indicators predicts the probability that a given household is living under a particular poverty line, based on the most recent national household survey.

According to the PPI index, 60.5% of our sample lives under the $1.25 poverty line at the time of the endline survey. These estimates vary slightly for the three sites included in our study sample. In Ghana and Malawi, two-third of the households lived under $1.25 a day; in Uganda, 45.2% of study households lived under $1.25 a day.

We do not find statistically significant differences between treatment and control areas in the probability that respondents live under the $1.25 poverty line.

5C – Estimating the Impact on Participants

As we discuss in Section 3, VSLA members are significantly different from non-members in a variety of ways (see Table D for more detail). Members are also likely to be different on a number of non-observable characteristics, such as entrepreneurial drive. Hence, assessing the direct impact of the VSLA program by comparing VSLA members to non-members, or members in treatment villages to women in control villages, might lead to biased estimates. The threat of bias drove the decision to design a randomized evaluation.

A randomized evaluation relies critically on some element of random assignment to either receive a treatment, or to be offered a treatment. Since participation in a VSLA is clearly voluntary, and occurs after a fairly involved community outreach process, it is not viable to randomly allow some individuals into a VSLA and others not. Furthermore, the treatment is itself a community-level treatment in that the outreach is to the community as a whole, and provides services to all in the community. For this reason the focus of the analysis has been on those offered participation, i.e., the "ITT" estimates discussed above.

However, since a considerable fraction of people in treatment areas do not become members of a VSLA, the impacts on participating households might arguably be quite different from the impacts on the average household in the village. This is also an important estimate, although one that requires stronger assumptions about how the program works and who it impacts in order to be able to estimate in this situation.

In this section, we present two approaches to 'zoom in' on VSLA participants. These two approaches are complementary to the ITT analysis presented above and rely on the randomized design of the study to identify causal effects. We discuss in turn the potential and the limitations of each of these two methods. The estimates are presented in Table 3.

Treatment Effects on the Treated

The treatment-on-the-treated (TOT) effect is the impact on those who effectively received treatment – i.e. the difference between a VSLA participant's outcomes and what those outcomes would have been in the absence of the program. Since not everyone in VSLA communities participated in the VSLA, the ITT impacts are different from the TOT impacts.

In the analysis of randomized experiments, the most common method to estimate TOT parameters is an instrumental variable (IV) approach where the random assignment to receive a treatment offer is used as an instrument for actually being treated. In our setting, we use the treatment status of the village as an instrument for the primary adult's VSLA participation. The IV approach to estimate TOT parameters and the ITT analysis are in fact closely linked.

The TOT estimates can be obtained, approximately, by multiplying the ITT estimates by the inverse of the difference in take-up rates between treatment and control villages. In other words, the TOT scales up the estimates by the proportion of dilution that occurs by including more non-participants in the treatment group than in the control group. For instance, in our sample, take-up in the treatment group is 31.2% while take-up in the control group is 6.2%; the take-up differential is 25 percentage points. As can be seen from Table 3, the TOT estimates are indeed about 4 times (1/0.25) the size of the ITT estimates.[21]

Strong caution is required, however, when interpreting the TOT estimates presented in Table 3. For the *individual*-level outcomes, the TOT estimates will only provide unbiased estimates of the VSLAs' impact on participants if all benefits from participation accrue only to VSLA participants, with no spillovers from the participants to non-participants in the treatment villages. If benefits do spill over, the TOT estimates will overestimate the impact of the VSLA program on participants. For the *household*-level outcomes, even stronger caution is needed. The instrumented variable in our TOT analysis is whether or not the primary respondent participates in a VSLA. In households where the primary respondent is not a member of a VSLA, another person in the household might be participating. Take-up at the household level – defined as the proportion of households with at least one member participating in a VSLA – is thus likely to be higher than take-up among primary respondents.[22] Since our TOT analysis is based on

[21] It is important to notice however that the standard errors of the TOT estimates are also roughly about 4 times those of the ITT estimates. In general, while the point estimates of the TOT effects are larger than the ITT effects, the standard errors increase in roughly the same proportion and there is no gain in statistical precision.

[22] For household members other than the primary respondent, we have less detailed information on the characteristics of the savings groups the person

VSLA participation of the primary respondents – which is almost surely lower than take-up at the household level – the estimates of the TOT effects on the household-level outcomes are in all likelihood *over-estimates* of the true TOT effects and should be viewed as upper bounds.

Thus, for the reasons just noted, we do not recommend using the treatment-on-the-treated estimates for decision making or inference on the impact of the VSLA program. However, for the sake of completeness, we report TOT estimates in Table 3. As expected, we find significant TOT effects in the same areas as in the ITT analysis and there are no cases where a null result in the ITT analysis becomes significant in the TOT analysis. The results become somewhat less precise in the TOT analysis.

Treatment Effects on Those Who are Likely to Join a VSLA

An alternative approach to zoom in on VSLA participants is to focus the analysis on people who are likely to join a VSLA had the program been offered to them. This approach consists of two steps. In the first step, based on analysis of current VSLA members in treatment communities, we identify people in both treatment and control communities who have an above-average likelihood of joining a VSLA (if it were offered in their community) based on their individual or household characteristics. In the second step, we compare these "high likelihood" households in the treatment areas with similar households in the control areas. This approach is effectively an ITT analysis on a subsample that has been purposefully selected to yield higher take-up. Since the same objective criteria are applied to both the treatment and control groups to select high-likelihood households, no selection bias is introduced.

The higher take-up in the high likelihood subsample means that the effects of the VSLA program are less diluted than in the overall sample. This acts to increase statistical power and makes it easier to identify the direct effects of the VSLA program upon participants. On the other hand, only a small part of the overall sample falls into the high likelihood category so we have fewer observations in our dataset, which decreases statistical power. If the take-up rate in the selected subsample is not much higher than in the overall sample, the gain in statistical precision thanks to the higher take-up may well be offset by the loss due to the smaller sample size.

In order to select people with a high likelihood to participate in a VSLA, we use the model that was discussed in Section 3 (results in Table E) to estimate the likelihood that primary respondents in both the treatment and control groups would join a VSLA.[23] We then use these predicted likelihoods to identify primary respondents with above-average likelihood to join. In the second step, we run an ITT impact analysis on the selected subsample. The results are presented in Table 3.

We find that the treatment group respondents in the high likelihood subset are 34 percentage points more likely to participate in a VSLA compared to the control group – an increase from a 25 percentage point differential in the analysis of the overall sample. This is reassuring, as the purpose of our strategy was precisely to identify a subsample with higher VSLA participation. However, the fact that the take-up differential goes up by only 9 percentage points indicates that our take-up model does not have great predictive power and suggests that VSLA participation is explained mostly by unobservable characteristics, such as motivation or entrepreneurial spirit.

Given the modest increase in take-up rates, we would not expect the high-likelihood strategy to yield much more precise estimates of the direct impact of the VSLA program than the ITT and TOT analysis. Indeed, in the high-likelihood results in Table 3, we find significant changes in broadly the same areas as the ITT and TOT analysis did. The estimated impacts are most often larger than in the ITT analysis – which is as expected given the higher take-up rate in this subsample. Some impact estimates lose statistical significance, and others become significant, but in general, the picture that emerges from the high-likelihood approach is not qualitatively different form the ITT approach. Since the ITT estimates don't rely on any assumptions about take-up models and are most true to the original research design, they remain our preferred set of estimates.

is participating in, precluding us from calculating household-level take-up based on the VSLA definition we use for the primary respondents.

[23] Recall that in this model we regress VSLA participation on baseline village, household and individual characteristics using the treatment sample.

SECTION 6. CONCLUSIONS

This final section synthesizes our findings and presents the major lessons from the evaluation. Timeline is a key aspect for interpreting the findings from this study. At the time of the endline survey, after an average of two years of program implementation in the three sites, one third of respondents had joined a group. On average members had been part of a group for 15 months and 61% of members had gone through a full savings cycle, normally lasting between 8 and 12 months. The evaluation should thus be thought of as assessing the relatively short-term impacts of the intervention.

We first tested whether VSLAs change the financial behavior of participants. We find that they do. Savings group participation increases substantially in treatment villages. Moreover, VSLAs do not seem to be dominated solely by the better-off community members, although wealth, education, age and business ownership are correlated with participation.

We find that replication is occurring, with little evidence that groups formed in peripheral areas lose quality. In the control areas, we see about 6% of respondents participating in savings groups. This diminishes our ability to detect impact somewhat but, on the flipside, points to the popularity of the program and the eagerness of community members to join VSLAs.

VSLAs substantially increase the portfolio of financial services available to participants. More people have access to savings and loans, and average deposit and loan volumes increase as a result of the program. Saving balances increase significantly, even after subtracting outstanding debits.

The increased access to financial tools and perhaps the social aspect of the VSLAs help women invest in their businesses. We find that women with access to VSLAs are much more likely to take out a loan for commerce. They are significantly more likely to own a business. Income from businesses goes up too. However, the increase in business activity is accompanied by an increased likelihood to experience business failure.

The presence of savings groups leads to improvements in women's intra-household decision-making power, but we observe little change in their involvement in the community.

We see no significant impacts on households' ability to mitigate economic shocks, but we do witness some mild improvements in food security, with households less likely to reduce adults' food consumption.

We find that households access more credit for a variety of investment purposes, including for agriculture, health and education. There is non-robust evidence that the intervention increased the enrollment of children of primary-school age. However, we do not detect changes in agricultural production, livestock holdings or the accumulation of household assets. In addition, use of health services and health expenditures remain unaffected and we see no significant impact on housing conditions, food consumption or non-food expenditures.

As the timeframe of the study was two to three years, we cannot exclude that more time is needed for the short-term changes we observe to lead to changes in agricultural incomes, holdings of non-financial assets, health outcomes and consumption levels. The long-term welfare impacts of the VSLA program are in need of further focus in future research.

APPENDIX I - STUDY AREAS

GHANA
North

Lawra District

Builsa District

East Mamprusi District

Garu Tempane District

Bawku Municipal District

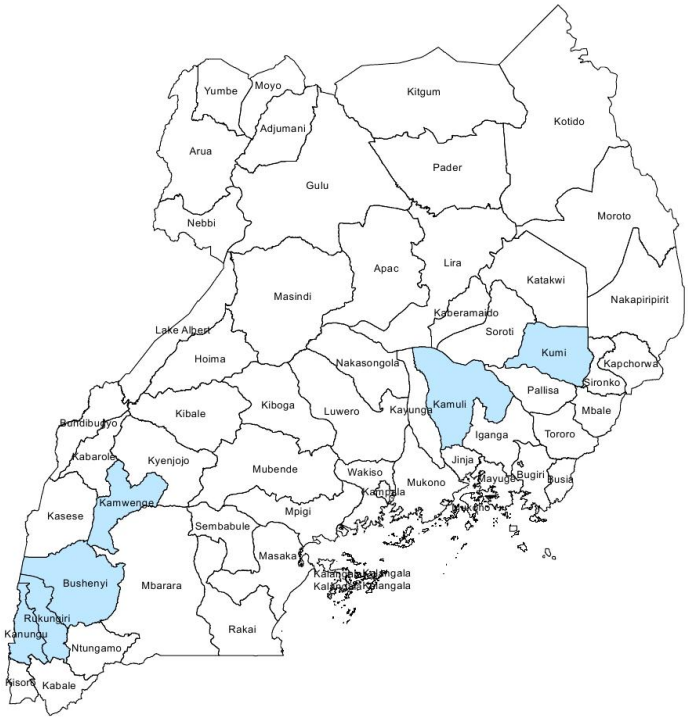
MALAWI

Mzimba District

Mchinji District

Lilongwe District

Zomba District



UGANDA

West / Southwest

Kamwenge District

Bushenyi District

Kanungu District

Rukungiri District

East

Bukedea District

Kamuli District

Kumi District

APPENDIX II - QUALITATIVE INSIGHTS FROM MALAWI AND UGANDA

To complement the data collection carried out throughout this study, we conducted two sets of focus group discussions. In Uganda the focus group contained approximately 90 people in 8 villages, while in Malawi the focus group was comprised of 200 people in 12 program areas.

1. Uganda (July 2009, Month 1)

Use of Financial Instruments at Baseline

Immediately after completing the baseline survey in Uganda, we conducted focus groups in an attempt to gather detailed information on savings and credit access for households in our study areas. In all, respondents use three main avenues for savings and credit: informal options, savings groups and formal institutions.

The majority of respondents saved in informal environments by placing their savings with relatives, friends or neighbors, in a hidden place at home or in the workplace or just permanently keeping money in pockets, belts and other clothing. Accessibility is the most important reason for these practices, yet respondents were concerned about the safety of funds saved in this way.

Friends and family members are considered an important and relatively straightforward source of credit. They frequently don't charge interest rates and are considerate of the needs of the borrowers. In contrast, traders and moneylenders are considered as a last resort, as they offer very unfair conditions.

Livestock purchases are also often considered by focus group members as an interest-bearing savings option. Not only is the money tied up in an animal until it is sold, interest comes from both the higher worth of the animal as it gets older, and from the value of the offspring or food produced by the livestock.

Informal savings groups were also mentioned as a popular savings environment, even though the villages in our sample were selected explicitly for their lack of existing VSLA programming. These groups included ROSCAs, ASCAs and other programs; meet on a monthly basis; and were formed by village members. According to respondents, these groups are similar to VSLAs and allow members to earn returns on small savings amounts, are easily accessible in case of emergency and safer than other informal options.

In some cases, however, respondents mentioned mismanagement, abuse from group officials, creditor defaults, and liquidity issues, which limited their effectiveness. In addition, savings groups' loans are often smaller and more expensive than those available at formal financial institutions.

Barriers to access to informal savings group are quite common, as these informal groups (particularly ROSCAs) often require minimum amounts and service fees to enter a group. In some cases, savings groups require that women come to the group with their spouse, who stands as a guarantor in case his spouse defaults.

Similarly, financial institutions such as savings and credit cooperatives (SACCOs), microfinance institutions (MFIs), and commercial banks have large barriers to entry in terms of access fees and minimum balances. Transportation costs to reach bank branches in larger cities are also considered an important limit to financial institutions. Many respondents are unfamiliar with banks, the language and technology they adopt is difficult for respondents to understand, and bank employees are often perceived as disrespectful. However, banks are considered useful for protecting savings form theft and are frequently used to receive remittances from relatives in Kampala. In sum, banks allow respondents to deposit and access larger amounts of money than do savings groups, but can only be accessed by a few.

A key theme emerging from the interviews is that income stability, especially with respect to agriculture seasonality, is a considerable problem for respondents. The lack of stable incomes restricts willingness to borrow and often increases default rates for those who do take loans.

Several focus group participants emphasized that longer and more flexible repayment periods would reduce the likelihood of default. If the first harvest after a loan is a poor one, for example, a longer payment period may allow them to recover losses and pay back at the time of the next harvest.

Compared to formal institutions, savings group members tend to understand each other's problems and are often willing to give out loans or adjust payments in order to help to solve them. The process is supportive and familiar, especially compared to the distrust of clients shown by formal financial institutions.

2. Malawi (November 2010, Month 17)

Profile of VSLA members and Uses of VSLAs

In Malawi, focus groups contained both VSLA members and non-members. Members were selected from VSLAs at different stages of their development: Half of them were selected from groups that had completed a cycle and shared-out, while the other half had not completed a cycle yet.

Members and Non-Members

Discussions between members and non-members centered on the reasons why the members had joined the VSLA and non-members had not, even 17 months after the programs had started.

The main reason cited by members for joining a VSLA was the ease of use. Weekly meetings in the village (as opposed to traveling into the city to do business at a formal institution) and easy and favorable access to credit were both attractive to members.

In general, the most common reason for not having joined a VSLA was that respondents did not understand the rules and characteristics of the group and decided not to join the groups formed early in the process. It was also difficult for community members to join when village chiefs did not support the efforts of the implementing partner or village to set up a VSLA. Although villagers mentioned that other organizations were offering loans, none of these organizations are implementing programs that can be regarded as a VSLA scheme. The majority of non-members said they witnessed improvements in the lives of members, which enticed them to consider joining a group.

The ins and outs in VSLAs

It was very rare to find households with more than one person participating in a VSLA, as it was difficult for households to gather sufficient funds to deposit simultaneously in more than one saving group. Therefore, even if only one individual participates in a group, he or she frequently represents the entire household. The main source of savings among VSLA members is income from agricultural activity or from the household's business.

Most respondents reported having taken loans from VSLAs in order to take advantage of new business opportunities, especially sale of vegetables, mandazi (the Malawian equivalent of a doughnut), or other snack foods. Members often repay or plan to repay their loans using the revenues from their new businesses.

Focus group participants also noted that emergencies and unforeseen expenses (including food consumption in difficult times) caused them to borrow from the VSLA.

As for share-outs, the most common use of these funds was to start a new business or invest in existing activities. Although share-outs were frequently invested, some parents proudly noted that they were able to send their children to school with this money. A fair number of community members reported having used the share-outs to buy households items such as soap, clothes and fertilizers.

As a broad signal that many were happy with the VSLA program, members also commonly reported keeping a portion of the share-outs to save in the next cycle.

Satisfaction and perceived impacts from the program

People were satisfied with the saving amounts they had deposited, and the desire to increase the value of their shares demonstrates that members at least had the intention of saving regularly.

Based on the focus group discussions, as well as direct observation, members appeared to be very satisfied with the VSLAs. In some cases, though, participants were not fully aware of the program's rules (particularly those related to interest rates or maximum loan amounts), especially within those groups that had recently started borrowing. Episodes of absenteeism were also mentioned as one of the main challenges, as this reduces the amount of money contributed to the VSLA. This absenteeism causes tension between members who show up regularly and those who are often absent.

The introduction of VSLAs promoted a change in behavior that reflected the increased importance of savings. VSLA members are likely to save regularly every week and work hard to find money to deposit or to pay back the loans taken. This change is seen by the rest of the village, and represents an important accomplishment for members.

Finally, focus groups respondents displayed enthusiasm for, and interest in, continued support from implementing partners and village agents. Additional training in business and management was requested in order to be able to use the money accumulated with the groups more effectively by identifying viable and profitable opportunities for investment.

APPENDIX III - GLOSSARY

Sample

Primary Respondent: refers to the household member selected to answer the adult survey. In Uganda, this household member was randomly selected between the household head and his spouse. In Malawi and Ghana, only the spouse or the female household head was chosen.

Female Primary Respondent: indicates female respondents to the adult survey.

Working-Age Women: refers to all female members of the household between the ages of 20 and 60 years.

Member: refers to a woman primary respondent who reported to be a member of a VSLA.

Non-Member: refers to a woman primary respondent who did not claim to be a member of a VSLA.

Impacts

Significant: refers to statistical significance. When we say that an impact or a difference is significant or statistically significant, we do not make an observation on the magnitude of the impact or the relevance for the program. We indicate that the said impact is statistically different from zero within a 95% confidence interval or more. In other words, we are 95% sure that the difference was due to the intervention rather than to chance. We refer to a "suggestive" impact when said impact is statistically different from zero only within a 90% confidence interval. The notations to express statistical significance in our tables are:

*** Significant at the 1% level (within 99% confidence interval)

** Significant at the 5% level (within 95% confidence interval)

* Significant at the 10% level (within 90% confidence interval)

If an impact estimate has no stars, we cannot determine with an adequate level of confidence that the treatment group is in fact different from the control group.

Confidence Interval: the confidence interval adjusts the difference between the treatment and control group for reasonable noise in the data. For example: in a 95% Confidence Interval (Table 1) impact estimates that are not significant at the 5% level will include a zero between the lower and upper bounds (i.e. the lower bound is negative and the upper is positive). This means that we cannot exclude that the impact is equal to zero. A significant result will display lower and upper bounds that are either entirely below or above zero, implying that we are 95% confident the intervention had an impact in this direction.

Exchange Rates

All currency amounts were measured in the local currency at nominal prices at the time of surveying; Ghanaian Cedi (GHC) in Ghana, Malawi Kwacha (MWK) in Malawi and Ugandan Shilling (UGX) in Uganda. US Dollar amounts throughout this report are calculated using the mean exchange rates over the endline survey period; $0.66 for 1 GHC in Ghana, $0.007 for 1 MWK in Malawi and $0.0004 for 1 UGX in Uganda.

Indices

Agricultural Inputs Index: a standardized index that includes use of chemical fertilizers, use of organic fertilizer and use of herbicides.

Influence Decisions Index: a standardized index that measures the extent to which female respondents can influence household decisions regarding food consumption, general purchases, schooling expenses, expenditures on personal and children's health, and the ability to visit a friend.

Conversations with Authorities Index: a standardized index that incorporates the frequency with which female respondents raise issues with village authorities, including the village chief, president of the women's committee, and a local council member. This index is incorporated in the community participation index mentioned below.

Community Participation Index: a standardized index that attempts to capture the extent to which female respondents are involved in community affairs. This index incorporates the aforementioned index on conversations with authorities, as well as dummies for whether or not the female respondent attends village meetings and participates in any social group (a women's group, or workers' group for instance).

Empowerment Index: a standardized index that tries to capture the degree to which women feel a sense of community empowerment. This index includes the degree to which women feel that they can effect change in the community, react to something a neighbor says, feel that somebody in the community would provide assistance if it is needed, and feel that women should be more involved in decision-making in the community.

Community Integration Index: an alternative index to capture the extent to which female respondents are integrated into the community, incorporating measures of whether or not the female respondent attends village meetings, speaks at these meetings, participates in any social group, votes in the district elections and a dummy for whether or not the respondent ever raises issues with village authorities.

Unabsorbed Shock Index: a standardized index that incorporates measures of the size of the economic shocks experienced by the household and the length of time that the household took to recover from a shock.

Food Insecurity Index: a standardized index that captures a household's level of food insecurity by including measures of whether or not adults and/or children in the household had to skip, or reduce, meals in the past 12 months.

Asset Index: a principal-component analysis (PCA) index of all assets owned by the household.

Housing Quality Index: a standardized index indicating quality of housing by including the quality of the household's roof, floor, walls, lighting and energy availability, toilets, and drinking water access.

APPENDIX IV – TABLES

Descriptive Tables

Table A. Baseline Characteristics and Balance Check

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Table B. Characteristics and Uses of VSLA

Table C. VSLA Uptake Over Time

Table D. Members Characteristics (baseline)

Table E. Likelihood to Participate in VSLAs

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Impact Tables

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Table 3. Impacts on Participants

Table A. Baseline Characteristics and Balance Check

	Pooled			Ghana			Malawi			Uganda		
	Mean Control Group	Difference T-C	Obs.	Mean Control Group	Difference T-C	Obs.	Mean Control Group	Difference T-C	Obs.	Mean Control Group	Difference T-C	Obs.
Household Demographics												
Household size	5.729	0.070	13554	5.841	0.140	4487	5.323	-0.055	4513	6.030	0.127	4554
		(0.05)			(0.12)			(0.06)			(0.09)	
Number of Children 5 Years and Under	1.078	0.047 **	13554	0.809	0.036	4487	1.273	0.040	4513	1.146	0.065 *	4554
		(0.02)			(0.04)			(0.03)			(0.04)	
School enrollment, primary age girls	0.849	0.032 ***	5530	0.790	0.047 *	1638	0.873	0.032 **	2095	0.872	0.018	1797
		(0.01)			(0.03)			(0.01)			(0.01)	
School enrollment, primary age boys	0.837	0.023 **	5695	0.783	0.051 *	1841	0.860	0.015	1994	0.863	0.006	1860
		(0.01)			(0.03)			(0.02)			(0.02)	
School enrollment, secondary age girls	0.717	0.013	4331	0.660	0.041	1473	0.638	0.028	1052	0.809	-0.018	1806
		(0.01)			(0.03)			(0.03)			(0.02)	
School enrollment, secondary age boys	0.792	0.009	4691	0.734	0.031	1869	0.818	0.000	1005	0.836	-0.008	1817
		(0.01)			(0.03)			(0.02)			(0.02)	
Household Head is a Woman	0.144	-0.002	13400	0.041	0.015 **	4404	0.161	0.007	4511	0.227	-0.027 *	4485
		(0.01)			(0.01)			(0.01)			(0.01)	
Household Activities												
Farming Household	0.988	-0.002	13522	0.999	0.000	4487	0.982	-0.005	4516	0.983	-0.001	4519
		(0.00)			(0.00)			(0.00)			(0.00)	
Had a business at baseline	0.259	0.010	13527	0.093	0.000	4487	0.385	0.009	4512	0.293	0.020	4528
		(0.01)			(0.01)			(0.02)			(0.02)	
Conducted paid work at baseline	0.441	-0.006	13541	0.161	0.006	4487	0.603	0.002	4515	0.551	-0.026	4539
		(0.01)			(0.02)			(0.02)			(0.02)	
Household Assets												
Wealth Index (asset based index)	-0.014	0.117 **	13351	0.087	0.086	4329	-0.050	0.104	4529	-0.075	0.159	4493
		(0.06)			(0.11)			(0.08)			(0.10)	
Owned a cellphone	0.238	0.017 *	13464	0.153	0.008	4442	0.248	0.029 *	4529	0.310	0.013	4493
		(0.01)			(0.02)			(0.02)			(0.02)	
Owned a bicyle	0.575	0.000	13497	0.755	-0.008	4475	0.572	-0.009	4529	0.400	0.017	4493
		(0.01)			(0.02)			(0.02)			(0.02)	
House has Iron Sheet Roof	0.328	0.020 *	13429	0.163	0.015	4456	0.180	0.024	4498	0.644	0.022	4475
		(0.01)			(0.01)			(0.02)			(0.02)	
House has electricity	0.029	-0.007	13420	0.068	-0.025	4430	0.012	0.004	4499	0.009	0.000	4491
		(0.01)			(0.02)			(0.00)			(0.01)	
Primary Respondent's Demographics												
Age	36.541	-0.224	13336	37.026	0.278	4373	32.383	-0.231	4493	40.351	-0.691	4470
		(0.25)			(0.45)			(0.36)			(0.49)	
Can read and write	0.434	0.022 **	13320	0.104	0.015	4348	0.588	0.045 **	4489	0.595	0.006	4483
		(0.01)			(0.01)			(0.02)			(0.02)	
Has at least 5 years of schooling	0.392	0.020 **	13140	0.067	0.018 *	4350	0.654	0.020	4324	0.447	0.021	4466
		(0.01)			(0.01)			(0.02)			(0.02)	
Primary Respondent's Financial Services												
Held savings at baseline	0.488	0.014	13232	0.347	0.025	4338	0.487	0.005	4406	0.624	0.012	4488
		(0.01)			(0.02)			(0.03)			(0.02)	
Saved with a Bank or MFI at baseline	0.035	0.003	13232	0.029	0.004	4338	0.040	0.011	4177	0.024	0.001	4488
		(0.00)			(0.01)			(0.01)			(0.01)	
Received a loan at baseline	0.187	0.001	13111	0.019	-0.002	4368	0.245	-0.010	4439	0.294	0.014	4304
		(0.01)			(0.00)			(0.01)			(0.02)	
Gave a loan at baseline	0.128	0.005	13202	0.014	0.002	4370	0.209	-0.009	4403	0.158	0.021	4429
		(0.01)			0.00			(0.01)			(0.01)	
Primary Respondent's Social Capital												
Community Integration index	0.011	-0.003	13202	0.012	-0.004	4374	0.000	0.019	4340	0.049	-0.024	4488
		(0.02)			(0.04)			(0.04)			(0.03)	
Decision index	-0.005	0.003	12251	0.005	-0.056	4116	0.000	0.012	4334	0.000	0.011	3801
		(0.02)			(0.04)			(0.04)			(0.04)	
Village Charactersitics												
Village population	677.846	-42.234	392	683.273	6.507	156	776.492	-136.283	374	587.863	-42.234	388
		(59.25)			(68.25)			(112.29)			(59.63)	
Minutes to closest tarmac road (walking)	135.692	129.050 *	390	103.235	-37.338	170	102.754	34.579	376	193.802	129.050 *	386
		(66.20)			(57.32)			(27.13)			(66.63)	
Minutes to closest market (walking)	56.093	0.789	387	41.963	0.501	170	54.677	3.306	373	77.601	0.789	383
		(6.58)			(6.72)			(7.70)			(6.62)	
Primary School in the Village	0.480	-0.080	394	0.584	-0.093 *	173	0.323	0.077	376	0.512	-0.080	390
		(0.05)			(0.05)			(0.07)			(0.05)	

Table A1:. Tests for balance between treatment and control groups and ignorability of attrition

	Pooled			Ghana			Malawi			Uganda		
	Overall	Treatment	Control	Overall	Treatment	Control	Overall	Treatment	Control	Overall	Treatment	Control
Household Attrition Rate	8.76%	8.93%	8.58%	9.16%	8.62%	9.69%	9.52%	10.30%	8.75%	7.60%	7.89%	7.31%

	Pooled			Ghana			Malawi			Uganda		
	Balance[1]	Attrition (Mean)[2]	Attrition (Covariates)[3]	Balance[1]	Attrition (Mean)[2]	Attrition (Covariates)[3]	Balance[1]	Attrition (Mean)[2]	Attrition (Covariates)[3]	Balance[1]	Attrition (Mean)[2]	Attrition (Covariates)[3]
F-test (p value)	0.774	0.564	0.665	0.790	0.385	0.298	0.550	0.127	0.259	0.332	0.531	0.697
Observations	13,555	13,555	13,555	4,487	4,487	4,487	4,529	4,529	4,529	4,539	4,539	4,539

[1] F-test for difference between treatment and control groups across all baseline variables in Table A. The null hypothesis is that treatment assignment is orthogonal to the set of covariates in Table A. There is no evidence against the null hypothesis.

[2] F-test for difference in mean attrition rates between treatment and control groups. The null hypothesis is that attrition rates are the same between treatment and contorl groups. There is no evidence against the null hypothesis.

[3] F-test for differential attrition between treatment and control groups across all covariates in Table A. The null hypothesis is that the covariates in Table A affect attrition in the same way in treatment and control groups. There is no evidence against the null hypothesis.

Table B: Characteristics and Uses of VSLA

	Pooled			Ghana			Malawi			Uganda		
	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.
Savings group participation												
Member of more than one VSLAs (0/1)	0.03	0.17	2491	0.00	0.04	1497	0.01	0.08	480	0.08	0.27	514
Member also in another ASCA (0/1)	0.15	0.36	2491	0.10	0.31	1497	0.03	0.16	480	0.32	0.47	514
Member also in a ROSCA (0/1)	0.1	0.31	2491	0.02	0.14	1497	0.02	0.14	480	0.26	0.44	514
VSLA Characteristics												
Number of months since joined group	15.24	8.90	2438	20.04	8.23	1457	11.8	7.42	477	13.88	8.84	504
Number of members in group (median)	25	7.62	2489	23	8.03	1496	19	5.18	480	30	5.02	513
VSLA contributions (median $ per week)	0.66	4.21	2490	0.66	1.05	1496	0.66	5.81	480	0.84	4.26	514
Share-outs												
Ever received a share-out (0/1)	0.61	0.49	2491	0.70	0.46	1497	0.57	0.50	480	0.56	0.50	514
Number of share-outs	1.32	0.86	1599	1.39	0.77	1037	1.21	0.68	272	1.34	1.08	290
Recent share amount (median $)	37.97	39.94	1604	31.91	31.93	1042	47.85	47.79	272	42.19	35.63	290
Share-out uses (0/1)												
Food	0.16	0.37	1605	0.05	0.23	1043	0.30	0.46	272	0.16	0.37	290
Education	0.16	0.37	1605	0.14	0.34	1043	0.07	0.26	272	0.27	0.44	290
Livestock	0.07	0.26	1605	0.01	0.11	1043	0.04	0.19	272	0.17	0.38	290
Fertilizer	0.08	0.27	1605	0.03	0.18	1043	0.23	0.42	272	0.00	0.00	290
Other agriculture spending	0.14	0.35	1605	0.18	0.39	1043	0.12	0.33	272	0.10	0.3	290
Business	0.13	0.33	1605	0.19	0.39	1043	0.12	0.32	272	0.07	0.25	290
House repairs	0.11	0.31	1605	0.00	0.06	1043	0.19	0.39	272	0.16	0.36	290
Loans												
Received a loan from VSLA (0/1)	0.68	0.47	2491	0.50	0.50	1497	0.67	0.47	480	0.85	0.36	514
Number of loans	1.82	1.12	1510	1.29	0.69	749	1.85	1.16	323	2.11	1.18	438
Median loan amount ($)	19.69	35.76	1510	19.74	17.17	749	18.21	31.26	323	20.75	45.2	438
Median interest payment ($)	0.10	0.10	1480	0.10	0.11	732	0.10	0.08	317	0.10	0.10	431
Loan uses (0/1)												
Food	0.13	0.34	1510	0.18	0.38	749	0.20	0.40	323	0.06	0.24	438
Education	0.13	0.34	1510	0.08	0.27	749	0.03	0.16	323	0.24	0.43	438
Health	0.12	0.33	1510	0.09	0.29	749	0.07	0.25	323	0.18	0.38	438
Agriculture spending	0.09	0.28	1510	0.07	0.26	749	0.08	0.27	323	0.11	0.31	438
Business	0.29	0.45	1510	0.42	0.49	749	0.40	0.49	323	0.13	0.34	438
Social Fund (0/1)												
VSLA has a social fund	0.89	0.31	2490	0.76	0.43	1497	0.99	0.12	480	0.93	0.25	513
Received money from social fund	0.38	0.48	2383	0.23	0.42	1461	0.27	0.45	424	0.61	0.49	498
Repaid money from social fund	0.73	0.44	756	0.86	0.35	335	0.11	0.32	116	0.92	0.27	305
Social fund uses (0/1)												
Food	0.07	0.26	756	0.05	0.21	335	0.05	0.22	116	0.09	0.28	305
Education	0.08	0.27	756	0.1	0.31	335	0.00	0.00	116	0.10	0.30	305
Health	0.56	0.50	756	0.41	0.49	335	0.61	0.49	116	0.59	0.49	305
Funerals	0.17	0.37	756	0.33	0.47	335	0.26	0.44	116	0.07	0.26	305

Table C: Uptake of VSLAs Over Time

	Pooled[1]					
	Bef. Apr 09	Apr-Sep 09	Oct 09-Mar 10	Apr-Sep 10	Oct 10-Jun 11	Total
Share of respondents who joined first VSLA:						
Treatment	1.79%	6.21%	5.52%	9.48%	6.39%	29.38%
Control	0.35%	0.66%	0.72%	1.60%	1.81%	5.14%
Weekly contribution (median $)	0.84	0.66	0.84	0.66	0.84	0.66
Shared-out at least once (0/1)	94.29%	92.32%	92.73%	50.98%	14.62%	60.93%

[1] Take-up numbers for the pooled sample here use an alternative frequency weighting strategy from the one used in Table 1. Table 1 figures are used throughout the final report.

Breakdown by country:

	Ghana					
	Bef. Apr 09	Apr-Sep 09	Oct 09-Mar 10	Apr-Sep 10	Oct 10-May 11	Total
Share of respondents who joined first VSLA:						
Treatment	2.53%	15.19%	3.85%	12.24%	1.98%	35.79%
Control	0.27%	1.59%	0.66%	4.26%	1.59%	8.36%
Weekly contribution (median $)	0.66	0.66	0.66	0.66	0.66	0.66
Shared-out at least once (0/1)	92.78%	93.18%	92.99%	42.52%	33.88%	69.64%

	Malawi					
	Bef. Apr 09	Apr-Sep 09	Oct 09-Mar 10	Apr-Sep 10	Oct 10-Jun 11	Total
Share of respondents who joined first VSLA:						
Treatment	0.82%	2.09%	5.00%	6.68%	7.19%	21.79%
Primary village	*1.15%*	*3.28%*	*6.40%*	*7.47%*	*8.45%*	*26.74%*
Secondary village	*0.27%*	*0.13%*	*2.70%*	*5.40%*	*5.13%*	*13.63%*
Control	0.10%	0.15%	0.40%	0.50%	1.49%	2.64%
Weekly contribution (median $)	0.66	1.32	0.66	0.66	0.66	0.66
Shared-out at least once (0/1)	94.44%	88.64%	90.57%	69.50%	12.87%	56.67%

	Uganda					
	Bef. Apr 09	Apr-Sep 09	Oct 09-Mar 10	Apr-Sep 10	Oct 10-Jun 11	Total
Share of respondents who joined first VSLA:						
Treatment	2.70%	4.66%	7.86%	11.46%	9.08%	35.76%
Primary village	*3.08%*	*5.17%*	*8.87%*	*12.56%*	*9.11%*	*38.79%*
Secondary village	*1.95%*	*3.66%*	*5.85%*	*9.27%*	*9.02%*	*29.76%*
Control	0.82%	0.66%	1.32%	0.99%	2.56%	6.35%
Weekly contribution (median $)	0.84	0.84	1.05	0.84	0.84	0.84
Shared-out at least once (0/1)	95.35%	92.31%	94.64%	44.08%	11.27%	56.42%

Table D. Member Characteristics (Baseline comparison Members and Non-Members)

	Pooled			Ghana			Malawi			Uganda		
	Mean Non-Members	Mean Members	Difference	Mean Non-Members	Mean Members	Difference	Mean Non-Members	Mean Members	Difference	Mean Non-Members	Mean Members	Difference
Household Demographics												
Household size	5.765	6.139	0.374 ***	6.041	6.231	0.189	5.254	5.510	0.256 **	6.101	6.468	0.367 **
Household head is a woman (0/1)	0.138	0.142	0.004	0.043	0.031	-0.011	0.139	0.175	0.036 *	0.190	0.228	0.038 *
Number of children 5 years and under	1.172	1.103	-0.069 **	0.882	0.891	0.010	1.353	1.251	-0.102 **	1.222	1.259	0.037
Household Activities												
Farming household	0.986	0.992	0.006 *	1.000	0.999	-0.001	0.978	0.983	0.004	0.982	0.989	0.007
Had a business at baseline	0.262	0.279	0.017	0.076	0.109	0.033 **	0.376	0.480	0.104 ***	0.289	0.345	0.056 **
Conducted paid work at baseline	0.448	0.410	-0.038 ***	0.180	0.172	-0.008	0.592	0.624	0.033	0.513	0.550	0.037
Household Assets												
Wealth index (asset based index)	0.009	0.366	0.357 ***	0.085	0.411	0.325 ***	0.021	0.373	0.352 ***	-0.075	0.338	0.412 ***
Owned a cellphone (0/1)	0.234	0.278	0.044 ***	0.149	0.176	0.027	0.258	0.318	0.060 **	0.278	0.378	0.100 ***
Owned a bicyle (0/1)	0.577	0.621	0.044 ***	0.757	0.780	0.023	0.562	0.639	0.077 ***	0.440	0.414	-0.026
House has iron sheet roof	0.342	0.382	0.040 ***	0.175	0.181	0.006	0.190	0.265	0.075 ***	0.647	0.707	0.060 **
House has electricity	0.019	0.026	0.007	0.040	0.042	0.002	0.014	0.018	0.003	0.006	0.013	0.007
Primary Respondent Demographics												
Age	36.828	37.013	0.185	38.193	37.744	-0.449	30.613	31.296	0.683	42.535	40.013	-2.523 ***
Can read and write	0.414	0.420	0.006	0.093	0.091	-0.001	0.549	0.652	0.103 ***	0.530	0.652	0.122 ***
Has at least 5 years of schooling	0.392	0.353	-0.040 ***	0.060	0.048	-0.013	0.651	0.676	0.025	0.401	0.505	0.104 ***
Primary Respondent Financial Services												
Held savings at baseline	0.471	0.530	0.060 ***	0.376	0.407	0.031	0.520	0.545	0.025	0.577	0.727	0.150 ***
Saved with a bank or MFI at baseline	0.025	0.037	0.012 **	0.030	0.045	0.015	0.018	0.049	0.031 ***	0.022	0.024	0.002
Received a loan at baseline (0/1)	0.148	0.187	0.039 ***	0.012	0.029	0.017 ***	0.162	0.218	0.056 ***	0.261	0.375	0.114 ***
Gave a loan at baseline	0.109	0.123	0.013	0.011	0.023	0.012 **	0.130	0.186	0.056 ***	0.171	0.200	0.029
Primary Respondent Social Capital												
Community integration index	-0.080	0.132	0.212 ***	-0.040	0.035	0.075	-0.049	0.249	0.299 ***	-0.125	0.113	0.239 ***
Decision index	-0.045	0.085	0.130 ***	-0.034	-0.091	-0.057	0.051	-0.095	-0.146 ***	0.098	-0.067	-0.165 **

Table E. Likelihood to participate in VSLAs *(OLS regression of factors that predict VSLA participation)*

	Pooled	Ghana	Malawi	Uganda
Household Demographics				
Household size	0.008 ***	0.002	0.005	0.005
	(0.00)	(0.00)	(0.00)	(0.00)
Female	0.010			0.100 ***
	(0.01)			(0.03)
Household head is a woman	0.006	-0.005	0.002	0.021
	(0.01)	(0.04)	(0.03)	(0.03)
Household Activities				
Had a business at baseline	0.042 ***	0.137 ***	0.127 ***	0.036
	(0.01)	-0.050	-0.030	-0.030
Conducted paid work at baseline	(0.02)	(0.04)	0.02	(0.01)
	(0.01)	-0.038	-0.023	(0.02)
Household Assets				
Wealth - second quartile	0.009	0.040	0.042	0.038
	(0.01)	(0.03)	(0.03)	-0.030
Wealth - third quartile	0.011	0.030	0.032	0.046 *
	(0.01)	(0.03)	(0.03)	-0.027
Wealth - top quartile	0.035 **	0.110 ***	0.075 ***	0.027
	(0.01)	(0.03)	(0.03)	-0.028
Primary Respondent Demographics				
Age 26-40	0.038 ***	0.059 *	0.040	0.033
	(0.01)	(0.03)	(0.02)	-0.034
Age 41-60	-0.018	0.005	0.017	-0.026
	(0.02)	(0.04)	(0.03)	-0.033
Age 61+	-0.107 ***	-0.069	0.023	-0.082 *
	(0.02)	(0.08)	(0.05)	-0.043
Can read and write	-0.004	0.021	0.088 ***	0.082 ***
	(0.00)	(0.04)	(0.02)	-0.021
Primary Respondent Financial Services				
Held savings at baseline	0.008	0.005	-0.037	0.095 ***
	(0.01)	(0.03)	(0.02)	-0.026
Received a loan at baseline	0.004	0.198 **	0.016	0.054 **
	(0.00)	(0.08)	(0.02)	-0.026
Community integration index	0.003	0.013	0.031 ***	0.021 *
	(0.00)	(0.01)	(0.01)	-0.012
Decision index	0.003	-0.016	0.000	0.008
	(0.00)	(0.01)	(0.01)	-0.013
Time inconsistent			0.003	
			(0.03)	
Risk averse			0.052 ***	
			(0.02)	
Village Characteristics				
Village population	-0.002	-0.012	0.000	0.007
	(0.00)	(0.01)	(0.00)	(0.01)
Market within 5km	0.001	0.014	0.011	-0.041
	(0.00)	(0.06)	(0.03)	(0.03)
Road within 1 hour walk	0.003	-0.028	0.032	0.025
	(0.01)	(0.05)	(0.03)	(0.03)
Secondary village			-0.124 ***	-0.075 ***
			(0.03)	(0.03)
Constant	0.265 ***	0.075	0.007	0.085
	(0.07)	(0.10)	-0.052	(0.08)
Observations	7484	3375	1998	2111

Table F: Replication Characteristics and Uses of VSLA *(Primary and Secondary Villages)*

	Malawi			Uganda		
	Mean Primary Village	Mean Secondary Village	Difference	Mean Primary Village	Mean Secondary Village	Difference
Savings group participation						
Member of more than one VSLAs (0/1)	0.01	0.01	0.00	0.09	0.09	0.00
Member also in another ASCA (0/1)	0.02	0.02	0.00	0.34	0.24	0.10 **
Member also in a ROSCA (0/1)	0.01	0.05	-0.04 ***	0.24	0.31	-0.07 *
VSLA Characteristics						
Number of months since joined group	12.55	9.68	2.87 ***	14.52	12.82	1.70 *
Number of members in group (median)	19	19	0.00	30	30	0.00
VSLA contributions (median $ per week)	0.66	0.66	0.00	0.84	0.84	0.00
Share-outs						
Ever received a share-out (0/1)	0.57	0.42	0.15 ***	0.59	0.48	0.11 **
Number of share-outs	1.05	0.83	0.22	1.39	1.17	0.23
Recent share amount (median $)	49.67	39.74	9.93	42.19	47.85	-4.22
Share-out uses (0/1)						
Food	0.3	0.32	-0.03	0.15	0.24	-0.09 *
Education	0.07	0.05	0.02	0.25	0.27	-0.02
Livestock	0.04	0.02	0.02	0.18	0.22	-0.04
Fertilizer	0.25	0.17	0.08	0	0	0.00
Other agriculture spending	0.1	0.17	-0.07	0.09	0.08	0.02
Business	0.11	0.15	-0.04	0.06	0.08	-0.02
House repairs	0.22	0.07	0.15 **	0.15	0.13	0.02
Loans						
Received a loan from VSLA (0/1)	0.68	0.6	0.08 *	0.86	0.81	0.05
Number of loans	1.78	2	-0.22	2.11	2.06	0.05
Median loan amount ($)	19.87	13.25	6.62 **	21.1	16.88	4.22 ***
Median interest payment ($)	0.1	0.1	0.00	0.1	0.12	-0.02
Loan uses (0/1)						
Food	0.22	0.13	0.09 *	0.06	0.05	0.01
Education	0.03	0.04	0.00	0.27	0.19	0.08 *
Health	0.07	0.06	0.01	0.17	0.2	-0.03
Agriculture spending	0.08	0.06	0.02	0.1	0.13	-0.03
Business	0.38	0.48	-0.09	0.13	0.15	-0.03
Social Fund (0/1)						
VSLA has a social fund	0.99	0.98	0.01	0.93	0.89	0.04
Received loan from social fund	0.28	0.21	0.07	0.61	0.56	0.05
Repaid money from social fund	0.11	0.15	-0.05	0.91	0.93	-0.02
Social fund uses (0/1)						
Food	0.06	0.04	0.03	0.1	0.07	0.02
Education	0.00	0.00		0.09	0.12	-0.03
Health	0.61	0.65	-0.05	0.58	0.63	-0.05
Funerals	0.23	0.31	-0.07	0.08	0.08	0.00

Table 1A. Impacts on Pooled Sample

Financial Management *Income Generating Activities* *Women's Empowerment*	Treatment Effects			95% Confidence Interval	
	Treatment Effect	Mean Control	Obs.	Lower bound	Upper bound
A. Financial Management					
Savings Groups Participation					
Female Primary Respondent					
Member of any savings group (0/1)	0.169 ***	0.366	13057	0.14	0.20
	(0.01)				
Member of a ROSCAs (0/1)	-0.020 ***	0.095	13056	-0.03	-0.01
	(0.01)				
Member of ASCAs (including VSLA, 0/1)	0.201 ***	0.304	13056	0.17	0.23
	(0.01)				
Member of VSLAs (0/1)	0.250 ***	0.062	13056	0.22	0.28
	(0.01)				
Weekly savings group contributions (all groups, $)	0.285 ***	0.322	13057	0.18	0.39
	(0.05)				
Savings					
Female Primary Respondent					
Holds any savings (0/1)	0.132 ***	0.431	13057	0.11	0.16
	(0.01)				
Total savings deposits ($)	5.509 **	14.684	13057	1.07	9.95
	(2.27)				
Informal savings ($)	1.485	5.881	13057	-1.43	4.40
	(1.49)				
Deposits in ASCAs ($)	5.938 ***	5.902	13057	4.64	7.23
	(0.66)				
Deposits in formal institutions ($)	-1.914	2.902	13057	-4.73	0.90
	(1.44)				
Loans received					
Female Primary Respondent					
Received a loan (last 12 months, 0/1)	0.106 ***	0.311	13050	0.08	0.13
	(0.01)				
Total amount borrowed (last 12 months, $)	3.584 **	14.66	13050	0.49	6.68
	(1.58)				
Number of loans from savings group (last 12 months)	0.279 ***	0.201	13057	0.23	0.33
	(0.02)				
Number of loans from other sources (last 12 months)	-0.012	0.160	13057	-0.03	0.01
	(0.01)				
Total outstanding loans ($)	1.918 **	2.806	13057	0.22	3.61
	(0.87)				
Net savings balance (savings - loans outstanding, $)	3.832 *	11.19	13057	-0.63	8.29
	(2.28)				
Loans and Transfers Given					
Female Primary Respondent					
Gave a loan (last 12 months, 0/1)	0.019 **	0.151	13051	0.00	0.04
	(0.01)				
Gave a transfer (last 30 days, 0/1)	0.016 *	0.203	13044	0.00	0.03
	(0.01)				
B. Income Generating Activities					
Business					
Working Age Women					
Credit for business (female primary respondent, last 12 months, 0/1)	0.094 ***	0.080	13057	0.07	0.12
	(0.01)				
Has a business (0/1)	0.019 **	0.183	18027	0.00	0.04
	(0.01)				
Business profits (last 12 months, $)	5.365 **	19.638	17826	1.13	9.59
	(2.16)				
Agriculture					
Households					
Credit for agriculture (female primary respondent, last 12 months, 0/	0.012 *	0.043	13057	0.00	0.02
	(0.01)				
Agricultural inputs use index	0.042	0.000	14817	-0.01	0.09
	(0.03)				
Total Expenditure on agricultural inputs (last 12 months, $)	2.841	53.714	15150	-1.56	7.24
	(2.25)				
Value of the harvest (last 12 months, $)	-0.584	39.268	15045	-3.08	1.91
	(1.27)				
C. Women's Empowerment					
Intra-household decision-making					
Female Primary Respondent					
Decisions influence index	0.060 **	0.000	13049	0.01	0.12
	(0.03)				
Food consumption (0/1)	0.036 ***	0.530	13042	0.01	0.06
	(0.01)				
School expenses (0/1)	0.033 **	0.420	12346	0.01	0.06
	(0.01)				
Children's health (0/1)	0.023 *	0.492	12814	0.00	0.05
	(0.01)				
Visiting friend (0/1)	0.001	0.481	13013	-0.02	0.03
	(0.01)				
Business actions (0/1)	0.045 ***	0.421	11637	0.02	0.07
	(0.01)				

Table 1B. Impacts on Pooled Sample

Shocks and Food Security *Expenditures and Consumption*	Treatment Effects			95% Confidence Interval	
	Treatment Effect	Mean Control	Obs.	Lower bound	Upper bound
Social Capital and Empowerment					
Community participation index	0.026	0.000	13051	-0.02	0.08
	(0.02)				
Participates in a group (0/1)	0.004	0.332	12778	-0.02	0.02
	(0.01)				
Attend village meeting (last 12 months, 0/1)	0.022 **	0.690	13048	0.00	0.04
	(0.01)				
Conversations with authorities index	0.003	0.000	13042	-0.04	0.05
	(0.02)				
Empowerment index	-0.020	0.000	13049	-0.06	0.02
	(0.02)				
D. Shocks and Food Security					
Reactions to Shocks					
Households					
Reacted to shock by:					
Extra labor / migration (0/1)	0.006	0.180	15177	-0.01	0.02
	(0.01)				
Loan from savings group (0/1)	0.015 ***	0.039	15177	0.01	0.02
	(0.00)				
Other loans, grants, arrears (0/1)	-0.007	0.236	15177	-0.03	0.01
	(0.01)				
Assets / inventory sales (0/1)	-0.015	0.279	15177	-0.04	0.01
	(0.01)				
Expenditure reduction (0/1)	-0.009	0.110	15177	-0.03	0.01
	(0.01)				
Savings (0/1)	0.000	0.104	15177	-0.01	0.01
	(0.01)				
Unabsorbed shock index	-0.008	0.624	15177	-0.03	0.01
	(0.01)				
Shock Impact and Occurrence					
Households					
Shock with large negative impact (last 12 months, 0/1)	-0.011	0.638	15177	-0.03	0.01
	(0.01)				
Recovery from shock exceeded 3 months (last 12 months, 0/1)	-0.005	0.090	15177	-0.02	0.01
	(0.01)				
Business failure (last 12 months, 0/1)	0.018 ***	0.127	15177	0.00	0.03
	(0.01)				
Food Security					
Households					
Credit for food (female primary respondet, last 12 months, 0/1)	0.036 ***	0.085	13057	0.02	0.05
	(0.01)				
Food insecurity index	-0.014	0.000	15175	-0.06	0.03
	(0.02)				
Not enough food (last 12 months, 0/1)	-0.010	0.696	15175	-0.03	0.01
	(0.01)				
Adults reduced food consumption (last 12 months, 0/1)	-0.023 **	0.638	15175	-0.04	0.00
	(0.01)				
Children reduced food consumption (last 12 months, 0/1)	-0.013	0.517	15175	-0.03	0.01
	(0.01)				
E. Expenditures and Consumption					
Non-Food Expenditures					
Households					
Total selected expenditures (monthly est., $)	1.269	37.306	15182	-1.21	3.75
	(1.26)				
Recurrent expenditures (last 7 days, $)	1.053	13.907	15186	-0.38	2.49
	(0.73)				
House repairs (last month, $)	0.381	4.762	15105	-0.18	0.94
	(0.29)				
Marriages (last 12 months, $)	-2.925	26.420	15159	-7.33	1.48
	(2.25)				
Funerals (last 12 months, $)	2.320	38.693	15084	-1.25	5.89
	(1.82)				
Food Consumption					
Households					
Total food consumption (selected items, last 7 days, $ value)	-0.211	24.727	15129	-1.06	0.64
	(0.43)				
Grains (last 7 days, $ value)	-0.111	7.203	15134	-0.41	0.19
	(0.15)				
Nuts and beans (last 7 days, $ value)	-0.038	1.971	15134	-0.17	0.09
	(0.07)				

Table 1C. Impacts on Pooled Sample

Education *Health* *Asset Accumulation*	Treatment Effects			95% Confidence Interval	
	Treatment Effect	Mean Control	Obs.	Lower bound	Upper bound
F. Education					
Financing Education					
Households					
Education expenses (last 12 months, $)	-0.555	88.345	15198	-11.06	9.95
	(5.36)				
Financed education exp. with: *Income generation (0/1)*	0.021 *	0.245	11105	0.00	0.05
	(0.01)				
Asset, livestock and crop sales (0/1)	0.006	0.630	11105	-0.02	0.03
	(0.01)				
Loan from savings groups (0/1)	0.011 ***	0.019	11105	0.00	0.02
	(0.00)				
Grants, remittances and other loans (0/1)	0.007 *	0.026	11105	0.00	0.01
	(0.00)				
Savings (0/1)	-0.008	0.065	11105	-0.02	0.00
	(0.01)				
Educational Outcomes					
School-age children					
Primary school enrollment (girls, 0/1)	0.019 *	0.836	10508	0.00	0.04
	(0.01)				
Primary school enrollment (boys, 0/1)	0.023 **	0.817	10858	0.00	0.04
	(0.01)				
Secondary school enrollment (girls, 0/1)	0.016	0.763	8106	-0.01	0.04
	(0.01)				
Secondary school enrollment (boys,0/1)	0.007	0.790	9277	-0.01	0.03
	(0.01)				
G. Health					
Households					
Consulted health services (last 30 days, 0/1)	0.004	0.766	15185	-0.01	0.02
	(0.01)				
Total health expenses (last 30 days, $)	0.442	13.613	15184	-0.98	1.86
	(0.72)				
Financed healthcare exp. with: *Income generation (0/1)*	0.001	0.275	15184	-0.02	0.02
	(0.01)				
Asset, livestock and crop sales (0/1)	-0.019 *	0.359	15184	-0.04	0.00
	(0.01)				
Loan from savings group (0/1)	0.011 ***	0.019	15184	0.01	0.02
	(0.00)				
Grants, remittances and other loans (0/1)	0.007	0.065	15184	0.00	0.02
	(0.01)				
Savings (0/1)	-0.017 **	0.131	15184	-0.03	0.00
	(0.01)				
At least one ill member (last 30 days, 0/1)	0.006	0.796	15185	-0.01	0.02
	(0.01)				
H. Asset Accumulation					
Households					
Livestock value ($)	-27.195	686.446	15185	-75.76	21.37
	(24.78)				
Number of fowl (#)	-0.042	8.350	15185	-0.56	0.48
	(0.26)				
Number of goats and sheep (#)	-0.115	4.139	15185	-0.36	0.13
	(0.12)				
Number of cattle (#)	-0.112	1.395	15185	-0.25	0.03
	(0.07)				
Assets index	0.007	0.000	15174	-0.03	0.05
	(0.02)				
Housing quality index	-0.005	0.000	15174	-0.05	0.04
	(0.02)				
PPI: living under $1.25 per day (per capita)	0.075	60.594	15089	-0.67	0.82
	(0.38)				
PPI: living under $2.50 per day (per capita)	0.047	89.959	15089	-0.70	0.79
	(0.38)				

Table 2A. Impacts by Country

Financial Management *Income Generating Activities* *Women's Empowerment*	Ghana			Malawi			Uganda		
	Treatment Effect	Mean Control	Obs.	Treatment Effect	Mean Control	Obs.	Treatment Effect	Mean Control	Obs.
A. Financial Management									
Savings Groups Participation									
Female Primary Respondent									
Member of any savings group (0/1)	0.174 ***	0.418	6661	0.238 ***	0.136	3961	0.078 ***	0.603	2435
	(0.02)			*(0.02)*			*(0.02)*		
Member of a ROSCAs (0/1)	-0.022 ***	0.068	6660	-0.010	0.031	3961	-0.030	0.273	2435
	(0.01)			*(0.01)*			*(0.02)*		
Member of ASCAs (including VSLA, 0/1)	0.194 ***	0.370	6660	0.252 ***	0.108	3961	0.148 ***	0.446	2435
	(0.02)			*(0.02)*			*(0.03)*		
Member of VSLAs (0/1)	0.273 ***	0.084	6660	0.192 ***	0.026	3961	0.292 ***	0.063	2435
	(0.02)			*(0.02)*			*(0.02)*		
Weekly savings group contributions (all groups, $)	0.229 ***	0.253	6661	0.359 ***	0.279	3961	0.266 **	0.586	2435
	(0.07)			*(0.10)*			*(0.10)*		
Savings									
Female Primary Respondent									
Holds any savings (0/1)	0.149 ***	0.406	6661	0.160 ***	0.306	3961	0.074 **	0.705	2435
	(0.02)			*(0.02)*			*(0.02)*		
Total savings deposits ($)	3.933 ***	9.812	6661	5.982 ***	11.086	3961	7.038	34.049	2435
	(1.07)			*(2.25)*			*(7.54)*		
Informal savings ($)	0.086	3.548	6661	-1.808	8.128	3961	7.503	8.570	2435
	(0.72)			*(1.72)*			*(4.79)*		
Deposits in ASCAs ($)	3.941 ***	5.781	6661	7.851 ***	2.862	3961	6.227 ***	11.273	2435
	(0.64)			*(1.23)*			*(1.58)*		
Deposits in formal institutions ($)	-0.093	0.483	6661	-0.061	0.096	3961	-6.692	14.206	2435
	(0.19)			*(0.06)*			*(5.15)*		
Loans received									
Female Primary Respondent									
Received a loan (last 12 months, 0/1)	0.124 ***	0.203	6656	0.093 ***	0.333	3961	0.099 ***	0.575	2433
	(0.02)			*(0.02)*			*(0.02)*		
Total amount borrowed (last 12 months, $)	0.008	9.748	6661	5.429 ***	8.223	3961	6.310	38.783	2435
	(1.77)			*(1.72)*			*(4.65)*		
Number of loans from savings group (last 12 months)	0.206 ***	0.121	6661	0.308 ***	0.067	3961	0.342 ***	0.644	2435
	(0.03)			*(0.04)*			*(0.06)*		
Number of loans from other sources (last 12 months)	-0.019 **	0.077	6661	-0.024	0.187	3961	0.000	0.438	2435
	(0.01)			*(0.02)*			*(0.04)*		
Total outstanding loans ($)	0.553	1.197	6661	0.469	1.569	3961	5.509 *	9.281	2435
	(0.34)			*(0.81)*			*(2.89)*		
Net savings balance (savings - loans outstanding, $)	3.420 ***	8.314	6661	5.627 **	9.281	3961	2.134	22.242	2435
	(1.09)			*(2.29)*			*(7.55)*		
Loans and Transfers Given									
Female Primary Respondent									
Gave a loan (last 12 months, 0/1)	0.004	0.040	6656	0.025 *	0.225	3961	0.033	0.333	2434
	(0.01)			*(0.01)*			*(0.02)*		
Gave a transfer (last 30 days, 0/1)	0.008	0.037	6651	0.014	0.333	3961	0.030	0.445	2432
	(0.01)			*(0.02)*			*(0.02)*		
B. Income Generating Activities									
Business									
Working Age Women									
Credit for business (female primary respondent, last 12	0.082 ***	0.078	6661	0.136 ***	0.080	3961	0.058 ***	0.084	2435
	(0.02)			*(0.02)*			*(0.02)*		
Has a business (0/1)	0.013	0.200	9471	0.019	0.190	4235	0.027 **	0.137	4321
	(0.02)			*(0.01)*			*(0.01)*		
Business profits (last 12 months, $)	2.804	23.018	9334	2.532	21.362	4214	12.138 ***	10.352	4278
	(3.30)			*(3.79)*			*(4.20)*		
Agriculture									
Households									
Credit for agriculture (female primary respondent, last 1	-0.001	0.027	6661	0.010 *	0.019	3961	0.032	0.127	2435
	(0.01)			*(0.01)*			*(0.02)*		
Agricultural inputs use index	0.029	0.000	6891	0.075 **	0.000	3909	0.023	0.000	4017
	(0.05)			*(0.04)*			*(0.04)*		
Total Expenditure on agricultural inputs (last 12 months	5.301	77.216	6892	2.599	66.056	4097	-0.124	1.943	4161
	(5.05)			*(3.45)*			*(0.22)*		
Value of the harvest (last 12 months, $)	0.872	35.983	6823	-1.887	40.396	4058	-1.071	43.582	4164
	(2.17)			*(1.84)*			*(2.55)*		
C. Women's Empowerment									
Intra-household decision-making									
Female Primary Respondent									
Decisions influence index	0.055	0.000	6654	0.100 **	0.000	3961	0.030	0.000	2434
	(0.06)			*(0.04)*			*(0.04)*		
Food consumption (0/1)	0.042	0.452	6649	0.040 **	0.507	3961	0.023	0.785	2432
	(0.03)			*(0.02)*			*(0.02)*		
School expenses (0/1)	0.014	0.343	6436	0.054 ***	0.425	3720	0.035 *	0.640	2190
	(0.03)			*(0.02)*			*(0.02)*		
Children's health (0/1)	0.022	0.394	6566	0.038 *	0.531	3923	0.007	0.706	2325
	(0.03)			*(0.02)*			*(0.02)*		
Visiting friend (0/1)	0.011	0.379	6648	0.012	0.469	3946	-0.026	0.781	2419
	(0.03)			*(0.02)*			*(0.02)*		
Business actions (0/1)	0.033	0.415	6376	0.051 **	0.368	3848	0.057 **	0.597	1413
	(0.03)			*(0.02)*			*(0.03)*		

Table 2B. Impacts by Country

Shocks and Food Security *Expenditures and Consumption*	Ghana			Malawi			Uganda		
	Treatment Effect	Mean Control	Obs.	Treatment Effect	Mean Control	Obs.	Treatment Effect	Mean Control	Obs.
Social Capital and Empowerment									
Community participation index	0.021	0.000	6656	-0.003	0.000	3961	0.07	0.000	2434
	(0.04)			*(0.04)*			*(0.05)*		
Participates in a group (0/1)	0.024	0.166	6425	-0.025	0.307	3951	0.018	0.819	2402
	(0.02)			*(0.02)*			*(0.02)*		
Attend village meeting (last 12 months, 0/1)	0.027 *	0.735	6654	0.024	0.722	3961	0.014	0.510	2433
	(0.02)			*(0.02)*			*(0.02)*		
Conversations with authorities index	-0.033	0.000	6649	-0.002	0.000	3961	0.052	0.000	2432
	(0.04)			*(0.04)*			*(0.05)*		
Empowerment index	0.000	0.000	6654	-0.054	0.000	3961	0.03	0.000	2434
	(0.04)			*(0.03)*			*(0.04)*		
D. Shocks and Food Security									
Reactions to Shocks									
Households									
Reacted to shock by:									
Extra labor / migration (0/1)	0.000	0.075	6921	-0.008	0.286	4097	0.029	0.246	4194
	(0.01)			*(0.02)*			*(0.02)*		
Loan from savings group (0/1)	0.003	0.008	6888	0.007 **	0.005	4096	0.038 ***	0.126	4193
	(0.00)			*(0.00)*			*(0.01)*		
Other loans, grants, arrears (0/1)	0.006	0.195	6921	0.000	0.163	4097	-0.028	0.373	4194
	(0.02)			*(0.01)*			*(0.02)*		
Assets / inventory sales (0/1)	-0.018	0.306	6921	0.005	0.132	4097	-0.030 *	0.377	4194
	(0.02)			*(0.01)*			*(0.02)*		
Expenditure reduction (0/1)	0.015	0.113	6921	0.002	0.013	4097	-0.050 ***	0.201	4194
	(0.02)			*(0.00)*			*(0.02)*		
Savings (0/1)	0.015	0.056	6921	-0.010	0.069	4097	-0.009	0.219	4194
	(0.01)			*(0.01)*			*(0.02)*		
Unabsorbed shock index	-0.006	0.690	6888	-0.005	0.348	4096	-0.013	0.791	4193
	(0.02)			*(0.02)*			*(0.01)*		
Shock Impact and Occurrence									
Households									
Shock with large negative impact (last 12 months, 0/1)	-0.009	0.637	6888	-0.033 *	0.455	4096	0.008	0.823	4193
	(0.02)			*(0.02)*			*(0.01)*		
Recovery from shock exceeded 3 months (last 12 mont	0.004	0.077	6888	-0.015 *	0.067	4096	-0.008	0.133	4193
	(0.01)			*(0.01)*			*(0.01)*		
Business failure (last 12 months, 0/1)	0.000	0.063	6888	0.015	0.153	4096	0.045 ***	0.205	4193
	(0.01)			*(0.01)*			*(0.01)*		
Food Security									
Households									
Credit for food (female primary respondet, last 12 mon	0.040 ***	0.037	6661	0.035 **	0.118	3961	0.032	0.163	2435
	(0.01)			*(0.01)*			*(0.03)*		
Food insecurity index	-0.001	0.000	6887	-0.034	0.000	4095	-0.014	0.000	4193
	(0.04)			*(0.04)*			*(0.04)*		
Not enough food (last 12 months, 0/1)	-0.020	0.844	6887	-0.001	0.499	4095	-0.007	0.648	4193
	(0.02)			*(0.02)*			*(0.02)*		
Adults reduced food consumption (last 12 months,	-0.019	0.808	6887	-0.013	0.412	4095	-0.036 *	0.582	4193
	(0.02)			*(0.02)*			*(0.02)*		
Children reduced food consumption (last 12 monti	-0.012	0.692	6887	-0.023	0.307	4095	-0.004	0.435	4193
	(0.02)			*(0.02)*			*(0.02)*		
E. Expenditures and Consumption									
Non-Food Expenditures									
Households									
Total selected expenditures (monthly est., $)	2.967	50.046	6893	-0.099	24.468	4096	0.568	28.909	4193
	(2.95)			*(1.20)*			*(1.43)*		
Recurrent expenditures (last 7 days, $)	1.280	19.962	6895	1.164	10.510	4097	0.664	7.215	4194
	(1.61)			*(1.16)*			*(0.60)*		
House repairs (last month, $)	0.356	6.119	6837	0.552 *	2.075	4088	0.244	5.195	4180
	(0.48)			*(0.30)*			*(0.64)*		
Marriages (last 12 months, $)	-1.027	26.735	6883	-2.556	10.010	4092	-5.612	42.280	4184
	(3.90)			*(2.31)*			*(4.93)*		
Funerals (last 12 months, $)	2.765	64.055	6845	0.022	7.340	4071	4.050	27.783	4168
	(4.14)			*(0.64)*			*(2.89)*		
Food Consumption									
Households									
Total food consumption (selected items, last 7 days, $ v	0.306	24.806	6889	-0.190	18.972	4096	-0.872	30.399	4144
	(0.90)			*(0.48)*			*(0.72)*		
Grains (last 7 days, $ value)	0.011	8.350	6893	-0.162	6.464	4097	-0.211	6.018	4144
	(0.31)			*(0.14)*			*(0.27)*		
Nuts and beans (last 7 days, $ value)	-0.126	1.190	6893	-0.022	1.038	4097	0.055	4.226	4144
	(0.10)			*(0.04)*			*(0.17)*		

Table 2C. Impacts by Country

Education *Health* *Asset Accumulation*	Ghana			Malawi			Uganda		
	Treatment Effect	Mean Control	Obs.	Treatment Effect	Mean Control	Obs.	Treatment Effect	Mean Control	Obs.
F. Education									
Financing Education									
Households									
Education expenses (last 12 months, $)	5.922	64.655	6911	-0.381	8.203	4097	4.165	3206.095	4194
	(5.44)			*(0.64)*			*(77.71)*		
Financed education exp. with: Income generation (0/1)	0.007	0.145	6911				0.039 **	0.413	4194
	(0.02)						*(0.02)*		
Financed education exp. with: Asset, livestock and crop sales (0/1)	0.033 *	0.687	6911				-0.028	0.536	4194
	(0.02)						*(0.02)*		
Financed education exp. with: Loan from savings groups (0/1)	0.006 ***	0.002	6911				0.016 **	0.048	4194
	(0.00)						*(0.01)*		
Financed education exp. with: Grants, remittances and other loans (0/1)	0.006 *	0.012	6911				0.007	0.051	4194
	(0.00)						*(0.01)*		
Financed education exp. with: Savings (0/1)	-0.003	0.040	6911				-0.014	0.108	4194
	(0.01)						*(0.01)*		
Educational Outcomes									
School-age children									
Primary school enrollment (girls, 0/1)	0.046 **	0.794	4660	0.002	0.858	3135	0.005	0.884	2713
	(0.02)			*(0.01)*			*(0.01)*		
Primary school enrollment (boys, 0/1)	0.037 **	0.794	5150	0.026 *	0.805	2947	-0.001	0.873	2761
	(0.02)			*(0.02)*			*(0.01)*		
Secondary school enrollment (girls, 0/1)	0.030	0.725	4204	0.022	0.705	1151	-0.003	0.842	2751
	(0.02)			*(0.03)*			*(0.02)*		
Secondary school enrollment (boys,0/1)	0.040 **	0.761	5110	-0.029	0.784	1356	-0.016	0.847	2811
	(0.02)			*(0.02)*			*(0.01)*		
G. Health									
Households									
Consulted health services (last 30 days, 0/1)	0.013	0.640	6896	-0.012	0.859	4097	0.010	0.882	4192
	(0.02)			*(0.01)*			*(0.01)*		
Total health expenses (last 30 days, $)	1.332	14.864	6894	-0.285	4.352	4097	-0.097	20.766	4193
	(1.57)			*(0.34)*			*(1.28)*		
Financed healthcare exp. with: Income generation (0/1)	-0.008	0.102	6894	-0.006	0.490	4097	0.018	0.347	4193
	(0.01)			*(0.02)*			*(0.02)*		
Financed healthcare exp. with: Asset, livestock and crop sales (0/1)	-0.030	0.397	6894	0.014	0.150	4097	-0.038 *	0.503	4193
	(0.02)			*(0.01)*			*(0.02)*		
Financed healthcare exp. with: Loan from savings group (0/1)	0.006 ***	0.000	6894	0.000	0.003	4097	0.028 ***	0.065	4193
	(0.00)			*(0.00)*			*(0.01)*		
Financed healthcare exp. with: Grants, remittances and other loans (0/1)	0.004	0.017	6894	-0.001	0.071	4097	0.020	0.138	4193
	(0.00)			*(0.01)*			*(0.01)*		
Financed healthcare exp. with: Savings (0/1)	-0.006	0.064	6894	-0.009	0.158	4097	-0.038 ***	0.215	4193
	(0.01)			*(0.01)*			*(0.01)*		
At least one ill member (last 30 days, 0/1)	0.018	0.647	6896	0.003	0.922	4097	-0.006	0.916	4192
	(0.02)			*(0.01)*			*(0.01)*		
H. Asset Accumulation									
Households									
Livestock value ($)	-27.381	1115.173	6896	-18.324	200.063	4096	-23.114	457.458	4193
	(51.67)			*(14.28)*			*(40.82)*		
Number of fowl (#)	-0.684	12.893	6896	0.667 **	5.570	4096	0.066	3.556	4193
	(0.59)			*(0.30)*			*(0.32)*		
Number of goats and sheep (#)	-0.293	7.285	6896	-0.066	1.112	4096	0.053	1.916	4193
	(0.31)			*(0.07)*			*(0.11)*		
Number of cattle (#)	-0.111	2.145	6896	-0.063	0.337	4096	-0.150	1.201	4193
	(0.14)			*(0.04)*			*(0.14)*		
Assets index	0.028	0.000	6887	-0.021	0.000	4097	0.005	0.000	4190
	(0.05)			*(0.03)*			*(0.03)*		
Housing quality index	-0.002	0.000	6885	0.025	0.000	4096	-0.011	0.000	4193
	(0.05)			*(0.04)*			*(0.04)*		
PPI: living under $1.25 per day (per capita)	0.188	66.489	6843	-0.213	66.125	4095	0.159	45.184	4151
	(0.70)			*(0.66)*			*(0.54)*		
PPI: living under $2.50 per day (per capita)	0.124	89.761	6843	-0.167	93.249	4095	0.071	86.973	4151
	(0.70)			*(0.66)*			*(0.54)*		

Table 3A. Impacts on Participants

Financial Management *Income Generating Activities* *Women's Empowerment*	Intent-to-treat Estimates			Treatment on the Treated Estimates	High Likelihood to Join a VSLA
	Treatment Effect	Mean Control	Obs.	Treatment Effect	Treatment Effect
A. Financial Management					
Savings Groups Participation					
Female Primary Respondent					
Member of any savings group (0/1)	0.169 ***	0.366	13057	0.680 ***	0.205 ***
	(0.01)			*(0.07)*	*(0.02)*
Member of a ROSCAs (0/1)	-0.020 ***	0.095	13056	-0.076	-0.032 ***
	(0.01)			*(0.05)*	*(0.01)*
Member of ASCAs (including VSLA, 0/1)	0.201 ***	0.304	13056	0.808 ***	0.249 ***
	(0.01)			*(0.06)*	*(0.02)*
Member of VSLAs (0/1)	0.250 ***	0.062	13056		0.338 ***
	(0.01)				*(0.02)*
Weekly savings group contributions (all groups, $)	0.285 ***	0.322	13057	1.135 ***	0.328 ***
	(0.05)			*(0.22)*	*(0.06)*
Savings					
Female Primary Respondent					
Holds any savings (0/1)	0.132 ***	0.43	13057	0.532 ***	0.168 ***
	(0.01)			*(0.07)*	*(0.02)*
Total savings deposits ($)	5.509 **	11.186	13057	22.061 **	7.167 *
	(2.27)			*(10.14)*	*(3.65)*
Informal savings ($)	1.485	5.881	13057	5.682	4.584 *
	(1.49)			*(6.27)*	*(2.35)*
Deposits in ASCAs ($)	5.938 ***	5.902	13057	23.825 ***	7.964 ***
	(0.66)			*(2.71)*	*(0.99)*
Deposits in formal institutions ($)	-1.914	2.902	13057	-7.445	-5.381 **
	(1.44)			*(6.04)*	*(2.56)*
Loans received					
Female Primary Respondent					
Received a loan (last 12 months, 0/1)	0.106 ***	0.311	13050	0.433 ***	0.133 ***
	(0.01)			*(0.07)*	*(0.01)*
Total amount borrowed (last 12 months, $)	3.584 **	14.657	13050	14.871 *	5.045 *
	(1.58)			*(7.89)*	*(2.70)*
Number of loans from savings group (last 12 months)	0.279 ***	0.201	13057	1.130 ***	0.367 ***
	(0.02)			*(0.13)*	*(0.03)*
Number of loans from other sources (last 12 months)	-0.012	0.160	13057	-0.034	-0.018
	(0.01)			*(0.08)*	*(0.02)*
Total outstanding loans ($)	1.918 **	2.806	13057	7.840 **	3.001 **
	(0.87)			*(3.88)*	*(1.51)*
Net savings balance (savings - loans outstanding, $)	3.832 *	11.186	13057	14.269	4.165
	(2.28)			*(9.56)*	*(3.66)*
Loans and Transfers Given					
Female Primary Respondent					
Gave a loan (last 12 months, 0/1)	0.019 **	0.151	13051	0.081	0.021 *
	(0.01)			*(0.05)*	*(0.01)*
Gave a transfer (last 30 days, 0/1)	0.016 *	0.203	13044	0.065	0.023 *
	(0.01)			*(0.07)*	*(0.01)*
B. Income Generating Activities					
Business					
Working Age Women					
Credit for business (female primary respondent, last 12 months, (	0.094 ***	0.080	13057	0.370 ***	0.115 ***
	(0.01)			*(0.05)*	*(0.02)*
Has a business (0/1)	0.019 **	0.183	18027	0.072 *	0.021 *
	(0.01)			*(0.04)*	*(0.01)*
Business profits (last 12 months, $)	5.365 **	19.638	17826	20.402 **	6.079 *
	(2.16)			*(9.32)*	*(3.36)*
Agriculture					
Households					
Credit for agriculture (female primary respondent, last 12 months	0.012 *	0.043	13057	0.054	0.012
	(0.01)			*(0.04)*	*(0.01)*
Agricultural inputs use index	0.036	0.102	14817	0.109	0.030
	(0.02)			*(0.14)*	*(0.03)*
Total Expenditure on agricultural inputs (last 12 months, $)	2.841	53.714	15150	9.620	5.955 *
	(2.25)			*(13.84)*	*(3.34)*
Value of the harvest (last 12 months, $)	-0.584	39.268	15045	-0.238	0.797
	(1.27)			*(6.92)*	*(1.85)*
C. Women's Empowerment					
Intra-household decision-making					
Female Primary Respondent					
Decisions influence index	0.060 **	0.000	13049	0.254 *	0.079 **
	(0.03)			*(0.15)*	*(0.04)*
Food consumption (0/1)	0.036 ***	0.530	13042	0.136 **	0.039 **
	(0.01)			*(0.07)*	*(0.02)*
School expenses (0/1)	0.033 **	0.420	12346	0.133 *	0.034 *
	(0.01)			*(0.07)*	*(0.02)*
Children's health (0/1)	0.023 *	0.492	12814	0.100	0.032 *
	(0.01)			*(0.07)*	*(0.02)*
Visiting friend (0/1)	0.001	0.481	13013	0.012	0.012
	(0.01)			*(0.07)*	*(0.02)*
Business actions (0/1)	0.045 ***	0.421	11637	0.168 ***	0.052 ***
	(0.01)			*(0.06)*	*(0.02)*

Table 3B. Impacts on Participants

Shocks and Food Security *Expenditures and Consumption*	Intent-to-treat Estimates			Treatment-on-the-treated Estimates	High Likelihood to Join a VSLA
	Treatment Effect	Mean Control	Obs.	Treatment Effect	Treatment Effect
Community participation index					
Community participation index	0.026	0.00	13051	0.11	0.006
	(0.02)			*(0.12)*	*(0.03)*
Participates in a group (0/1)	0.004	0.33	12778	0.017	0.001
	(0.01)			*(0.09)*	*(0.01)*
Attend village meeting (last 12 months, 0/1)	0.022 **	0.69	13048	0.096 *	0.022
	(0.01)			*(0.06)*	*(0.01)*
Conversations with authorities index	0.003	0.00	13042	0.010	-0.020
	(0.02)			*(0.12)*	*(0.03)*
Empowerment index	-0.020	0.00	13049	-0.09	-0.012
	(0.02)			*(0.13)*	*(0.03)*
D. Shocks and Food Security					
Reactions to Shocks					
Households					
Reacted to shock by:					
Extra labor / migration (0/1)	0.006	0.18	15177	0.024	0.006
	(0.01)			*(0.06)*	*(0.01)*
Loan from savings group (0/1)	0.015 ***	0.04	15177	0.064 **	0.021 ***
	(0.00)			*(0.03)*	*(0.01)*
Other loans, grants, arrears (0/1)	-0.007	0.24	15177	-0.020	-0.018
	(0.01)			*(0.05)*	*(0.01)*
Assets / inventory sales (0/1)	-0.015	0.28	15177	-0.054	-0.028 *
	(0.01)			*(0.06)*	*(0.01)*
Expenditure reduction (0/1)	-0.009	0.11	15177	-0.038	-0.016
	(0.01)			*(0.05)*	*(0.01)*
Savings (0/1)	0.000	0.10	15177	-0.003	0.002
	(0.01)			*(0.04)*	*(0.01)*
Unabsorbed shock index	-0.008	0.62	15177	-0.033	-0.017
	(0.01)			*(0.08)*	*(0.01)*
Shock Impact and Occurrence					
Households					
Shock with large negative impact (last 12 months, 0/1)	-0.011	0.64	15177	-0.041	-0.014
	(0.01)			*(0.07)*	*(0.02)*
Recovery from shock exceeded 3 months (last 12 months, 0/1)	-0.005	0.09	15177	-0.025	-0.006
	(0.01)			*(0.03)*	*(0.01)*
Business failure (last 12 months, 0/1)	0.018 ***	0.13	15177	0.083 **	0.015
	(0.01)			*(0.04)*	*(0.01)*
Food Security					
Households					
Credit for food (female primary respondet, last 12 months, 0/1)	0.036 ***	0.09	13057	0.147 ***	0.056 ***
	(0.01)			*(0.04)*	*(0.01)*
Food insecurity index	-0.014	0.00	15175	-0.054	-0.007
	(0.02)			*(0.14)*	*(0.03)*
Not enough food (last 12 months, 0/1)	-0.010	0.70	15175	-0.031	-0.006
	(0.01)			*(0.07)*	*(0.02)*
Adults reduced food consumption (last 12 months, 0/1)	-0.023 **	0.64	15175	-0.087	-0.023
	(0.01)			*(0.08)*	*(0.02)*
Children reduced food consumption (last 12 months, 0/1)	-0.013	0.52	15175	-0.051	-0.010
	(0.01)			*(0.08)*	*(0.02)*
E. Expenditures and Consumption					
Non-Food Expenditures					
Households					
Total selected expenditures (monthly est., $)	1.269	37.306	15182	6.135	1.554
	(1.26)			*(5.68)*	*(1.85)*
Recurrent expenditures (last 7 days, $)	1.053	13.907	15186	4.457	1.816 *
	(0.73)			*(3.67)*	*(1.04)*
House repairs (last month, $)	0.381	4.762	15105	1.454	0.388
	(0.29)			*(1.29)*	*(0.47)*
Marriages (last 12 months, $)	-2.925	26.420	15159	-8.065	-2.538
	(2.25)			*(10.00)*	*(2.95)*
Funerals (last 12 months, $)	2.320	38.693	15084	10.050	2.880
	(1.82)			*(9.64)*	*(2.66)*
Food Consumption					
Households					
Total food consumption (selected items, last 7 days, $ value)	-0.211	24.727	15129	-0.940	-0.547
	(0.43)			*(2.53)*	*(0.57)*
Grains (last 7 days, $ value)	-0.111	7.203	15134	-0.432	-0.137
	(0.15)			*(0.95)*	*(0.19)*
Nuts and beans (last 7 days, $ value)	-0.038	1.971	15134	-0.145	-0.068
	(0.07)			*(0.66)*	*(0.08)*

Table 3C. Impacts on Participants

Education *Health* *Asset Accumulation*	Intent-to-treat Estimates			Treatment-on-the-treated Estimates	High Likelihood to Join a VSLA
	Treatment Effect	Mean Control	Obs.	Treatment Effect	Treatment Effect
F. Education					
Financing Education					
Households					
Education expenses (last 12 months, $)	-0.555	88.34	15198	74.273	-3.856
	(5.36)			*(421.01)*	*(31.69)*
Financed education exp. with: Income generation (0/1)	0.021 *	0.25	11105	0.080	0.023
	(0.01)			*(0.09)*	*(0.02)*
Asset, livestock and crop sales (0/1)	0.006	0.63	11105	-0.024	-0.003
	(0.01)			*(0.06)*	*(0.02)*
Loan from savings groups (0/1)	0.01 ***	0.02	11105	0.042 **	0.021 ***
	(0.00)			*(0.02)*	*(0.01)*
Grants, remittances and other loans (0/1)	0.007 *	0.03	11105	0.027	0.014 **
	(0.00)			*(0.02)*	*(0.01)*
Savings (0/1)	-0.008	0.07	11105	-0.036	-0.007
	(0.01)			*(0.03)*	*(0.01)*
Educational Outcomes					
School-age children					
Primary school enrollment (girls, 0/1)	0.019 *	0.84	10508	0.067	0.022
	(0.01)			*(0.04)*	*(0.01)*
Primary school enrollment (boys, 0/1)	0.023 **	0.82	10858	0.086 **	0.029 **
	(0.01)			*(0.04)*	*(0.01)*
Secondary school enrollment (girls, 0/1)	0.016	0.76	8106	0.056	0.027
	(0.01)			*(0.05)*	*(0.02)*
Secondary school enrollment (boys,0/1)	0.007	0.79	9277	0.031	-0.002
	(0.01)			*(0.04)*	*(0.01)*
G. Health					
Households					
Consulted health services (last 30 days, 0/1)	0.004	0.77	15185	0.027	0.007
	(0.01)			*(0.04)*	*(0.01)*
Total health expenses (last 30 days, $)	0.442	13.61	15184	2.466	-0.039
	(0.72)			*(3.83)*	*(1.07)*
Financed healthcare exp. with: Income generation (0/1)	0.001	0.27	15184	0.018	-0.014
	(0.01)			*(0.09)*	*(0.02)*
Asset, livestock and crop sales (0/1)	-0.019 *	0.36	15184	-0.073	-0.022
	(0.01)			*(0.09)*	*(0.02)*
Loan from savings group (0/1)	0.011 ***	0.02	15184	0.069 ***	0.026 ***
	(0.00)			*(0.03)*	*(0.01)*
Grants, remittances and other loans (0/1)	0.007	0.06	15184	0.048	0.031 ***
	(0.01)			*(0.04)*	*(0.01)*
Savings (0/1)	-0.017 **	0.13	15184	-0.097 **	-0.026 **
	(0.01)			*(0.04)*	*(0.01)*
At least one ill member (last 30 days, 0/1)	0.006	0.80	15185	0.033	0.011
	(0.01)			*(0.04)*	*(0.01)*
H. Asset Accumulation					
Households					
Livestock value ($)	-27.195	686.45	15185	-103.260	-36.322
	(24.78)			*(154.95)*	*(35.85)*
Number of fowl (#)	-0.042	8.35	15185	-0.349	0.086
	(0.26)			*(1.27)*	*(0.36)*
Number of goats and sheep (#)	-0.115	4.14	15185	-0.469	-0.140
	(0.12)			*(0.56)*	*(0.16)*
Number of cattle (#)	-0.112	1.39	15185	-0.457	-0.142
	(0.07)			*(0.32)*	*(0.11)*
Assets index	0.007	0.00	15174	0.015	0.024
	(0.02)			*(0.10)*	*(0.03)*
Housing quality index	-0.005	0.00	15174	-0.045	-0.004
	(0.02)			*(0.12)*	*(0.02)*
PPI: living under $1.25 per day (per capita)	0.075	60.59	15089	0.536	-0.134
	(0.38)			*(2.25)*	*(0.51)*
PPI: living under $2.50 per day (per capita)	0.047	89.96	15089	0.357	-0.062
	(0.38)			*(2.25)*	*(0.51)*