Evaluation of Layering Microfinance on an Adolescent Development Program for Girls in Tanzania

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October, 2015

Abstract

We evaluate a program targeted to adolescent women in Tanzania and aims to empower them both economically and socially. The program was found to be highly successful in Uganda (Bandiera et al, 2015) in terms of economic, health and social outcomes. In contrast, we find that the program did not have any notable effect on the same set of outcomes in the Tanzanian setting, despite being implemented by the same NGO (BRAC). Moreover, we test for the differential impact of providing microcredit services (over and above the main components of the program) to targeted women and find that addition of microcredit improves take-up of the program and savings of participants. We explore programmatic information that helps explain the marked difference in outcomes between Uganda and Tanzania. This research shows that layering additional microfinance services to an adolescent development program can be an effective tool of attaining greater inclusion of youth in financial services, and brings out important issues around replication and scalability of successful interventions.

1. Introduction

Many African countries are going through a phase of demographic transition marked by a very high share of adolescent and youth population. There has been a focus on programs that are aimed to facilitate the transition of adolescents into the labor market through vocational training and transfers. A number of more recent initiatives have also been trying to extend financial services to the youth as an entry point for their economic empowerment.[1] Such initiatives are often motivated by the limited participation of youth in mainstream financial services[2]. However, there is lack of evidence on whether savings and credit services for youth have any impact on their overall financial market participation and subsequently on their transition into labor market.[3] In this paper, we evaluate the impacts of an intervention designed to improve the human capital of young women in Tanzania by providing them vocational training and information on sex, reproduction and marriage. We also test for the impact of providing microcredit services to program's participants in addition to the other components of the program.

This paper uses data collected from Tanzania for evaluating an Employment and Livelihood for Adolescent (ELA) program by BRAC.[4] The intervention package of this program is intended to combine, to some degree, twin goals of social and economic empowerment. The core model has been found to be very effective in Uganda (Bandiera et al, 2015). The evaluation in Uganda found substantial effects of the interventions after 2 years on increasing the likelihood of girls being engage in an income generating activity and their monthly consumption expenditures, improving reproductive health knowledge and practices, decreasing teen pregnancies and entry into marriage/cohabitation. Positive changes are also observed in several other outcome indicators related to gender roles and norms. In a medium term follow-up, it appears that many of these effects are sustained four years after the program was first implemented.

Our evaluation in Tanzania is a replication of the Ugandan study with once key difference: In Uganda we only evaluated the standard ELA model, consisting of vocational and life skills training. In the Tanzanian setting, we were able to introduce a second treatment arm which combined the standard ELA model with microfinance. After launching the core interventions of ELA (i.e. setting up adolescent girls clubs, and conducting life-skill, livelihood and vocational training) in all the

[1] Among several examples, the YouthStart and Youth-Inclusive Financial Services Linkage Program initiatives by UNCDF, MasterCard Foundation and Making Cents have been aiming to play the catalytic role of making financial service providers more pro-youth.

[2] According to the Global Findex Database, the 'youth gaps' in access to financial services (i.e. the difference in likelihoods of having an account by 15-24 years old compared to adults aged over 24) are larger in developing countries than OECD countries, and have not reduced between 2011 and 2014 (Demirguc-Kunt, 2015). Using information of over 66,000 young account holders at formal financial institutions in four countries, Johnson et al (2015) argue that there is huge latent demand for financial services by the youth and they will save if affordable services are on offer.

[3] Although there are a growing number of experimental evaluations of the impacts of credit interventions, the evidence is somewhat mixed and rarely focused on adolescents. Reviewing evidence from six randomized evaluations of credit programs, Banerjee et al (2015) conclude that credit does not have any transformative effects on the livelihood outcomes. However, the evaluations do not focus on young micro-entrepreneurs.

[4] BRAC is one of the largest southern NGOs originating in Bangladesh and expanded their multidimensional development programs in several countries in Asia and Africa. Youth development through various initiatives for adolescent girls is one of their priority areas in Africa. For more details on the NGO visit www.brac.net, and http://brac.net/ela for the program

treatment communities, half of the clubs were provided with microfinance services. This way, we are able to evaluate the effects of the standard ELA model in Tanzania (as in Uganda) and to estimate the marginal effect of layering microfinance into the program. Our evaluation yields three sets of key findings:

First, we do not find any robust effect of the standard ELA model on young women's social and economic outcomes. We look at the same set of outcomes as in the Uganda evaluation – likelihood of being involved in any earning activity, income, plans for starting new activity or financial skills, knowledge of safe sexual practices and productive health, fertility preference, and perceptions of gender role and control over life – and we find that the program did not lead to significantly improvements in any of these outcomes. This is in sharp contrast to the findings in Uganda where the core model is found to be extremely successful in empowering the girls both socially and economically. For example, the interventions raised the likelihood of girls being engaged in earning activities by 72% (mainly driven by small scale self-employment), raised their private consumption by 38%, reduced teen pregnancy by 26%, and reduced early entry into marriage/cohabitation by 58% (Bandiera et al, 2015). This raises an important concern about the replicability of the model's success.

Second, we find that the layering of microfinance services onto the standard ELA model led raised interest among the target girls about the ELA program reflected by higher take-up rate of ELA club activities in communities with microfinance (19%) compared to treatment villages without (13%). Take-up rate in control villages was 7%.[5]

Third, the program led to an increase in savings among women from communities that received the ELA program with microfinance. Interestingly, offering this formal microfinance service also increased participation in informal savings groups by both the ELA participants and non-particpants in these communities. We provide suggestive evidence that this spillover effect on informal savings by non-members may have been driven by their interactions with club members. We do not find any significant effect on savings in communities with the standard ELA interventions.

Finally, we use qualitative evidence to discuss the reasons behind the stark differences in program's effectiveness in the Ugandan and the Tanzanian settings. Differences in quality of implementation due to resources and several contextual factors appear to the important drivers of these differences. Comparing these two evaluation cases brings forward important issues of scalability, resource requirements in pilots and adaptations. We argue that the relationship between scale and quality is not linear. The minimum scale required for quality assurance in such interventions is larger than 'typical' pilots if the cost-effectiveness analyses from pilots are to be used in scaling up decisions.

Our findings are related to the policy discussion on potential approaches of making financial services more pro-youth. These discussions mostly revolve around product adaptations (CYFI, 2012), 'youth-friendly' approach and use of ICT in service delivery (Zimmerman and Arnold, 2013), and combining financial services with potentially complementary skills training (Jamison et al, 2014). There are also

[5] Two-year take-up rate of ELA in Uganda (without microfinance) were 21% in treatment village and 5% in control villages (Bandiera et al, 2015).

some other initiatives, although less frequently focused on adolescent population, for strengthening various informal institutions to make savings and credit services accessible (Karlan et al, 2012). This evaluation looks at a somewhat different model of combining financial services with primarily non-financial skills training. Since there is a large number of programs for adolescents offering life-skill and health education, these programs can potentially be leveraged as vehicles of offering financial services. This evaluation measures the marginal effects of layering credit services on these non-financial interventions.

The rest of the paper is organized as follows: Section 2 describes the intervention and our evaluation design; Section 3 describes sample attrition, program take-up and estimation strategy; Section 4 describes the main findings, Section 5 provides robustness checks; Section 6 discusses plausible explanations of the contrasting results between Uganda and Tanzania; and Section 7 concludes.

2. Program and Evaluation Description

The ELA program draws on BRAC's experiences of working with adolescent girls over two decades in Bangladesh. With the goal of facilitating the transition of young girls into adulthood as responsible and empowered citizens, this program is being implemented at various scales by BRAC in a number of countries.[6] To this goal, the program assists adolescent girls[7] in achieving greater economic and social empowerment through life-skill and livelihood training, and a safe space for sharing their experiences. Since there are project specific variations in ELA programs across different countries, we explain the core approach followed by a description of the key differences in the Tanzanian pilot.

2.1 The ELA Program

The key components of ELA are adolescent development centers, life-skills training, livelihoods training, financial education, and sensitization meetings with the parents and village elders. The *adolescent development centers* are usually set up in a one-room house at a convenient location for adolescent girls in the community. One of the objectives of this club is to create a safe space for the club members. Each club is provided with books, and equipment for indoor and outdoor games. The girls congregate in the club 5 days a week in the afternoons to engage in various learning and recreational activities - reading and exchanging books, playing games, staging dramas, singing and dancing, and socializing amongst themselves. The club and its associated recreational activities are meant to attract the girls to voluntarily participate in the program, and leverage this interest to conduct life-skill trainings at the clubs.

The second component of ELA is *life-skills training*. A range of topics are covered in the life-skills trainings including adolescent sexual and reproductive health, menstrual disorders, dangers of early pregnancy, sexually transmitted infections, HIV/AIDS awareness and family planning. An adolescent leader, recruited from the community, is assigned to each club to conduct these trainings and to facilitate club activities. The adolescent leaders, also known as mentors, are usually a few years older

[6] In Bangladesh, BRAC has reached over a million girls between 1993 and 2013 with 40,000 adolescent clubs. The second largest program in Uganda has reached over 50,000 girls with 1,200 clubs established since 2008. Several pilots ranging between 60 and 250 clubs have been initiated in Tanzania, South Sudan, Sierra Leone and Pakistan.

[7] Although 13-19 years is typically used as a functional definition of adolescence, participation is voluntary and not restricted to this age bracket.

than most of the club participants. Each mentor is provided with one-week residential training on club maintenance and training-of-trainers for life-skills. Each mentor receives a monthly stipend of about 15 US dollars.

A third component of core ELA is *livelihood training*. The club members are provided with trainings on an income generating activity (IGA) suitable to their context. Typical IGAs include small scale agriculture or vegetable cultivation, poultry and livestock rearing, hair-dressing, tailoring, computer operating, and other small-scale trades. These trainings are provided through entrepreneurs who are engaged in these activities in the communities or by hired professionals. BRAC's agriculture and livestock program also assists in conducting specific IGA training. Sometimes financial education is provided in addition to the IGA specific trainings.

The fourth component of ELA is to promote community participation by conducting periodic *meetings with the parents and village elders*. Meetings are conducted with parents and village leaders to sensitize them about the issues of adolescent girls and to create an enabling environment for the girls, especially during the early stages after setting up a club. This community consultation is considered instrumental to generate community ownership of the program and to derive community support.

Microfinance, the fifth component, is provided to relatively older adolescents so that they can become self-reliant through various self-employment activities. The objective of adding credit to the ELA program is to assist low-skilled girls to engage in self-employment activities and to improve their productivity through training and counseling. In most of these communities, BRAC also operate their mainstream microfinance program. While many of these girls are eligible to participate in the mainstream microfinance program, ELA microfinance involves more hands-on coaching, and offer smaller loan sizes to cater for the needs of adolescent girls. In other dimensions, the product structure of ELA microfinance is similar to the mainstream microfinance in terms of interest rates and repayment frequency. Availability of savings services also follows the country-specific products designed based on regulatory requirements.

2.2 Implementation of ELA pilot in Tanzania

There were important variations between the general program design as described above and its implementation in Tanzania. To begin with, there were challenges in selecting implementation sites. Initially 10 BRAC branch offices in and around Dar-es-Salaam were selected as implementation sites. Field activities within these branches were then launched with listing of adolescent girls in about 200 communities. Following this listing to identify suitable communities for the interventions, the program implementation team observed that these are not ideal communities for the project interventions. Lack of interest of such program in urban settings and limited cooperation from the communities were highlighted as the reasons for this assessment.[8] Consequently, the pilot sites were relocated to 10 relatively less urban branches in the Dodoma and Iringa districts. This early set back put a constraint on project resources – both financially (having to incur expenses for redeployment of staff and redo surveys for listing eligible girls) and time (to meet deliverable requirements according to the initial project timeline).

[8] Few of these branches have started 'ELA-like' program with new project supports in later years.

Among the intervention components described in the above section, there was an important variation with the club space. As already discussed, these clubs are expected to be set up in a one-room house for monthly rents paid by the program. In Tanzania, the clubs were not usually rented. With the argument that it will help in increasing community ownership if the clubs could be housed at a space donated by the community and thereby create sustainability, the provision for rents was removed during the pilot. Consequently, field officers had very limited control over the type of space they could ensure for housing the clubs. In many cases they failed to find a donated space and worked out an arrangement with a local school or church to use their space. Using these public spaces reduced BRAC's ability to decide on the timing of performing club activities. The donated club houses also were also insecure and had to adjust to the preference of the owner. Overall, ensuring a 'secure club space' was an ongoing challenge throughout the pilot.

Another important variation to highlight is regarding the livelihood training package. The girls are most frequently trained on agriculture and small scale poultry or livestock farming under this component. Some of the programs in other countries, including Uganda, they were provided with in-kind support (worth about USD 30) in the form of seeds, tools or chicks in addition to the training. In Tanzania, the livelihood trainings were not complemented by such input support.

We discuss the reasons and consequences of these challenges and variations further in Section 6. Overall, these variations have important implications on interpretation of the impact results – especially for understanding the contrasting results of the otherwise identical programmatic models.

2.3 Research Design

Implementation of the field activities of ELA in Tanzania started in 2009 with 100 adolescent centers in 10 branches located in Irigna and Dodoma, with a mix of urban and rural locations. We over-selected the number of villages/communities to construct a control group. Prior to launching the interventions, the program implementation team identified 15 villages in each branch as potential sites for setting up the clubs. Stratified at branch level, these 150 villages were randomly divided into two groups- 100 treatment villages and the 50 control villages. All the treatment villages received the ELA intervention (i.e. a clubs, life-skill training, livelihood training and community meetings). For simplicity, we call this set of interventions as 'Club'. The treatment villages were then further randomized into two groups –'Club only' and 'Club + microfinance'. Therefore, there are three types of villages:

1. Group A: 'Club only' villages offering adolescent development clubs and associated interventions
2. Group B: 'Club + MF' offering microcredit in addition to Group A interventions
3. Group C: Control villages with no interventions

A village census done by the program team was used as our sampling frame. A baseline survey of 30-40 girls from each village was conducted during January-July, 2009. Table A1 shows the balance checks of the three groups in baseline characteristics. The normalized difference of the two treatment groups from the control is less than 0.10 for all variables, which is lower than the rule of thumb value suggested by Imbens and Wooldridge (2009), and significant in only 1 of 40 cases. The clubs were established in 2009 after the baseline survey. Microfinance rollout started in early 2010

in the second treatment group after all the clubs were set up. The follow-up survey was conducted during June-November of 2011 on the same adolescent girls surveyed at the baseline.

3. Sample, Take-up and Estimation Method

Our baseline covered 5,454 adolescent girls from these 150 villages. In the follow-up survey, we could track 3,179 of these girls. Therefore, we have a very high attrition rate (42%) between baseline and follow-up. Although such high attrition for similar study population is not very uncommon,[9] this poses challenges in both interpreting representativeness of the panel sample and measuring impacts. Table A2 presents the correlates of attrition in our sample. On average, girls who were enrolled in school at baseline are more likely to be surveyed in the follow-up. Similarly the girls who had a child at baseline are also less likely to attrit. The treatment dummies are not significant in any of the specifications showing similar tracking rates across the three groups. However, the main concern is whether there is a selection bias introduced by losing different types of girls from our initial sample between control and treatment groups. Estimates including interactions of all these characteristics with the treatment dummies are jointly not significant. The adolescent girls, who have been successfully tracked, are not statistically different in these baseline characteristics among the three groups. We also try to account for attrition in our estimates in the section on robustness checks.

3.1 Take-up and Selection into The Program

Table 1 shows the take-up rates of different ELA activities across the three types of communities. Over half of the girls in all three groups know about the ELA interventions. Although ELA clubs were not set up in any control village, 54% of the girls from this group report being aware about ELA activities, demonstrating the high visibility of the program. Girls in 'Club + MF' villages were relatively more likely (64%) to be informed about ELA than the control villages. There is no difference in knowing about ELA activities between 'Club only' and control villages.

Conditional on being informed about ELA, girls in both types of treatment villages are more likely to participate than in the control group. Overall take-up rate, in terms of ever participating in any club activities, is the highest in treatment villages with microfinance (19%), and significantly higher than both treatment villages without microfinance (13%) and control (7%) villages. It is important to note here that the participation rate of the program in Uganda after 2 years was 21% in treatment villages without microfinance and 5% in control villages. In Tanzania, the introduction of microfinance increased overall take-up of the all program activities by 6 percentage points. However, this additional take-up is not necessarily driven entirely by girls who are joining ELA clubs to be able to borrow from ELA microfinance although being an ELA club member is a requirement to join microfinance. Only 4% of the girls in 'Club + MF' villages ever participated in the microfinance part of the program. In fact, there seems to be more persistence in girls' interest in participating in ELA activities in these villages. The likelihoods of joining ELA activities recently (in the last 6 months) or currently participating are also the highest in 'Club + MF' villages. Therefore, it seems that

[9] For example, in their evaluation of vocational training for youth in Malawi, Cho et al (2013) observed 33% attrition rate in their follow-up after 1 year. Duflo et al (2014) have observed 51% attrition rate in their experiment in Kenya after 7 years. In the evaluation of ELA in Uganda (Bandiera et al, 2015), attrition rates are 18% and 41% after 2 and 4 years respectively.

microfinance activities strengthened the overall ELA program by generating more interest among the girls about the program.

Given the differences in take-up rates, it is important to assess whether there are differences in the profile of girls joining ELA clubs between the two treatment groups and as compared to girls from control villages. In Table 2, we investigate differential selection in becoming a club member across the 3 groups of villages across various baseline characteristics. By looking at this range of characteristics individually, we find little differences between club members and non-members. Among the characteristics with statistically significant differences, girls who do not yet have a child and expressed greater interest in the clubs at baseline are more likely to be a club member. Among the household characteristics, having a member participating in regular BRAC program also significantly increases the likelihood of a girl becoming ELA club member. There is no major significant difference in average characteristics between club members from control villages and club members in the 'Club only' villages. In the 'Club + MF' villages, however, the girls who reported less interest in ELA at baseline are more likely to participate than the other villages. It seems that offering microfinance services influences relatively less interested girls to participate. It is also important to note that, across the three groups, the girls reported extremely high interest with an average intention to participate of over 9 on a 10 point scale.

In Table 3, we report the joint significance of all these determinants of club participation. For this, we use the following regression.

$$y_i = \alpha_0 + \alpha_1 V_{Club} + \alpha_2 V_{MF} + \beta_k X_i + \delta_k X_i * V_{Club} + \eta_k X_i * V_{MF} + u_i \quad (1)$$

Y_i is whether individual *i* is an ever participant or not; X_i are baseline characteristics; and V_{Club} and V_{MF} are the dummies for village being assigned to 'Club only' and 'Club + MF' treatments. In the regression of predictors of club participation including branch fixed effects, F-statistics for individual and household characteristics is 4.16 (p-value 0.00). However, the joint significance of the interaction terms ($\sum \delta_k$) is 1.72 (p-value 0.07) for 'Club only' villages, and 1.04 (p-value 0.259) for 'Club + MF' villages (Column 4 in Table 3). Therefore, we conclude that participants from 'Club only' communities were significantly different relative to participants from control communities. While we do not detect a significant difference between 'Club + MF' and control communities in terms of the set of observable characteristics we test for here, there could still be differences in unobservable characteristics of the two groups. As such, comparing participants across different treatment groups is likely to yield estimates that are in part driven by such differential selection.

3.2 Estimation Method

The intention to treat (ITT) effect is generally the most reliable estimate of impacts in randomized experiments. Partial compliance and/or contamination make this a more conservative estimate. Therefore, we start our impact estimates to measure ITT effects with individual fixed effects in the following specification

$$y_{itv} = c_{iv} + \beta_1 followup + \beta_2 followup * V_{Club} + \beta_3 followup * V_{MF} + u_{iv} \quad (2)$$

In this equation, y_{itv} are the outcome indicators for girl i in village v at time t. c_i is individual fixed effects, β_1 measures the average change in control villages, and β_1 and β_1 are the estimated impacts for 'Club only' and 'Club + MF' interventions respectively.

Along with this ITT specification, we also look at the effects on participants (the local average treatment effect – LATE) by using our randomized assignments to treatments as instruments for predicting club participation. This is a standard approach of impact estimates in the context of partial compliance.

$$y_{it} - y_{it-1} = \beta_0 + \beta_1 \widehat{part_i} + \delta_k X_i + u_{it} \quad (3)$$

$$part_i = \alpha_0 + \alpha_1 V_{treatment} + \gamma_k X_i + e_{it} \quad (4)$$

In this 2-stage estimate, the dependent variables in the second stage are the changes in the variables from baseline to follow-up with β_1 measuring the impacts on partipants (equation 3). $\widehat{part_i}$ is the predicted participation estimated from the first stage. In the first stage, participation in club activities is regressed on RCT assignment (the instrument) with baseline characteristics and branch dummies as controls. The strength of the instruments in predicting participation is one of the major concerns for reliabele estimates in this specification. An F-statistics of 10 for the instruments is often used as a rule of thumb for a minimum value required. F-statistics of our instruments are 10.01 and 32.23 for 'Club only' and 'Club + MF' respectively. The instruments pass the weak identification test marginally for measuring the effects of 'Club only' interventions, and comfortably for 'Club + MF'. This essentially reflects the larger difference in take-up between 'Club + MF' and Control compared to the difference between 'Club only' and control.

Finally, we also measure impacts by using propensity score matching, which is widely used in non-experimental settings.

4. Main Impact Results

We start by analyzing the effects of the ELA program on economic outcomes. Table 4 presents both the ITT and the IV estimates from specifications (2) and (3) respectively. The outcomes we look at the likelihood to be involved in an income-generating activity and to have a daily income, logarithm of labor income, whether the respondent indicated that she was planning to start a new income-generating activity and a measure of financial skills. None of the estimates shows significant impact. This is in sharp contrast with the findings for the evaluation of ELA interventions in Uganda, which found a significant positive increase in the probability that girls were in an income generating activity. Aside from income, the point estimates of the ITT effects in the Tanzania evaluation are also very close to. Point estimates for the LATE estimates are much higher but still not statistically significant.

Table 5 shows ITT and IV estimates for the impact of the program on participants' financial market outcomes. We find that the combined intervention of club and microfinance service has increased the livelihood of adolescent girls having savings, and particularly at informal institutions, such as rotating savings and credit schemes (ROSCAs), locally known as *upatu*. The ITT estimates show a 2.8 percentage points increase in the likelihood of having savings at ROSCAs, which is more than 100

percent increase given the low base of only 2 percent at baseline. The point estimates for having savings at home and savings at an NGO are also large, but imprecisely estimated. There is also a significant positive impact on total amount saved by the girls. The IV estimates in Panel B show positive impacts on savings at home as well as overall savings for 'Club + MF' intervention only. There is, however, no impacts observed on borrowing. Both the ITT and the IV estimates in column (7) show that the participants did not experience any increase in their likelihood to have a loan. This is surprising, given that the microfinance services layered are primarily offering credit and not saving products. This implies that mechanisms other than the direct availability of microfinance services may be driving the effects on saving. In section 6, we will provide suggestive evidence that these effects were mainly driven by spillover effects through the social networks of club participants.

Finally, in Table 6, we provide results reproductive health, education, and empowerment outcomes. We fail to reject the null of zero impact for almost all indicators. The ITT results for these indicators are statistically insignificant and in most cases very close to zero – e.g. the point estimates for HIV knowledge on a scale of 0 to 5 is 0.15 for 'club only' and 0.07 for 'Club + MF' as opposed to a large effect of 0.47 for the program in Uganda. Hence, the clubs – both with and without microfinance – seem to have had no discernible impact on participants' empowerment or reproductive outcomes, a marked contrast from the results in Uganda.

5. Discussion on the Impacts on Savings

In this section, we reflect on social learning as a plausible mechanism of the effects on informal savings. In follow-up survey, we collected network information by asking girls about their interactions with the other girls in their respective villages. We asked about three types of topics, i.e. how often they have talked about issues related to business, health or social life. Since this information is collected only at the follow-up survey, we are only able to look at the correlations with social network with being aware about ELA and having informal savings. Therefore, this analysis is not sufficient to claim social learning or demonstration effect. However, positive correlations between the likelihood of talking about business with fellow girls in their network and having informal savings would support social learning. By the nature of the informal savings being a collective action among girls, this is almost a necessary condition. Table 6 presents these correlations for girls who have never been an ELA club member.

In fact, the non-participant girls in 'Club + MF' villages are more likely to talk about business with their fellow members if they are aware about ELA program. Furthermore, we also find positive correlations between talking about business and having informal savings. There is also possible reverse causality between talking about business and participating in informal savings groups. Since both talking about business and informal savings are possible outcomes of the intervention, we cannot tease out the true network effect. However, this suggestive evidence that offering microfinance can work as an impetus for girls to initiate their own savings mechanisms and save more is extremely encouraging. This potential crowding in of informal savings institutes needs to be explored further to inform the policy agenda of youth inclusive financial services.

6. Why are the impacts of ELA different between Tanzania and Uganda?

As we have discussed so far, we find very contrasting evidence of the impacts of ELA interventions in Tanzania compared to a similar intervention by the same NGO in Uganda. It is important to highlight

here that this is not unique to this particular intervention to find contrasting results.[10] While it is extremely important to understand why these are so different for scale-up polices, an attempt to answer this question *ex-post* can be dangerous. After all, these are two separate cases of implementing a 'similar intervention model' that differ in many aspects starting from the fact that they are in two different countries. Any combination of these multitudes of differences could potentially be the underlying factor behind this difference. With this important caution, we discuss about a few key factors that seems to be behind this contrasting results. For this, we heavily draw on a qualitative research comparing ELA in Uganda and Tanzania as case studies by BRAC's research and evaluation division (Yam, 2013).

This qualitative process evaluation identifies several weaknesses in the implementation of this program in Tanzania. Discussions of these weaknesses with implementation teams reveal that resource constraints are at the core of this quality of implementation. Unlike in Uganda, where the program was scaled up while the evaluation pilot was underway, there were important resource constraints in Tanzania. The initial delay in project rollout and having to redeploy teams in new sites depleted the program's ability to implement the interventions according to the original design.

Firstly, the provision for renting club houses was taken away. Consequently the club meetings and trainings were held either in public spaces (e.g. in local schools or church) or in donated houses. Conducting club activities in public spaces created uncertainty over timing, and donated houses were often not the most attractive locations. The second difference in quality was in club materials. Not replenishing club materials is also found to have reduced club members' interest in regular participation. There are also claims that some materials were lost as they could lock the doors. Thirdly, there were inadequate provisions for training of new mentors. Since the pilot was operating at a very small scale, it was not feasible to organize trainers' training for only a few mentors. For example, the mentors are trained in batches of 20-30 individuals. With less than 5 mentors dropping out in a month, the replacement mentors often had to wait for months before they could be trained. Finally, the qualitative report also identifies less frequency of monitoring and supervision visits as a reason of low quality. One factor that contributed to this low supervision was that many of the clubs were located fairly far from the central office.

Because of relatively quick scale up in Uganda with funding from MCF, the program there was able to reduce overhead costs per club, utilize scale economics in procurement of materials, in mentors' training and doing supervision. There were also additional initiatives that could leverage the scale of operations. There have been several initiatives of inter-club competitions (on cultural events, spots, handicrafts) in Uganda to rejuvenate club activities, the like of which were not done in Tanzania. These examples of advantages in scale are important to note in the context of external validity of small pilots in different program environments. These suggest that there may not necessarily be a negative relationship between the scale of an intervention and its quality, which is often assumed to be the case.

[10] For example, in an evaluation of scaling up a previously successful contract teachers intervention in Kenyan schools, Bold et al (2013) find different results on impacts of students' learning by types of implementing agencies (Govt. vs. NGO). This study highlights differences in monitoring and implementation quality being major drivers of different outcomes.

Besides these implementation quality issues, the report also highlights a difference in the priority expressed by the girls in Uganda and Tanzania. The club members in Uganda were more interested on economic and livelihood components, but their counterparts in Tanzania expressed greater interest in receiving support for their education. This is in line with a higher rate of school enrolment among the members of Tanzanian ELA clubs than in Uganda (80% vs. 71%). There have been a few adjustments in the overall ELA program in Tanzania more recently (since 2013) by focusing on training mentors on tutoring club members who are enrolled in schools. An evaluation is currently underway to assess ELA program with this adjustment and initiatives for quality improvements (Selim, can we site any source of GEC evaluation???).

Despite many differences, this is an intervention done by the same NGO in the two neighboring countries of East Africa that have yielded different results. When scaling up this model, there are risks of getting it wrong despite the strength of the core model. We argue that building the external validity of this program model would require further works that tests it as a complete package instead of cutting down corners to make it less costly. Alternatively, a more structured approach to examining various aspects of the program (e.g. the livelihoods training versus the life skills training) with a multi-arm experiment could provide insights on whether it is possible to run this type of program effectively with less resources. Overall, the key factor for long-term success at the institutional level is continuous learning - both from evaluations and field level implementations for contextual adaptations.

7. Conclusion

Extending financial services is increasingly becoming a priority in the policies around labor market transition of the young population. This is a more prominent challenge in African countries that are going through demographic transitions. This research indicates that layering financial services on other (non-financial) training programs as a plausible avenue of achieving youth inclusive financial services. Such a strategy can be effective in enhancing overall participation in such programs and have an impact on their economic empowerment. Moreover, such financial services may also influence creation of informal institutes to achieve greater financial inclusiveness.

(What you think should be our highlights on ELA non-result vs. Uganda???)

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Table 1. Uptake rates and selection into the program by baseline characteristics

	Club only	Club + MF	Control	Difference		
	(A)	(B)	(C)	(A-C)	(B-C)	(B-A)
Heard about ELA	0.550	0.637	0.539	0.011	0.098	0.087
				(0.061)	(0.059)*	(0.059)
Ever participated in any ELA club activity (if heard)	0.237	0.296	0.132	0.106	0.165	0.059
				(0.043)**	(0.043)***	(0.051)
Ever participated in any ELA club activity	0.130	0.193	0.071	0.060	0.122	0.063
				(0.025)**	(0.028)***	(0.033)*
Joined club in the last 6 months	0.013	0.035	0.007	0.006	0.029	0.022
				(0.005)	(0.014)**	(0.014)
Still participating during follow-up survey	0.028	0.048	0.022	0.006	0.027	0.021
				(0.010)	(0.013)**	0.014
Member of ELA microfinance	0.008	0.037	0.011	-0.004	0.026	0.030
				(0.005)	(0.010)**	(0.010)***

Note: ***, ** and * denote significance at <10%, <5% and <1% respectively. Standard errors of the differences are clustered at village level.

Table 2. Differential selection in program participation by treatment status of the village

	Adolescent Characteristics									Household Characteristics			
VARIABLES	Young	Enrolled	Single	Have Child	Interest in ELA	Any IGA	Any daily earning	Future IGA	Worry money	Assets	Own a house	Any adult male	BRAC member
Club member	0.096	-0.012	0.022	-0.051	0.567	-0.008	-0.022	0.035	0.031	0.037	0.064	-0.017	0.132
	(0.073)	(0.050)	(0.016)	(0.022)**	(0.157)***	(0.028)	(0.017)	(0.030)	(0.055)	(0.113)	(0.070)	(0.058)	(0.064)**
Treatment village A	0.041	0.023	0.015	-0.009	0.172	-0.004	0.005	0.001	-0.035	0.055	0.005	0.028	-0.023
(Club only)	(0.029)	(0.030)	(0.009)*	(0.015)	(0.163)	(0.016)	(0.014)	(0.012)	(0.044)	(0.097)	(0.050)	(0.036)	(0.026)
Treatment village B	0.026	-0.007	0.004	-0.005	0.157	0.037	0.035	0.011	-0.015	0.002	-0.011	-0.002	0.004
(Club + MF)	(0.028)	(0.033)	(0.011)	(0.015)	(0.156)	(0.023)	(0.021)*	(0.012)	(0.045)	(0.087)	(0.048)	(0.040)	(0.026)
Treatment village A	-0.025	-0.038	-0.016	0.027	-0.396	-0.011	-0.017	-0.053	-0.005	-0.119	-0.077	0.023	-0.015
X club member	(0.091)	(0.063)	(0.019)	(0.028)	(0.204)*	(0.035)	(0.020)	(0.032)*	(0.073)	(0.174)	(0.084)	(0.071)	(0.086)
Treatment village B	0.005	0.027	-0.005	0.026	-0.517	-0.032	-0.033	-0.063	-0.027	-0.106	0.005	0.044	-0.025
X club member	(0.084)	(0.064)	(0.020)	(0.028)	(0.214)**	(0.040)	(0.025)	(0.032)*	(0.072)	(0.152)	(0.084)	(0.072)	(0.074)
Constant	0.464	0.786	0.964	0.080	9.150	0.074	0.049	0.032	0.396	-0.012	0.612	0.710	0.091
	(0.018)***	(0.022)***	(0.007)***	(0.010)***	(0.126)***	(0.011)***	(0.009)***	(0.008)***	(0.034)***	(0.063)	(0.034)***	(0.023)***	(0.019)***
Observations	3,179	3,179	2,996	3,049	3,104	3,179	3,179	3,179	3,179	3,060	3,025	3,179	3,062
R-squared	0.005	0.001	0.002	0.002	0.006	0.005	0.007	0.003	0.001	0.001	0.001	0.001	0.019

Note: ***, ** and * denote significance at <10%, <5% and <1% respectively. Standard errors in parentheses are clustered at village level. Dependent variable are: Young=Age is <=16 years (median age) at baseline, Enrolled=whether enrolled in school, Single=whether never been married, Have child=have at least one child, Interest in ELA= reported intention to participate on a scale of 0 to 10 at baseline, where 10 is "I definitely would join such a club", Any IGA=whether involved in any income generating activity, Any daily earning = whether involved in any activity generating daily income, Future IGA = whether planning to start any new IGA, Worry money= whether reported worrying about her family not having enough money to pay for things, Assets= an index from principal component analysis to combine ownership of six different household assets (radio, television, refrigerator, cell phone, sofa and iron), Own a house= whether household owns the house they are living in, Any adult male = whether there is any adult male (aged 30+) member in the household, BRAC member = whether any of the household members participate in BRAC's microcredit program.

Table 3. Joint significance of predictors of club participation

	Ever participated in any ELA club activity			
	(1)	(2)	(3)	(4)
Treatment village A	0.199	0.198	0.235	0.218
(Club only)	(0.114)*	(0.115)*	(0.123)*	(0.126)*
Treatment village B	0.253	0.247	0.256	0.243
(Club + MF)	(0.153)	(0.144)*	(0.153)*	(0.148)
Adolescent characteristics	Yes	Yes	Yes	Yes
Household characteristics	No	No	Yes	Yes
Branch dummies	No	Yes	No	Yes
Observations	2,869	2,869	2,713	2,713
R-squared	0.044	0.067	0.063	0.072
F-Stat for $\sum\beta_k (X_i)$	3.65***	2.79***	6.30***	4.21***
F-Stat for $\sum\delta_k (X_i * V_{Club})$	1.74*	2.10**	1.13	1.72*
F-Stat for $\sum\eta_k (X_i * V_{MF})$	1.85*	1.45	1.14	1.04

Note: ***, ** and * denote significance at <10%, <5% and <1% respectively. Standard errors in parentheses are clustered at village level. Adolescent and household characteristics included in the regressions are those specified in Table 2.

Table 4. Impact on economic outcomes

Panel A: Intention to treat effects						
VARIABLES	Involved in IGA	Have daily income	Ln(income)	Planning new IGA	Financial Skills	Tobit ln(income)
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment village A (Club only) X Follow-up	0.018	0.003	0.109	0.010	-0.002	0.984
	(0.019)	(0.016)	(0.202)	(0.016)	(0.098)	(1.532)
Treatment village B (Club + MF) X Follow-up	-0.018	-0.024	-0.277	0.008	-0.059	0.754
	(0.027)	(0.023)	(0.284)	(0.016)	(0.102)	(1.523)
p-value (A vs. B)	0.18	0.22	0.17	0.92	0.52	0.88
Observations	6,358	6,358	6,346	6,358	6,358	6,346
R-squared	0.005	0.004	0.004	0.006	0.089	-
Number of ID	3,179	3,179	3,179	3,179	3,179	3,179
Panel B: IV Estimates						
Treatment village (Club only)	0.192	0.054	0.694	0.066	-0.612	
	(0.193)	(0.153)	(1.948)	(0.139)	(0.875)	
Observations	1,903	1,903	1,895	1,903	1,903	
R-squared	0.320	0.348	0.322	0.406	0.051	
Treatment village B (Club + MF)	0.068	-0.008	0.820	0.042	-0.450	
	(0.129)	(0.101)	(1.377)	(0.095)	(0.577)	
Observations	1,931	1,931	1,926	1,931	1,931	
R-squared	0.437	0.433	0.399	0.397	0.090	

Note: ***, ** and * denote significance at <10%, <5% and <1% respectively. Column 1-5 are OLS estimates with individual fixed effect and standard errors are clustered at village level. Column 6 tobit estimates. IV estimates (Panel B) use treatment assignment as exogenous instrument of club participation controlling for individual characteristics from baseline and branch dummies, outcome indicators are changes between baseline and follow-up, and errors clustered at village level. F-statistics of first stage are 10.01 and 32.23 for 'club only' and 'club + MF' respectively. IVTOBIT is not done column 6 since the outcome is change in income and cannot be left/right censored.

Table 5. Impact on financial market participation

Panel A: Intention to treat effects										
VARIABLES	Have savings	Ln (savings amount)	Savings at home	Savings at a ROSCA	Savings at NGO	Savings at BANK	Have Loan	Ln (loan amount)	Tobit ln(savings)	Tobit ln(loan)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Treatment village A (Club only) X Follow-up	0.056	0.528	0.045	0.009	-0.010	0.016	-0.010	-0.137	0.835	-3.216
	(0.049)	(0.488)	(0.045)	(0.009)	(0.026)	(0.017)	(0.009)	(0.105)	(0.816)	(3.602)
Treatment village B (Club + MF) X Follow-up	0.064	0.663	0.050	0.028	0.033	0.013	0.000	-0.010	2.082	4.138
	(0.047)	(0.478)	(0.041)	(0.012)**	(0.032)	(0.019)	(0.014)	(0.147)	(0.801)***	(3.212)
P-value (A vs. B)	0.87	0.79	0.91	0.13	0.17	0.90	0.50	0.39	0.12	0.03
Observations	6,358	6,358	6,358	6,358	6,358	6,358	5,637	5,637	6,358	5,637
R-squared	0.075	0.089	0.041	0.020	0.113	0.052	0.003	0.005	-	-
Number of ID	3,179	3,179	3,179	3,179	3,179	3,179	3,143	3,143	3,179	3,143
Panel B: IV Estimates										
Treatment village (Club only)	0.681	6.494	0.469	0.124	-0.103	0.185	-0.101	-1.431		
	(0.480)	(4.748)	(0.426)	(0.114)	(0.349)	(0.211)	(0.087)	(0.994)		
Observations	1,903	1,903	1,903	1,903	1,903	1,903	1,584	1,584		
R-squared	-0.083	-0.066	-0.001	-0.030	-0.001	-0.010	0.020	-0.011		
Treatment village B (Club + MF)	0.572	5.645	0.453	0.194	0.273	0.097	0.004	-0.093		
	(0.287)**	(2.992)*	(0.252)*	(0.095)**	(0.244)	(0.132)	(0.090)	(0.962)		
Observations	1,931	1,931	1,931	1,931	1,931	1,931	1,580	1,580		
R-squared	-0.027	-0.019	-0.007	-0.057	-0.007	0.005	0.049	0.040		

Note: ***, ** and * denote significance at <10%, <5% and <1% respectively. Column 1-8 are OLS estimates with individual fixed effect and standard errors are clustered at village level. Column 9 and 10 are random effect tobit estimates. IV estimates (Panel B) use treatment assignment as exogenous instrument of club participation controlling for individual characteristics from baseline and branch dummies, outcome indicators are changes between baseline and follow-up, and errors clustered at village level. F-statistics of first stage are 10.01 and 32.23 for 'club only' and 'club + MF' respectively. IVTOBIT is not done column 9 and 10 since the outcomes are changes and cannot be left/right censored.

Table 6. Impact on social outcomes

	ITT estimates			IV estimates		
	Club Only (Treat A)	Club + MF (Treat B)	P-value (A=B)	Club Only (Treat A)	Club + MF (Treat B)	P-value (A=B)
Outcome indicators	(1)	(2)	(3)	(4)	(5)	(6)
Enrolled in schools (1=Yes)	0.034	0.041	0.847	0.056	0.011	0.406
	(0.028)	(0.036)		(0.071)	(0.068)	
Knowledge on HIV [Scale 0 – 5]	0.150	0.069	0.743	0.043	0.252	0.533
	(0.270)	(0.285)		(0.372)	(0.339)	
Ever had sex (1=Yes)	-0.024	-0.018	0.867	0.073	0.122	0.511
	(0.034)	(0.033)		(0.085)	(0.084)	
Always use condom (if sexually active) (1=Yes)	-0.089	-0.043	0.692	0.023	-0.153	0.442
	(0.118)	(0.096)		(0.325)	(0.328)	
Ever had STD (1=Yes)	0.010	0.001	0.410	-0.002	0.032	0.132
	(0.012)	(0.011)		(0.046)	(0.046)	
Ever had sex unwillingly (1=Yes)	0.021	-0.001	0.123	-0.029	-0.024	0.850
	(0.013))	(0.011)		(0.028)	(0027)	
Never been married (1=Yes)	0.004	0.009	0.633	0.028	-0.009	0.110
	(0.009)	(0.012)		(0.024)	(0.026)	
Have child(ren) (1=Yes)	-0.022	-0.008	0.465	-0.084	-0.102	0.575
	(0.017)	(0.017)		(0.054)	(0.056)*	
Perceived ideal marital age for girls (in years)	0.357	0.101	0.479	0.292	-0.244	0.443
	(0.315)	(0.336)		(0.749)	(0.676)	
Perceived ideal number of children	0.003	0.024	0.841	0.225	0.217	0.963
	(0.102)	(0.095)		(0.220)	(0.209)	
Perceived gender role [Index 0 – 100]	3.775	6.144	0.489	3.850	5.264	0.820
	(3.194)	(3.410)*		(6.357)	(4.928)	
Perceived control over life [Index 0 – 100]	-0.422	-2.136	0.588	1.093	5.963	0.322
	(3.295)	(2.904)		(5.684)	(4.217)	

Note: ***, ** and * denote significance at <10%, <5% and <1% respectively. Results presented in Column 1 and 2 are β_2 and β_3 respectively from equation 2; and Column 4 and 5 are β_5 and β_6 respectively from equation 5.

Table 7. Correlations among knowing about ELA, business network and ROSCA savings

VARIABLES	Whether talked to any girl in network section about business	Whether talked to any girl in network section about business	Savings at a ROSCA	Savings at a ROSCA
Treatment village A (club)	0.026	0.023	0.000	-0.004
	(0.023)	(0.024)	(0.006)	(0.007)
Treatment village B (club+MF)	0.020	0.014	0.007	0.004
	(0.022)	(0.021)	(0.008)	(0.007)
Heard about ELA	-0.021	-0.018		
	(0.021)	(0.022)		
Treatment village A X Heard about ELA	0.027	0.025		
	(0.033)	(0.034)		
Treatment village B X Heard about ELA	0.074	0.079		
	(0.039)*	(0.039)**		
Talked about business			0.076	0.071
			(0.041)*	(0.041)*
Treatment village A X Talked about business			0.062	0.096
			(0.071)	(0.078)
Treatment village B X Talked about business			0.111	0.113
			(0.061)*	(0.069)
Constant	0.062	0.114	0.021	0.090
	(0.014)***	(0.063)*	(0.005)***	(0.064)
Baseline characteristics	No	Yes	No	Yes
Observations	2,582	2,306	2,582	2,306
R-squared	0.047	0.053	0.076	0.095

Note: ***, ** and * denote significance at <10%, <5% and <1% respectively. OLS estimates with branch fixed effects on follow-up data, and standard errors clustered at village level. Only non-participants are included in this analysis.

Table A1. Balancing in treatment assignment

	Means			Standard errors of differences		Normalized difference	
	Club only (A)	Club + MF (B)	Control (C)	A vs. C	B vs. C	A vs. C	B vs. C
Age <=16 years	0.515	0.510	0.471	(0.027)	(0.026)	0.06	0.05
Enrolled	0.803	0.781	0.785	(0.028)	(0.033)	0.03	-0.01
Never been married	0.980	0.971	0.965	(0.008)*	(0.009)	0.06	0.02
Have children	0.067	0.070	0.076	(0.013)	(0.014)	-0.02	-0.02
Intention to participate	9.344	9.316	9.190	(0.153)	(0.146)	0.07	0.06
Involved in IGA	0.068	0.104	0.074	(0.015)	(0.021)	-0.02	0.08
Have daily income	0.049	0.073	0.047	(0.013)	(0.019)	0.00	0.08
Stopped IGA	0.024	0.021	0.023	(0.009)	(0.008)	0.01	-0.01
Have plan for new IGA	0.031	0.037	0.034	(0.011)	(0.011)	-0.01	0.01
Worry about money	0.364	0.381	0.398	(0.043)	(0.044)	-0.05	-0.02
Rhiv_skills	3.758	3.848	3.945	(0.134)	(0.145)	-0.10	-0.05
R_sexever	0.226	0.219	0.223	(0.029)	(0.025)	0.00	-0.01
always_condom	0.517	0.477	0.478	(0.062)	(0.068)	0.06	0.00
R_stdever	0.013	0.012	0.021	(0.007)	(0.007)	-0.05	-0.05
R_sexunwilling	0.015	0.017	0.020	(0.007)	(0.007)	-0.03	-0.02
HH assets index	0.038	-0.018	-0.004	(0.091)	(0.082)	0.03	-0.01
HH own the house	0.615	0.614	0.616	(0.047)	(0.048)	0.00	0.00
Have any adult male	0.739	0.713	0.709	(0.034)	(0.036)	0.05	0.01
HH has a BRAC member	0.084	0.115	0.100	(0.027)	(0.029)	-0.04	0.03

Standard errors of differences are clustered at village level

Table A2. Correlates of attrition

	(1=Attrited)	(1=Attrited)	(1=Attrited)
Treatment village A (Club only)	-0.018 (0.045)	0.040 (0.262)	0.030 (0.248)
Treatment village B (Club + MF)	-0.038 (0.045)	-0.100 (0.267)	-0.086 (0.208)
Young (age <=16)	-0.009 (0.014)	0.009 (0.033)	0.033 (0.027)
Enrolled	-0.091 (0.022)***	-0.056 (0.042)	-0.035 (0.037)
Single	-0.054 (0.049)	-0.103 (0.079)	-0.135 (0.079)*
Have child	-0.056 (0.025)**	-0.094 (0.058)	-0.121 (0.049)**
Intention to participate	0.001 (0.005)	-0.022 (0.018)	0.003 (0.012)
Involved in any IGA	0.055 (0.041)	0.163 (0.074)**	0.069 (0.060)
Have daily income	-0.035 (0.050)	-0.048 (0.101)	0.055 (0.084)
Has stopped any IGA previously	-0.098 (0.051)*	-0.129 (0.093)	-0.075 (0.089)
Has plans for future IGA	-0.037 (0.042)	-0.035 (0.059)	-0.053 (0.059)
Worry about money	-0.038 (0.015)**	-0.031 (0.042)	-0.058 (0.030)*
Young (age <=16) X Club only		-0.074 (0.042)*	-0.081 (0.036)**
Enrolled X Club only		-0.058 (0.061)	-0.084 (0.050)*
Single X Club only		-0.001 (0.126)	0.107 (0.119)
Have child X Club only		0.119 (0.082)	0.096 (0.067)
Intention to participate X Club only		0.004 (0.024)	-0.005 (0.020)
Involved in any IGA X Club only		-0.013 (0.108)	0.057 (0.097)
Have daily income X Club only		-0.081 (0.129)	-0.172 (0.116)
Has stopped any IGA X Club only		-0.084 (0.144)	-0.010 (0.134)
Has plans for future IGA X Club only		0.004 (0.111)	-0.048 (0.108)
Worry about money X Club only		-0.058 (0.056)	-0.009 (0.039)
Young (age <=16) X Club with MF		-0.065 (0.044)	-0.047 (0.037)
Enrolled X Club with MF		-0.041 (0.067)	-0.082 (0.057)
Single X Club with MF		0.119 (0.131)	0.116 (0.121)
Have child X Club with MF		0.088 (0.074)	0.082 (0.062)
Intention to participate X Club with MF		0.000 (0.025)	-0.000 (0.017)
Involved in any IGA X Club with MF		-0.091 (0.118)	-0.069 (0.094)
Have daily income X Club with MF		-0.081 (0.155)	-0.103 (0.123)
Has stopped any IGA X Club with MF		-0.060 (0.124)	-0.047 (0.102)
Has plans for future IGA X Club with MF		0.145 (0.100)	0.081 (0.089)
Worry about money X Club with MF		0.051 (0.053)	0.067 (0.040)*
Branch dummies	Yes	No	Yes
Constant	0.570 (0.076)***	0.788 (0.180)***	0.579 (0.143)***
Observations	4,925	4,925	4,925
R-squared	0.208	0.025	0.213
F-stat [p-val] of Club only interactions		0.76 [0.65]	0.99 [0.44]
F-stat [p-val] of Club with MF interactions		1.08 [0.38]	1.45 [0.17]

Note: standard errors clustered at village level.

Combining Matching with Difference-in-Difference

We also conduct impact analysis using propensity score matching (PSM), which is considered to be a reasonable tool in non-experimental settings. Various baseline characteristics (including age, enrolment, education, marital status, children, involvement in IGA) are used to measuring propensity to participate in club activities (Graph 1) to match the participants of treatment villages with the respondents of control villages. This matching is done separately for participants of the two treatment arms. The outcome indicators are differences between follow-up and baseline. In order for matching, we used the kernel method of weighting non-participants after imposing common support.

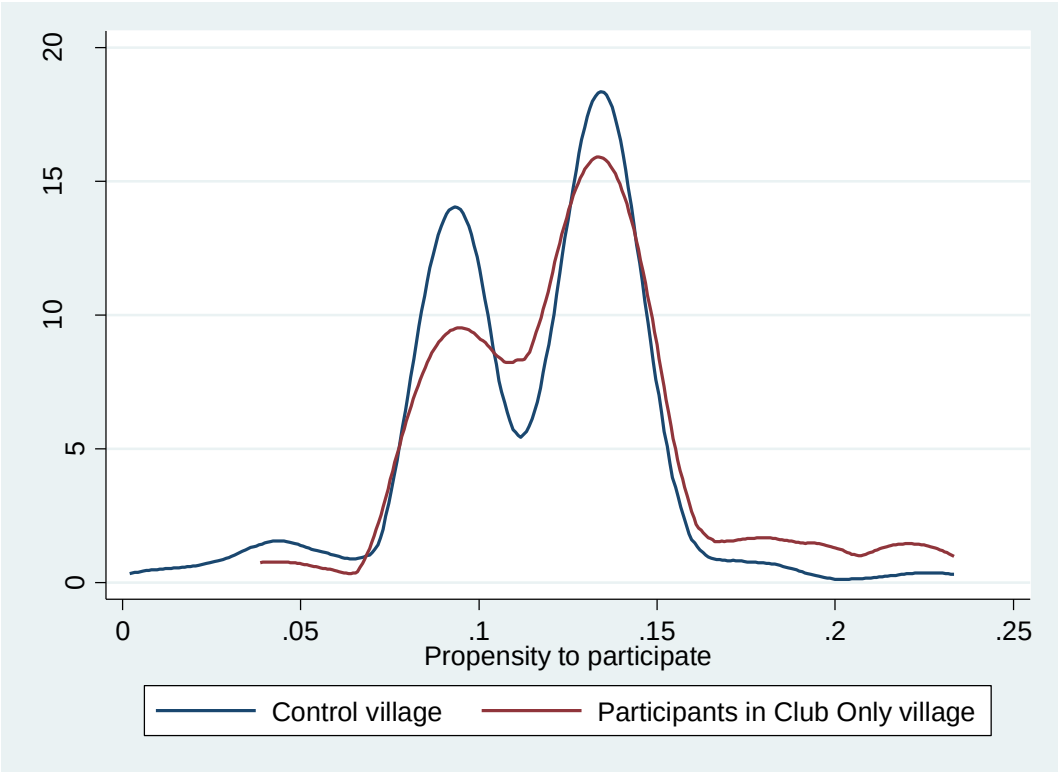
Point estimates of all indicators except informal savings for participants in 'Club + MF' villages (Column 2) are of similar magnitudes to the fixed effect estimates in the same table. However, their statistical significance improves notably. If there is spillover within villages and, the PSM estimates will be higher than the FE estimates, which is the case for informal savings.[11] The zero effects for 'Club only' intervention persist even in this specification.

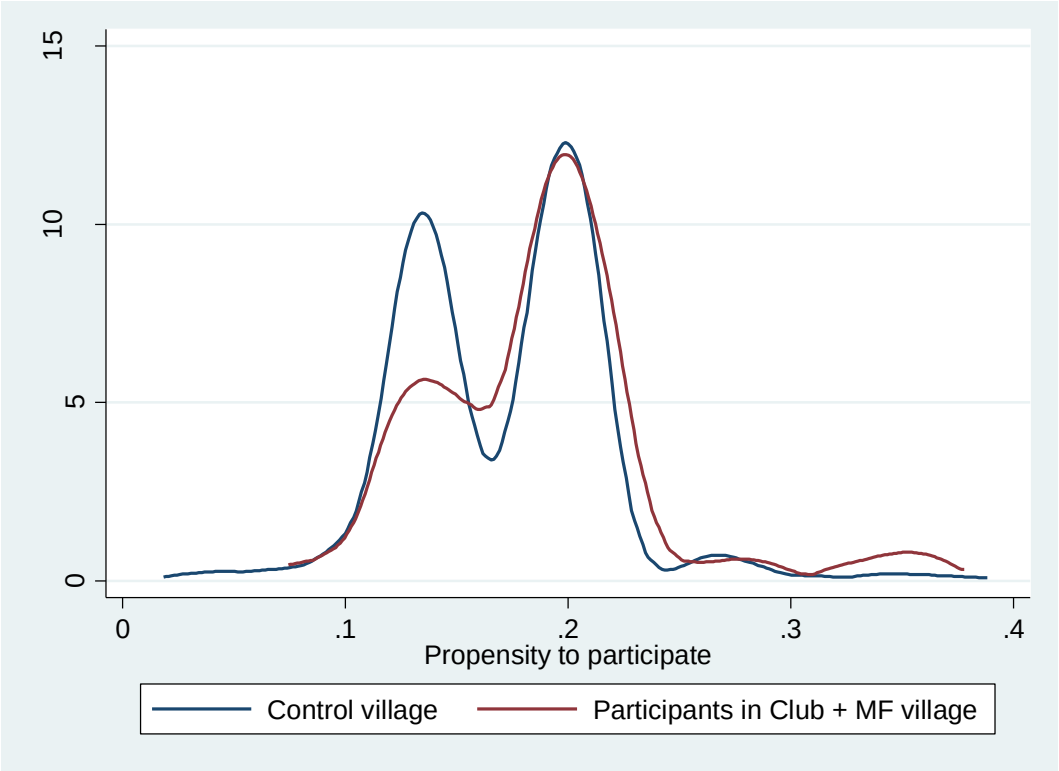
While these additional analyses build confidence in our measurements of no effects of 'Club only' interventions, the differences observed in impacts on income earning activities for 'Club + MF' villages merit some methodological discussion. As we have discussed earlier, the weak instrument could be a concern for 'Club only' intervention and not for the 'Club + MF' arm. However, we find some positive estimates on girls' involvement in IGA, their income, plans for future IGA and the aggregate economic empowerment index in these alternative specifications, none of which is significant in our IV estimates. This suggests that there are differential selections into the program in terms of time variant characteristics. In other words, girls who are more likely to get involved in IGA after baseline or were in a faster income growth path are more likely to become club members in these 'Club + MF' villages. This intuitively makes sense since availability of microfinance makes club participation more attractive for girls when they start thinking about new earning activities. Non-experimental evaluation methods, such as fixed effect or matching, often need to make an assumption of no difference in time varying characteristics between intervention and comparison groups. Consequently, these estimates will draw wrong conclusions of program impacts.

[11] The standard Mantel-Haenszel sensitivity analysis was conducted to test the amount of selection bias required for the effects to be zero for a given PSM estimate. For savings and engagement in IGA, statistical significance holds for Gamma (the measure of magnitude of selection bias required in MH test) being upto 1.5. In other words, the impact estimates remain significant even if odds of differential assignment due to unobserved factors increase by 50% (with the assumption of over-estimation of treatment effect due to this unobserved selection).

Graph 1. Distribution of propensity scores

(it is customary but seems non-informative to have these graphs in our case)





Robustness checks of impacts on participants

	Matching participants of treatment with control villages	
	Club Only	Club + MF
	(1)	(2)
Have savings	0.036	0.175
	(0.049)	(0.046)***
Ln(savings amount)	0.454	1.746
	(0.505)	(0.463)***
Have savings at home	0.040	0.134
	(0.048)	(0.043)***
Have savings with ROSCA	-0.008	0.032
	(0.016)	(0.018)**
Have outstanding loan	-0.069	0.091
	(0.024)**	(0.027)***
Involved in any IGA	0.057	0.110
	(0.039)	(0.033)***
Have daily income	0.047	0.079
	(0.031)	(0.028)***
Ln(income)	0.582	1.159
	(0.444)	(0.376)***
Have plan for new IGA	-0.004	0.036
	(0.022)	(0.024)
Financial skills [Scale 0 – 4]	0.052	0.055
	(0.103)	(0.076)
Economic empowerment index [Standardized with mean 0]	0.129	0.522
	(0.135)	(0.126)***

Note: The table provides PSM estimate by matching participants of treatment villages with control group participants and non-participants, and the outcome indicators are changes from baseline to follow-up. Standard errors for these estimates are clustered at village level. ***, ** and * denote significance at <10%, <5% and <1% respectively.