TITLE: Can Economic Assets Increase Girls' Risk of Sexual Harassment? Evaluation Results from a Social, Health and Economic Asset-Building Intervention for Vulnerable Adolescent Girls in Uganda

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ABSTRACT

For adolescent girls in Sub-Saharan Africa, social isolation and economic vulnerability are critical problems that prevent a healthy transition from girlhood into womanhood. This study examines the effect of a multi-dimensional intervention on social, health and economic assets, as well as experiences of sexual harassment, among vulnerable adolescent girls aged 10-19 living in the low income areas of Kampala, Uganda.   Using a natural experiment, the study compares girls who received the full intervention, with girls who received a savings account only against a comparison group. Findings indicate that the full intervention was successful in improving girls' health and economic assets. While girls who only had a savings account increased their economic assets, they were also more likely to have been sexually teased and harassed by men. This suggests that economic asset building on its own, without the protection afforded by strengthening social assets, including self-esteem, social networks, as well as reproductive health knowledge, can leave vulnerable girls at increased risk of the sexual violence.

1. Introduction

This study examines the effect of a multi-dimensional intervention on social, health and economic assets, as well as experiences of sexual harassment, among vulnerable adolescent girls aged 10-19 living in the low income areas of Kampala, Uganda. For adolescent girls in Sub-Saharan Africa, social isolation and economic vulnerability are critical problems that prevent a healthy transition from girlhood into womanhood. The issues that girls are confronted with – high rates of gender based violence, unsafe sex that puts girls at risk for unwanted pregnancy and HIV infection, school dropout, lack of economic resources and income generating options, lack of agency and participation – are linked with one another through their root causes. Therefore, the solutions must be interconnected as well, helping girls to build their social, health and economic assets.

2. Background and Theory

The asset building framework for vulnerable adolescent girls is the theoretical underpinning guiding this intervention (Austrian & Ghati, 2010). Assets are a store of value that girls can use to both reduce vulnerabilities and expand opportunities. For example, self-esteem is an asset. A girl can draw on her self-esteem to negotiate for safer sex (reduce vulnerabilities) or to excel at a job interview (expand opportunities). Another example of an asset is savings. A girl can use her savings in the case of illness in the family to get the money to pay the hospital bill instead of getting the money in a risky way (reducing vulnerabilities). Savings can also be used to pay for a vocational training course (expand opportunities).

The literature speaks to the importance of social, health and economic assets individually as means to improve sexual health outcomes. There is a growing literature on social capital (Putnam, 2004) and the association of increased social capital with decreases in risky behavior and more successful health programs. Social capital has been defined both as networks, i.e. participation in community groups, and group norms, i.e. high levels of trust and reciprocity among community members (Putnam, 1993). One study identified social capital as a variable that mitigates the negative effect of increasing income inequality on poorer health outcomes (Kawachi, Kennedy, Lochner & Prothrow-Stith, 1997). Lack of social capital can prevent adolescents from taking control of decisions regarding their sexual behavior (Campbell & MacPhail, 2002), while the presence of a social network, one component of social capital, may lead to risk reduction and changes in the community norms about risk-taking behavior (Latkin & Knowlton, 2005). One HIV prevention intervention that addressed community factors, in addition to individual and group factors was associated with lower HIV rates (Jana, Basu, Rotheram-Borus & Newman, 2004). Another study of an intervention with adolescent girls in Zimbabwe showed that participation in local community groups was associated with lower rates of HIV, which was in turn associated with improved psychosocial attributes of knowledge, perceived vulnerability, and self-efficacy (Gregson, Terceira, Mushati, Nyumakupa & Campbell, 2004).

Social isolation, as a vulnerability factor, is a window of opportunity for intervention through making programs available to adolescent girls. However, overall this has been a missed opportunity. Adolescent girls are overlooked by places which could potentially help them because their unique status is not recognized. They are unrecognized by terms and structures such as youth, households, and health systems (Malaba, 2006). A study from South Africa showed that girls who were more socially isolated were more likely to have experienced sexual coercion and transactional sex (Hallman, 2005). Similarly, girls that belong to an organization and girls that have a role model were found to have fewer sexual partners (Hallman, 2011). In a study from a social and health asset building program for girls in rural

Ethiopia, girls 10-14 years old were 3 times more likely to be in school and less likely to be married and girls who were sexually experienced were more likely to be using contraceptives (Erulkar & Muthengi, 2009).

In addition, there are some examples in the literature of programs that help to increase economic assets, which in turn result in more positive reproductive health outcomes for the participants. The Hallman (2005) study in South Africa showed that girls with financial goals had more realistic assessments of their HIV risk, had more knowledge about HIV transmission, and were more likely to have been tested for HIV, while girls with savings were likelier to know about family planning. In addition, girls who were more economically vulnerable were more likely to have experienced sexual coercion and engaged in transactional sex (Hallman, 2005). In Uganda, a savings-based economic intervention for AIDS-orphaned adolescents was associated with improved HIV-prevention attitudes (Ssewamala, Alicea, Bannon, & Ismayilova, 2008). A study on cash transfers to adolescent girls in Malawi showed that girls that received the cash transfer had a decline in early marriage, teenage pregnancy and self-reported sexual activity (Baird, Chirwa, Mcintosh & Ozler, 2010). A study with adolescent girls in Bangladesh showed that adding a financial education component to life-skills resulted in significantly greater positive impact in changing sexual behaviors (Amin et. al., 2010).

The theory of change behind this intervention posits that girls need a combination of social, health, and economic assets in order to make a healthy transition into adulthood, which in turn will reduce poverty. One kind of asset (i.e. knowledge of HIV and pregnancy) is not sufficient because often girls' economic situation trumps their knowledge of risky behavior. Similarly, only having a savings account or a vocational skill is also not enough to take control of their health or to have the self-esteem and networks through which to capitalize on economic opportunities. In addition, it is possible that economic assets alone might pose a risk for vulnerable girls.

Due to the linkages between the root causes of gender based violence, negative sexual and reproductive health outcomes, and a lack of economic resources – in addition to the role that strong social assets, self-esteem and voice can play across all three areas – investments must be made to build the full range of assets in order to see results in either the health or livelihoods arena. Lack of economic resources and agency increase dependency within sexual relationships and make negotiation for safer sex out of reach. Therefore, successful program strategies must address these linkages, and underlying causes, and build a range of girls' assets by providing safe spaces where girls can build their social networks and self-esteem, gain basic financial and health education, and be linked to formal savings accounts and clinical health services.

3. Intervention Model

The intervention model contains four main components: safe spaces, reproductive health training, financial education and savings accounts:

3.1 Safe Spaces

The core of the safe spaces component is a weekly girls group meeting in which a group of 15 to 25 girls meet with a mentor – a young woman from their community – for short training sessions (30-90 minutes – depending on girls' availability) on a variety of topics, as well as a chance to discuss the events of the past week. These regular, stable group sessions serve two critical functions: 1) to build a platform in which girls are organized and can be reached with a variety of interventions and education topics (e.g.

a health clinic; a financial institution); and 2) to build social assets – including friends, trusting relationships, and self-esteem that have positive influence on other livelihood and health dimensions of their lives. In addition, because groups meet on the weekend, after school, or during school breaks (if school-based), there is no competition with formal education.

Mentors are young women ages 20-35 residing in the same community as the girls in the groups. Mentors are recruited by program staff for their experience in working with youth and training skills, as well as an interest in working with vulnerable adolescent girls. Prior to starting the mentors go through an intensive five-day 'training of trainers' in which they are trained on the content of what they will teach the girls, as well as training skills. In addition, mentors meet once a month with program staff to review successes and address any challenges that may be arising. Every 3-4 months the program organizes a two to three day 'refresher training' on a topic that the mentors need further information on.

Mentors meet the girls in their group once a week at the designated time and location. If a girl misses more than two or three sessions in a row, the mentor is expected to make a home visit to follow up and determine the reason for her absence.

3.2 Reproductive Health Training
The health education that is delivered to the girls is based on *Tuko Pamoja: Adolescent Reproductive Health and Life Skills Curriculum* (PATH & Population Council, 2005). This curriculum includes 30 sessions on a range of topics including: information on puberty, reproduction, family planning, HIV/AIDS and other STIs, drug abuse, communication, sexual feelings, self-esteem, gender based violence, and peer pressure.

3.3 Financial Education (FE)
While not the only education topic in the group meetings, FE sessions are critical for building a base of knowledge and skills on personal money management – including prioritizing spending based on needs and wants, setting financial goals, budgeting and saving – as well as exploring options for earning money in the formal and informal economies. Mentors use a simplified set of financial education sessions, entitled "Young Women: Your Future, Your Money" that were adapted for girls in Kenya and Uganda from Microfinance Opportunities "Young People: Your Future Your Money" universal youth financial education curriculum.

3.4 Savings Accounts
The Council worked with four financial institutions to develop a formal savings account based on extensive market research. As part of the account opening process, girls join a savings group and open an individual savings account. The accounts are no/low minimum balance to open (depending on the FI) and any amount can be deposited or withdrawn with no fee. The financial institution organizes periodic fun days to reward girls who demonstrate regular savings and mobilize new girls to open

accounts, as well as quarterly parents' meetings to inform the parents, provide them with basic financial education and cross-sell the financial institution's additional products.

4. Intervention Implementation

The intervention began in Kenya in December 2008. The intervention was offered through two local banks – K-Rep Bank and Faulu Kenya. The intervention began in Uganda in October 2009 and was offered by two local banks – FINCA-Uganda and Finance Trust. These financial institutions were chosen because they 1) had an interest in development of a girls' savings account, 2) had commitment from the top management levels for this type of project, and 3) had the right systems in place to deliver it.

After a 3-4 month pilot preparation process in each country in which the product design was finalized, the products were branded, staff was hired and trained, and the systems were set up at the financial institutions, the pilot test was launched with a target of 500 girls for each financial institution. Each financial institution piloted the account in two branches: in Kenya both branches were operating in the Kibera slum in Nairobi, for FINCA the pilot test branches were in Katwe and Kawempe and for Finance Trust the pilot test branches were in Katwe and Kalerwe (all slum areas in Kampala). The pilot period lasted approximately one year during which the savings and group activity was monitored and adjustments to the model made along the way.

Over the course of the one-year pilot period, over 2,000 girls participated across the four financial institutions. These are the girls who participated in the evaluation. While all girls were meant to receive all four components of the program, there was an issue in Uganda in the program delivery during the first few months of the pilot in which about a third of the girls were never told that they could join a group due to mis-trained savings mobilizers. Therefore, about a third of girls in the pilot test evaluation only had a savings account, while two thirds had both a savings account, as well as group participation/training. Although not a randomly assigned to the different program versions, because the girls who did not join a group a) did not know they had the option to join a group and b) did not have a discriminating characteristic as to why they were kept out of the groups, it is reasonably fair to compare between the two groups. In addition, there was no significant difference at baseline between girls with and without a group in the following measures: age, religion, schooling status, living arrangements, personal asset owning, and household asset owning (results not shown).

This study utilizes the program delivery error to conduct a natural experiment by examining the impact of receiving a savings account only, versus receiving the full intervention with group participation and training. Based on the asset building framework, the study tests the following hypotheses: (1) girls who participated in the full intervention will have increased social, health and financial assets (2) girls who received savings accounts only will have increased financial assets, but not social and health assets, (3) social and health assets are protective against sexual harassment.

5. Materials and Methods

5.1 Data

This study is based on two rounds of data collected in Uganda before and after the pilot period, which ran from October 2009 – September 2010. The baseline survey was conducted on a rolling basis, from October 2009 to May 2010, while the endline survey was conducted from November 2010 through March 2011. The questionnaire was developed in English and translated into Luganda. It covered a range of topics, including demographic information, education status, living arrangements/asset holding, work and savings activities, financial literacy, social networks and vulnerability, self-esteem, gender norms, relationships and communication with parents, future goals, HIV/RH knowledge, and customer satisfaction/account usage.

A team of 16 women was hired (2 field supervisors and 14 interviewers) and trained for two days on interviewing skills and the survey instrument itself. The survey was pilot-tested and revised based on feedback from the interviewers. In the field, completed surveys were reviewed for accuracy by the field interviewers. Completed surveys were transported to Nairobi office periodically where data was entered on an ongoing basis.

Every girl who opened a savings account with Finance Trust or FINCA was interviewed at baseline. As groups were being formed, the field officers informed the Council staff of the time and location of the introductory meetings and the appropriate numbers of interviewers were assigned. Data was collected in a rolling fashion as the girls opened their savings accounts, typically at the second or third group meeting. The baseline data collection period corresponded to the period of time it took the financial institutions to reach their mobilization targets. Comparison girls were recruited from the Nakawa slums in Kampala, the one most similar to slum areas where the product was being offered by Finance Trust and FINCA in the three most common methods through which the girls in Kibera were recruited: daughters of existing clients, through community youth organizations and churches, and word of mouth from girl to girl. Overall, a total of 1,564 girls were interviewed at baseline, 543 from FINCA, 518 from Finance Trust and 503 from the comparison group.

Using the contact information obtained at baseline, as well as the help of the financial institution field officers and mentors, girls interviewed at baseline were identified and interviewed a second time at endline. A total of 1,159 girls were interviewed at endline (392 FINCA, 437 Finance Trust, and 330 Comparison). After eliminating cases that were not successfully matched between baseline and endline, the total sample for this study was 1,064 matched cases – 368 FINCA, 383 Finance Trust, and 313 Comparison.

5.2 Measures

The main dependent variable for the analysis is the study group, which compares girls who participated in groups (Group) and girls who did not participate in groups (No-Group) with girls in the control group (Comparison). The sample was distributed as follows: 451 Group girls, 300 No-Group girls, 313 Comparison girls. Group girls received the full intervention model, including savings accounts, financial education, social networks and reproductive health information. No-Group girls only received the savings accounts.

Sexual harassment was defined using two dichotomous variables indicating girls who agreed with the statements: (1) In the past six months I have been touched indecently by someone of the opposite sex in

my neighborhood, and (2) In my neighborhood, people of the opposite sex tease me as I go about my day.

Measures of financial assets included indicators of financial education and savings behaviors. Respondents were asked to respond "yes" or "no" to the following questions: (1) "Do you have a plan for you are going to save your money?" (2) "Do you have a plan or budget for how you spend your money?" They were also asked an open ended question about saving: "What are two reasons that saving money is important?" Interviewers then coded the answers as "none correct," "one correct and one incorrect" or "two correct." Correct answers included personal use (clothes, entertainment, pads, etc), emergencies and future opportunities (education/training, business, assets, etc.). Regarding savings behaviors, respondents were asked: "In the past six months did you save any money?" Responses were either "yes" or "no." In addition, they were asked: "In those past six months, in which of the following places have you saved your money?" They responded "yes" or "no" for each of the following methods: home bank, under a mattress/hole in the ground, suitcase, with a friend, with parents/guardians, merry-go-round, bank account, shopkeeper, savings group or other. A dichotomous variable was created indicating those who saved using informal methods only (among those who saved any money). Informal methods were defined as all methods other than a bank account or a savings group.

Three indicators were used for social assets. Girls were asked to "agree" or "disagree" with the following statements: (1) "There is a place other than my house, my friend's house, or school, where I can meet my friends of the same sex." (2) "If I needed money urgently, there is someone in my neighborhood who I can borrow money from" (3) "There is a female adult, that is not my mother or teacher, who I meet regularly in my life that I can discuss my problems, joys and ask questions of."

Reproductive health indicators included HIV knowledge, HIV testing and knowledge of contraceptive methods. Respondents were asked to mention all the ways in which a person can be infected with HIV. A dichotomous variable was created to identify respondents who mentioned sexual transmission of HIV. Girls were also asked to mention ways in which people can protect themselves from getting infected with HIV. A dichotomous variable was created to identify respondents who mentioned at least one correct HIV prevention method. HIV-testing was measured using two questions with "yes" or "no" responses: (1) "Do you know where to get a test for HIV?" (2) "Have you had an HIV test?" Respondents were also asked to listen to a list of contraceptive methods and indicate which of the methods to avoid pregnancy they had heard about. Methods included: contraceptive pills, IUD, injectables/depo, foam tablets/jelly/cream, condom, female condom, Norplant, emergency contraception/morning after pill, periodic/postpartum abstinence, safe days, withdrawal, breastfeeding or other. A dichotomous variable was created to identify girls who knew at least one method.

5.3 Analysis

The bivariate analysis compared proportions across the three categories (Group, No-Group and Comparison) at baseline and at endline. Differences were tested using the Pearson's Chi-Square. For the first part of the multivariate analysis, separate random-intercept logistic regression models were conducted for each indicator, adjusting for the respondent's age (10-14 versus 15-23), religion (Catholic, Christian, Muslim, Other) school status (in-school or out-of-school), education (years of schooling) and socio-economic status (whether household has electricity). All models include an interaction terms between the treatment groups (Group versus Comparison and No-group versus Comparison) and the

time period (baseline versus endline). Estimates for the interaction terms obtained from these models represent the difference in the outcomes between exposed (e.g. Group) and non-exposed (Comparison) over time (i.e. from baseline to endline). This technique also controls for unobserved characteristics of individuals that might be correlated with the outcome. Therefore, if the dummy variable for Group at endline is statistically significant, we can interpret the results as showing that the difference in the outcome values between baseline and endline differed significantly between Group and Comparison after adjusting for covariates.

For the second part of the multivariate analysis, separate random-intercept logistic regression models were conducted to examine the effect of each indicator on the experience of harassment, adjusting for the respondent's age and education. These models were restricted to girls who participated in groups. All models include an interaction terms between the indicator variable and the time period (baseline versus endline). Estimates for the interaction terms obtained from these models represent the difference the experience of harassment associated with the change in the indicator variable over time (i.e. from baseline to endline).

6. Results

6.1 Demographic Characteristics

Descriptive characteristics of the sample at endline by treatment group are shown in Table 1. There significant differences between groups in regards to age, religion, education status, socioeconomic status, identification and literacy. Group and No-Group girls were generally similar, but they differed from Comparison girls. Approximately half of Group (52%) and No-Group girls (47%) were between ages of 10 and 14, compared to 60% of Comparison girls. Girls in the comparison area were more likely to be Catholic (38%) than Muslim (25%). On the other hand, only about a quarter of girls who participated in intervention groups (24% Group, 27% No-Group) were Catholic, while two-fifths (40% Group, 41% No-Group) were Muslims. Very few respondents had ever been married (3% Group, 1% No-Group, 1% Comparison) and about two-fifths of girls were residing with both parents. Approximately one out of four girls in the intervention (21%) and comparison areas (24%) were not residing with a parent at the time of the endline survey. The age differences across groups were associated with differences in education status and literacy. Only 5% of comparison girls were not in school at the time of the survey, compared to 12% of Group and 10% of No-Group girls. However, girls in the intervention groups were significantly more likely to report that they could read easily (70% Group, 78% No-Group) than girls in the comparison area (65%). Comparison girls also appeared to be more disadvantaged in regards to household assets. They were significantly less likely to report that their households had electricity (75% Group, 76% No-Group, 65% Comparison) or a radio (80% Group, 83% No-Group, 67% Comparison) and less likely to personally own a mobile phone (21% Group, 26% No-Group, 15% Comparison).

6.2 Sexual Harassment

As shown in Table 2, among Group girls, there was no significant change in the proportion of girls who experienced indecent touching (7% to 8%) or who were verbally harassed (23% to 24%) from baseline to endline. For No-Group girls, the proportion who experienced indecent touching significantly increased from 9% to 15% (P<0.05), while the proportion who had been verbally harassed increased from 19% to 25% at endline (P<0.1).

Table 3 shows multivariate results for changes in both indicators of sexual harassment. While there was no significant difference between Group girls and Comparison girls in regards to experience of harassment, No-Group girls were significantly more likely to report harassment. Compared to girls in the comparison area, No-Group girls were 2 times (P<0.01) more likely to say they had been touched indecently within the previous six months, and 96% more likely to say they had been teased by people of the opposite sex (P<0.05).

6.3 Financial Assets

Table 4 shows multivariate, difference in difference results from random-intercept models controlling for age, religion, school status and socio-economic status. The odds-ratios represent the change between baseline and endline for each intervention group versus the comparison group. There was no significant difference in the odds of having a savings plan. Non-Group girls were significantly less likely to be able to name reasons for saving (P<0.01). Group and No-Group girls were at least two times as likely to have a budget as girls in the comparison area (P<0.01). Group girls showed a greater improvement in saving than Non-Group girls. Respondents who participated in groups were 1.1 times (P<0.01) more likely to have saved any money within the previous six months at endline than at baseline, while No-Group girls were 69% (P<0.05) more likely to have saved money than Comparison girls. Among girls who saved any money, both intervention groups showed more than a 99% significant decrease in the use of informal savings methods only (P<0.001).

6.4 Social Assets

Three indicators were used to measure social assets: having a place to meet friends outside of the home or school, having someone to borrow money from, and having a female mentor. Based on Multivariate Results shown in Table 5, for all three indicators, there were no significant differences between intervention groups and the Comparison group.

6.5 Reproductive Health Assets

Table 6 shows multivariate results for changes in reproductive health indicators, including HIV knowledge, HIV testing and knowledge of contraceptive methods. Group girls were 2.4 times (P<0.01) more likely to know that HIV can be transmitted through sexual intercourse, and 3 times (P<0.001) more likely to know at least one HIV prevention method than girls in the comparison area. Group girls were also 1.6 times (P<0.01) more likely to know a contraceptive method as compared to girls in the comparison area. There were no significant differences in knowledge of where to get an HIV test and in odds of having received an HIV test between Group and Comparison girls.

6.6 Additional Analysis

To further test the theory of change, we examined the impact of improvement in social and reproductive health assets on the risk of experiencing sexual harassment among girls who participated in groups. Due to the small proportion of girls experiencing indecent touching, the analysis focused on the experience of verbal harassment as the dependent variable. Controlling for age and education, separate models were estimated to assess the effect of each of the social asset indicators in Table 5 and each of the reproductive health asset indicators in Table 6. Changes in the following indicators were not significantly associated with verbal harassment: having a place to meet friends outside of the home, having a female mentor, knowing at least one HIV prevention method, and knowing where to go to get

an HIV test. Table 7 shows the remaining indicators that were significantly associated with verbal harassment. For girls who showed improvements from baseline to endline, knowing someone to borrow money from decreased the odds of verbal harassment by 52% (P<0.05). Improvement in reproductive health knowledge indicators – knowledge of sexual transmission of HIV and knowledge of a contraceptive method – decreased the odds of experiencing verbal harassment by 65% (P<0.05%). Girls who had gotten an HIV test at endline but not at baseline had 50% lower odds of experiencing harassment (P<0.05) than those who had not.

7. Discussion/Conclusion

The study tests the asset-building framework using data from a natural experiment in Uganda. Girls who participated in the full-intervention model (safe spaces groups plus savings accounts) are compared with girls who received savings accounts but did not participate in groups. Findings show that the program was successful in building financial assets for all girls who had savings accounts. Intervention girls were more likely to have saved money within the previous six months, more likely to have a budget, and less likely to only be saving using informal methods. There was also some evidence of the added benefit of the financial education received by girls who participated in groups. Results also showed that the program was successful in building girls' health assets through improved reproductive health knowledge due to related health education during groups. The impact on social assets was not demonstrated by the results from this study. It is possible that the indicators used did not adequately capture the benefits of being part of a group and building social networks. Further research is needed using better measures of self-esteem, social networks and social support.

A key finding of this study is that girls who did not participate in groups had an increased risk of experiencing sexual harassment than girls who received the social support, financial education and health information. This is similar to other studies showing that a sole focus on economic asset building may increase vulnerable adolescent girls' experience of sexual harassment and violence (Dunbar, Buehren et. al., 2009). Therefore, it is important, especially when working with vulnerable adolescent girls, to not only focus on economic strengthening, but to increase a range of assets together. Further analysis of girls who received the full intervention revealed that social and health assets were protective against the experience of sexual harassment. This might explain why girls who participated in groups were less likely to experience harassment than girls who received savings accounts only. A study in Uganda that combined both health and economic components in the intervention found improved health outcomes as well as an increase income generation (Bandiera et. al., 2012).

The finding that there are both differences and consequences to having a savings account only, as compared to receiving a holistic intervention including a savings account, is important for the fields of both adolescent girls/youth programming and livelihoods/economic strengthening programming. It is possible that an increase in economic assets, without the support the proper social support and health and life skills training can increase certain aspects of girls' vulnerability – specifically related to experience of sexual harassment and violence. This is a critical dynamic that economic strengthening programs seeking to work with vulnerable adolescent girls must be aware of. It should not be assumed that simple increase in economic assets is automatically beneficial, without considering the other ramifications those economic assets can have in the life of an adolescent girl.

The data are limited in a couple of key areas. First, the quasi-experimental design allows for selection bias between the interventional and control groups. Intervention girls self-selected to participate in the program and are likely to be systematically different from comparison girls. We control for unobserved characteristics of the individual using the longitudinal design, but not for selection bias. Second, not enough questions were asked to understand the pathways to increased experience of sexual violence and more research is needed to fully understand the relationship between social and economic assets and sexual exploitation, including which assets can be risk factors and which assets can mitigate that risk. Further research is also needed to assess the longer term impact of building social, health and economic assets in adolescence on longer term outcomes such as child bearing, schooling attainment, early marriage, and income generation. Third, as the sample included girls ages 10-19, the sample of girls who reported sex was quite small and therefore we were unable to draw conclusions about the effect on delaying sexual debut after just one round of data. Finally, some of the questions asked to measure social assets need to be strengthened to capture the necessary nuance.

In conclusion, the results of the study are promising that they show a positive effect of the full intervention on social, health and economic measures – without an increase in exposure to harassment or violence. Furthermore, the results suggest that future interventions that seek to increase girls economic assets, especially through use of formal financial services, should take into account the necessary non-financial services that build a more holistic set of assets that can help girls improve financially, while at the same time protecting them for other risks around them.

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Table 1. Demographic Characteristics at Endline by Study Group

	Endline		
	Group **(N=451)**	**No-Group** **(N=300)**	**Comparison** **(N=331)**
Age:			
10-14	52%	47%	*60%
15-19	44%	47%	35%
20-23	4%	6%	5%
Religion:			
Catholic	24%	27%	***38%
Protestant	36%	30%	36%
Muslim	40%	41%	25%
Other	0%	1%	1%
Ever Married	3%	1%	*1%
Educational Status:			
Not in school	12%	10%	*5%
Primary School	47%	42%	51%
Secondary School	40%	45%	42%
College	2%	3%	2%
Living Arrangements:			
Both Parents	43%	41%	45%
Mother Only	32%	33%	24%
Father Only	4%	5%	7%
Neither Parent	21%	21%	24%
Socio Economic Status			
Household has:			
Electricity	75%	76%	***65%
Radio	80%	83%	***67%
Television	71%	70%	59%
Telephone/mobile	97%	97%	95%
Girl owns mobile	21%	26%	**15%
Identification:			
Girls with Photo ID	66%	68%	***52%
Girls with Photo ID (age 18+)	84%	86%	84%
Literacy:			
Read Easily	70%	78%	*65%
Read With Difficulty	27%	19%	30%
Cannot Read at All	3%	3%	5%

Table 2. Proportion of Girls Experiencing Sexual Harassment by Study Group at Baseline and Endline.

	Baseline			Endline		
	Group	**No-Group**	**Control**	**Group**	**No-Group**	**Control**
Touched indecently in last 6 months	7%	9%	11%	8%	15%*	8%
Teased by people of the opposite sex	23%	19%	23%	24%	25%†	20%

***p < .001; **p < .01; *p < .05; †<0.10

Table 3. Sexual Harassment: Multivariate Logistic Random-Intercept Model Results Showing Differences between Study Groups and Comparison Group from Baseline to Endline.[1]

	Difference in Difference			
	Group		**No-Group**	
	OR	[95% CI]	OR	[95% CI]
Touched indecently in last 6 months [b]	1.801	0.814 – 3.989	3.146**	1.397 – 7.082
Is teased by people of the opposite sex [a]	1.300	0.766– 2.203	1.962*	1.088 – 3.540

[1]Models control for age, religion, school status, years of schooling and socioeconomic status

***p < .001; **p < .01; *p < .05; †<0.10

Table 4. Financial Education and Savings: Multivariate Logistic Random-Intercept Model Results Showing Differences between Study Groups and Comparison Group from Baseline to Endline.[1]

	Difference in Difference			
	Group		**No-Group**	
	OR	[95% CI]	OR	[95% CI]
Has a plan for saving money	1.470	0.937 – 2.307	1.382	0.845 – 2.263
Has a budget	2.318**	1.441 – 3.729	2.442**	1.448 – 3.121
Can correctly name two reasons for saving money	1.104	0.657 – 1.856	0.442**	0.250 – 0.783
Has saved any money in the last six months	2.125**	1.336 – 3.381	1.691*	0.025 – 2.790
Saved using informal method only [a]	0.006***	0.001 – 0. 050	0.005***	0.001 – 0.038

[1]Models control for age, religion, school status, years of schooling and socioeconomic status

***p < .001; **p < .01; *p < .05; †<0.10

Table 5. Social Assets: Multivariate Logistic Random-Intercept Model Results Showing Differences between Study Groups and Comparison Group from Baseline to Endline.[1]

	Difference in Difference			
	Group		No-Group	
	OR	[95% CI]	OR	[95% CI]
Has a place to meet girl friends other than house or school	1.049	0.676 – 1.626	1.304	0.805 – 2.114
Has someone to borrow money from if needed money urgently	1.335	0.863 – 2.067	1.155	0.716 – 1.862
Has a female adult/mentor who she meets with regularly	1.120	0.706 – 1.774	1.143	0.690 – 1.894

[1]Models control for age, religion, school status, years of schooling and socioeconomic status

***p < .001; **p < .01; *p < .05; †<0.10

Table 6. Reproductive Health: Multivariate Logistic Random-Intercept Model Results Showing Differences between Study Groups and Comparison Group from Baseline to Endline.[1]

	Difference in Difference			
	Group		No-Group	
	OR	[95% CI]	OR	[95% CI]
Knows HIV can be transmitted through sexual intercourse	3.412 **	1.703 – 6.834	1.007	0.497 – 2.041
Knows at least one HIV prevention method	4.156***	1.891 – 9.132	1.103	0.500 – 2.430
Knows where to get an HIV test	1.067	0.634 – 1.797	1.233	0.686 – 2.215
Has had an HIV test	1.117	0.601 – 2.075	0.606	0.309 – 1.886
Knows a contraceptive method	2.609**	1.485 – 4.587	0.882	0.485 – 1.606

[1]Models control for age, religion, school status, years of schooling and socioeconomic status

***p < .001; **p < .01; *p < .05; †<0.10

Table 7. Multivariate Logistic Random-Intercept Model Results Showing Selected Indicators Associated with Experience of Sexual Harassment from Baseline to Endline for Girls Participating in Groups.[1]

	Difference in Difference	
	OR	[95% CI]
Has someone to borrow money from if needed money urgently	0.480*	0.242 – 0.951
Knows HIV can be transmitted through sexual intercourse	0.345*	0.121 – 0.980
Has had an HIV test	0.500*	0.259 – 0.968
Knows a contraceptive method	0.353*	0.151 – 0.824

[1]Models control for age and years of schooling

***$p < .001$; **$p < .01$; *$p < .05$; †<0.10