

# Impacts of Financial Inclusion on Youth Development:

## Findings from the Ghana YouthSave Experiment

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# Impacts of Financial Inclusion on Youth Development: Findings from the Ghana YouthSave Experiment

## Executive Summary

Does saving from childhood establish a sound foundation for youth to contribute to their communities and families as they enter adulthood? This is a primary question of YouthSave, a savings initiative implemented in four developing countries, targeted at youth aged 12 to 18 years from predominantly low-income households.

Created in partnership with The MasterCard Foundation, YouthSave investigated the potential of savings accounts as a tool for youth development and financial inclusion in developing countries by co-designing tailored, sustainable savings products with local financial institutions (FIs) and assessing their performance and development outcomes with local researchers. The project was an initiative of the YouthSave Consortium led by Save the Children (SC) in partnership with the Center for Social Development (CSD) at Washington University in St. Louis, the New America Foundation, and the Consultative Group to Assist the Poor (CGAP). Research partners (RPs) in the field include Universidad de los Andes in Colombia, Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana, Kenya Institute for Public Policy Research and Analysis (KIPPRA), and New ERA in Nepal.

Part of the larger YouthSave project, the Ghana YouthSave Experiment (hereafter referred to as the Ghana experiment) investigated whether and how youth savings accounts affect financial capability; psychosocial, education, and health outcomes; and economic well-being of Ghanaian youth and their households. The research rigor in the Ghana experiment is unprecedented in resource-limited countries; therefore, offers an opportunity to posit causal relationships between savings and youth development.

This endline report, which comes three years after the baseline report<sup>1</sup>, describes the Ghana experiment and presents experimental findings of YouthSave. The key research questions this report aims to answer is whether the Ghana experiment improved (1) savings patterns and performance for low-income youth; (2) low-income youth's financial capability; (3) expectations and aspirations; (4) academic performance; and (5) low-income youth's health attitudes and behaviors, including sexual risk taking.

The Ghana experiment's findings demonstrate that early savings can enable young people to improve their long-term financial and educational outcomes, psychological well-being (e.g., self-

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<sup>1</sup> See Chowa, G., Ansong, D., Masa, R., Despard, M., Osei-Akoto, I., Richmond, A.-A . . . Sherraden, M. (2012). *Youth and saving in Ghana: A baseline report from the YouthSave Ghana Experiment* (CSD Research Report No. 12-56). St. Louis, MO: Washington University, Center for Social Development.

efficacy, self-confidence), and future orientation. Equipped with such knowledge and skills, youth can make informed, positive choices in other areas of their lives, including health behaviors.

The report begins with a brief review of the theoretical and empirical evidence on youth savings, followed by a detailed description of the Ghana experiment's research design, methodology, and implementation. Chapter 2 provides an overview picture of whom the youth in the Ghana experiment are by describing their key demographic and socioeconomic characteristics. Presenting the impact results of YouthSave on various youth development outcomes, Chapter 3 focuses on savings behaviors and financial capability findings, and Chapter 4 highlights nonfinancial outcomes (e.g., education, psychosocial health). Chapter 5 discusses the findings and their practice and policy implications. The report concludes with Chapter 6, which describes the successes and challenges in the Ghana experiment and outlines the crucial next steps in this growing an important area of youth financial inclusion.

### **Research design and analysis for the Ghana experiment and endline report**

The Ghana experiment used a cluster randomized, longitudinal treatment and control design with pretest and posttest. The sampling framework for the Ghana experiment included all districts in eight of the 10 regions of Ghana in which HFC Bank, the partner financial institution (FI) for the YouthSave project in Ghana, operates. We randomly selected 100 Junior High Schools from the 54 districts of HFC's catchment area. The Ghana experiment targeted young people aged between 12 and 18 years. Using simple random assignment, we assigned 50 schools to treatment and 50 schools to the control. The intervention in the experiment was an experiential financial inclusion program that included a school-based savings program for 25 treatment schools and a marketing outreach savings program for the other 25 treatment schools. These experiential programs provided an opportunity for youth to open savings accounts and into which they could deposit small amounts. We used a list of students compiled from class registers to randomly select 61 to 63 youth from each school using simple random selection. The baseline youth sample size was 6,267. Of the 6,267 youth surveyed at baseline, 49.5% (3,101) were in treatment schools, and 50.5% (3,166) were in the control schools. At endline, the youth sample size was 4,289 (68% of the baseline sample). Of the 4,289 youth surveyed at endline, 50.2% (2,153) were in the treatment schools and 49.8% (2,136) were in the control schools.

The unit of analysis was the individual student. We examined treatment effects using an intent-to-treat (ITT) analysis. The ITT analysis includes outcomes of all treatment participants—whether they received all or part of the treatment—compared with the outcomes of all control participants.

We also conducted an efficacy subset analysis (ESA) that estimates treatment outcomes on the basis of treatment exposure, dose, or compliance (Fraser Richman, Galinsky, & Day, 2009). In the ESA, we included a subset of participants that met a desired efficacy criterion and defined the dosage of treatment or treatment exposure based on the number of times bank staff visited a school.

Because of the randomization used in the study, we used simple differences in the distributions of outcomes between treatment and control groups as estimates of program impacts or treatment effects. We tracked and surveyed nearly 70% of the baseline sample at endline. The 30% attrition rate is consistent with other longitudinal studies conducted in Sub-Saharan Africa (SSA) (e.g., Alderman, Behrman, Kohler, Maluccio, & Watkins, 2001; Campbell & Rudan, 2011).

### **Who are the youth in the Ghana experiment?**

At baseline, the treatment group consisted of 48% males and 52% females, whereas the control group consisted of 49% males and 51% females. At endline, the gender ratio remained nearly equivalent for the control group, with a slight decrease in the percentage of females in the treatment group (from 52% to 50%). At baseline, nearly a third of participants in both control and treatment schools were aged between 15 and 17 years, and one in six participants were aged between 18 and 20 years. Youth aged 12 to 14 years accounted for 6% of the total, and the remaining 2% of participants were aged between 21 and 23 years. Youth come from households with an average monthly income of 251 GHS for the treatment group and 241 GHS for the control group. Roughly half of parents and guardians have no formal education (49%). More than 67% of parents across treatment and control were self-employed, and 69% of youth were food insecure.

### **Key Findings**

#### **In-school banking youth had better account uptake and use of accounts overall.**

Results from both the bank transaction data and survey indicate that greater proportions of youth who received in-school banking had heard of, opened, and deposited into *Enidaso* accounts compared to youth who only received marketing and control group youth. Differences across these three groups concerning having heard of and deposited into *Enidaso* accounts were statistically significant ( $p < .001$ ), yet differences regarding having opened an account were not statistically significant. From the youth survey, 78% of treatment youth had heard of *Enidaso*, 30% said they had opened an account, and 11% had deposited into their accounts. On the other hand, survey data indicate that over a third of youth (39%) in the control group had heard of *Enidaso*. Also, 15% of the control group youth had opened an account, though only a very small fraction (0.3%) had actually made a deposit.

From the bank transaction data known as the Savings Demand Assessment (SDA), results indicate that 11% of youth in treatment schools (i.e., 242 youth) opened an *Enidaso* account, and no control youth opened an account. The difference in *Enidaso* account uptake between treatment and control groups was statistically significant ( $p < .001$ ). Comparing the two treatment arms with the control group, a higher percentage of in-school banking youth (13%) opened an *Enidaso* account compared to marketing (9%) and control youth (0%).

Regarding dosage levels of in-school banking, a greater proportion of youth with above-average exposure (47%) had opened an *Enidaso* account, compared to 34% of youth with below-average

exposure. In addition, 51% of youth in the above-average exposure group had made deposits into their accounts compared to only 30% of youth in the below-average exposure group.

Across the four groups (above- and below-average in-school banking, marketing, and control), differences were statistically significant for having heard of *Enidaso* accounts ( $p < .001$ ) and having made deposits ( $p < .001$ ), but not for having opened an account ( $p = .24$ ).

### **Treatment youth had better savings outcomes than control youth.**

In terms of savings outcomes, treatment youth performed better than control youth. Participation in YouthSave contributed to higher savings amount among treatment but not control youth, and the differences between treatment and control groups were statistically significant. Impacts of the two treatment arms (i.e., in-school banking and marketing) on savings outcomes were mixed. The savings amounts (e.g., average quarterly net savings) were slightly higher among marketing than control youth. However, the savings amount difference between the two treatment groups was not statistically different.

Youth saved an average of GHS 14.09 ( $SD = 42.47$ ) at baseline, increasing to GHS 46.04 ( $SD = 224.43$ ) at endline. This positive trend was expected as youth grew older and had more opportunities to obtain money. Median amounts were GHS 3 at baseline and GHS 10 at endline. Median amounts were much lower than average amounts, which means a small percentage of youth reported having large amounts of money in their possession. For example, the top 25% of youth had GHS 35 or more—more than triple the median amount, whereas nearly a third of youth had no money at baseline (29%) and endline (30%).

### **Boys saved more than girls.**

Boys reported having more money ( $M = 58.82$ ,  $SD = 297.80$ ) at endline than girls ( $M = 33.37$ ,  $SD = 109.88$ ), a difference that was statistically significant ( $p < .001$ ). This finding contradicts findings from other studies in SSA, albeit smaller in scale than the Ghana experiment, in which results mostly show that girls save more than boys. This might be due to the manner in which boys are socialized in Ghana, wherein savings and entrepreneurship is taught throughout boys' formative years.

### **Number of bank visits to the school influenced youth saving.**

The difference between the treatment and control groups' exposure to *Enidaso* was statistically significant ( $p < .001$ ). We tracked the number of school visits that HFC bank branches made throughout the duration of the study. We used the number of school visits as a measure of the level of bank–student interaction. Results showed a statistically significant difference ( $p < .001$ ) between treatment schools with above-average bank visits and treatment schools with below-average bank visits on those who only heard about the account, those who opened the account, and those who deposited in the account. This finding is consistent with Sherraden's (2013) proposition that access, information, and facilitation are drivers for higher financial capability.



### **In-school banking had higher financial capability outcomes overall.**

Youth who received in-school banking experienced modest improvements in financial capability. The number of saving methods youth reported using to save money increased by 21% from baseline to endline. Though using a hiding place remained the preferred method, the greatest proportionate increase from baseline to endline was using a bank to save.

After receiving in-school banking, youth reported being somewhat more careful with their money. They experienced greater access to and awareness of financial services. Exposure to the YouthSave intervention had impact on the use of financial services, including *Enidaso* accounts.

Though the overall results of the money management scale were not significant, youth preferred to have larger amounts of money later than smaller amounts of money immediately. From the analysis, the increase from baseline to endline on this indicator was high overall, but higher among the in-school banking treatment group. This could be attributed to the bank staff's explaining savings and the benefits of postponing consumption to students at schools

### **There were mixed results on psychosocial, education, and health impacts.**

#### *Psychosocial*

Though overall future orientation outcomes were not statistically significant ( $p > .05$ ), treatment youth were more likely to be oriented toward success and less likely to be uncertain of the future than control youth. These findings suggest that YouthSave, in particular financial inclusion, provides youth with opportunities—both tangible and intangible—that shape their worldview, expand their perspectives, and allow them to engage in future thinking. A closer look at the impacts of YouthSave on future orientation yields a more complex story. In particular, the effects of YouthSave seem to differ based on the type of treatment arm. In-school banking youth had a higher endline orientation toward success scores than marketing youth. In addition, in-school banking youth reported the biggest gain (i.e., the largest positive change score on orientation toward success) from baseline to endline among all groups.

However, in-school banking youth experienced the largest increase on the uncertainty-of-the-future scale from baseline to endline among all groups. Mean uncertainty of the future score for in-school banking increased from baseline to endline (+0.81), whereas marketing youth's mean uncertainty of the future score decreased from baseline to endline (-0.53). These findings also contribute to a growing body of evidence (Chowa & Masa, 2015) that demonstrates how household economic resources (e.g., assets) are potential channels to increase future orientation of youth. Given that most studies on the determinants of future orientation have focused mostly on psychological or personality traits, our findings support the prospect of enhancing positive future orientation through programs that promote household economic security. The emphasis on future orientation is warranted because future orientation influences a range of desirable behaviors, including positive financial behaviors such as saving and retirement planning (Jacobs-Lawson & Hershey, 2005).

### *Education*

Findings from the Ghana experiment showed nuanced positive trends for the educational outcomes. Though not statistically significant ( $p > .05$ ), the treatment group has higher positive trends than the control group. Dosage analysis revealed stronger effects on the treatment group on expectations for high education. From baseline to endline across all groups, the marketing youth experienced a greater increase in expectations for higher education (+16.03%), followed by the in-school banking youth with above-average treatment exposure (+15.33%) and the control youth (+12.86%). Similarly, results for commitment to school showed that the treatment youth did better than control youth, but the differences were not statistically significant ( $p > .05$ ). The most interesting finding in the dosage analysis revealed that youth with above-average exposure reported an increase of 17 minutes in their study time from baseline to endline, whereas those with below-average treatment dosage decreased their study time by the same margin. Academic performance impacts were not significant ( $p > .05$ ). The results favored the control group rather than the treatment group.

These findings show that the lack of effects for the overall treatment group may have resulted from a lack of sufficient and consistent exposure to intervention activities. In addition, enough time for the treatment to take effect may have not been allotted. It is possible that more time was necessary to allow for the maturation of effects to influence behaviors.

### *Health*

Overall, YouthSave participation had modest effects on the health of Ghanaian youth ( $p > .05$ ). Some treatment effects were consistent with our hypothesis (i.e., YouthSave has positive impacts on health). For example, treatment youth performed better on parental connection, perceived barriers to condom use, perceived susceptibility to HIV, and perceived severity of HIV contrasted with control youth. On the other hand, some treatment effects contradicted our hypothesis. For instance, treatment youth performed worse on attitudes toward sex, motivations to engage in sex, and sense of belonging with peers contrasted with control youth. In addition, the impacts of YouthSave on health appeared to differ based on type of health outcomes. YouthSave has mixed effects on health attitudes; however, treatment effects on health behaviors (e.g., actual condom use, engagement in paid or unwilling sex) were consistently positive.

Our health findings highlight an important programmatic issue—a program focused solely on financial inclusion might have long-term unintended consequences on young people's health, particular attitudes toward sex and peer influence. These unintended consequences underscore the importance of including program components that might mitigate formation of less desirable health attitudes. Moreover, the Ghana experiment's positive effects on health behaviors are consistent with health behavior change models that emphasize the role of tangible economic strategies (e.g., savings) as potential incentives that encourage and enable young people to change or maintain positive health attitudes and behaviors. Nonetheless, further theorizing is needed to better understand why savings accounts may have consistent positive effects on health behaviors compared with health attitudes.

## Implications and Lessons

The findings of the Ghana experiment demonstrate the impact of early savings on youth development outcomes. Though in-school banking had the largest impacts, both in-school banking and marketing outreach interventions had impacts on account uptake, usage, savings, awareness of financial services, postponing consumption. These findings indicate that positive trends in youth well-being are present when youth engage in savings. Youth savings programs provide an opportunity for young people to experience hands-on learning on spending choices and the value to save, which in turn increase young people's self-efficacy and confidence. These youth development outcomes could translate into improved short- and long-term well-being outcomes for these young people and economic inclusion for their families and communities. Integrating financial capability programs in youth development policies could be a way to employ cost-effective interventions that have multidimensional impacts on youth. This is attractive to governments in resource-limited countries.

The finding that in-school banking services make a difference in savings and deposits is consistent with evidence of other positive impacts of school-based savings programs (Corporation for Enterprise Development [CFED], 2014). This further strengthens emerging evidence available to practitioners interested in school-based banking.

It is important for policymakers to pay attention to regulatory frameworks to incorporate allowances for youth to operate savings accounts independently. Research indicates that higher impacts on youth development stem from youth-operated accounts rather than adult-operated accounts on youth's behalf (Elliott & Beverly, 2011; Friedline, 2014). Therefore, this requires a shift in the way that laws govern account ownership. Allowance should be made for youth to engage in transacting with banks within reasonable parameters that will protect the youth, but at the same time optimize youth agency.

### Next steps

Lessons from the Ghana experiment also highlight other important next steps. First, interventions with more comprehensive services to encourage savings (e.g., financial literacy, incentives such as matching deposits) should be assessed to maximize impacts. Second, rigorous evaluation should accompany replication or demonstration of expanded interventions, particularly in areas where evidence remains limited (e.g., financial inclusion strategies for out-of-school youth and other youth hard-to-reach populations). Third, researchers should evaluate the cost-effectiveness of savings programs vis-à-vis their impacts to inform policymakers and practitioners of both evidence-based and cost-effective strategies to promote youth development.

Because of its rigorous design, the Ghana experiment is positioned to track short- and long-term impacts on youth development. Additional follow-up surveys to track and examine long-term impacts and investigate stability and sustainability of short-term effects are a logical next step. A

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longitudinal study into the next five years could test impacts and investigate differential impacts of savings on developmental outcomes and on different segments of the youth, including gender, age, location, socioeconomic status, and schools. In addition, tracking youth who are neither in school nor employed to investigate impacts on labor outcomes might be the next frontier in understanding early savings on youth employment. This is important because research has shown that early savings is crucial for building capital for small business and creating an opportunity for youth to gain the business acumen they need to be successful entrepreneurs. Therefore, longitudinal studies could also track whether early access to savings translates into usage of other financial products or services later in the youth's lives. Investigating these impacts could be the gateway to making policy recommendations to one of the most challenging issues that most resource-limited countries are facing: youth unemployment.

## Chapter 1: Ghana YouthSave Experiment: Background, Design, and Methodology

### Financial Inclusion as a Strategy for Youth Development

#### Youth access to financial services

Various stakeholders—policymakers, practitioners, and international development organizations—are currently exploring the increasing access to formal financial services for youth and young adults as a large-scale economic inclusion and development strategy in lower- and middle-income countries (United Nations Capital Development Fund, 2011). Youth in developing countries are able to save and accumulate financial assets if they have access to formal savings products, as well as the encouragement and support to save (Chowa & Ansong, 2010; Ssewamala & Ismayilova, 2009). Access to formal financial services leads to higher financial capability, which positively affects economic and financial transitions to adulthood (Johnson & Sherraden, 2007; Lusardi, Mitchell, & Curto, 2010) and other economically enabling behaviors such as future planning (Scanlon & Adams, 2009). However, access and use of formal financial services remain out of reach for youth in resource-limited settings, particularly among lower income families. In addition, youth from many resource-limited countries have low levels of financial literacy (Lusardi, Mitchell, & Curto, 2010). The combination of poor financial literacy and lack of access to financial services poses a substantial risk to the economic future and financial stability of youth. Given what is at stake, the idea of expanding access to formal financial services to youth has attracted the attention of various stakeholders.

The Global Financial Index indicates that in 2013, only 44% of the world's youth aged 18 to 25 years had a bank account, and 18% had saved the previous year (Demirguc-Kunt, Asli, Leora Klapper, Dorothe Singer, & Peter Van Oudheusden, 2015). Although other factors such as income and employment predict access to financial services and savings performance, low financial capability persists across regions, income, gender, and education level because of a lack of financial services and financial inclusion policies and practices that target youth. Regulations that prevent youth from opening accounts and transacting with banks independently are other barriers to youth financial inclusion.

In Sub-Saharan Africa (SSA), governments and the private sector are using a wide array of financial inclusion strategies to reach both in- and out-of-school youth, such as traditional classroom-based financial education, radio contests, informal savings groups, and child development accounts (Child and Youth Finance International, 2012; Making Cents International, 2012; Meyer, Masa, & Zimmerman, 2010). In Ghana, Berry, Karlan, and Pradham (2015) demonstrate that school-based financial education programs encourage students to move their savings from home to locked money boxes at school. Short-term effects of their school-based savings clubs also show that financial education, when not accompanied by the social education, leads children to work more in exchange for money. Although experimental studies that combined savings and social supports have found positive impacts on a range of youth developmental outcomes (e.g., Ssewamala & Ismayilova, 2009; Ssewamala, Han, & Neilands, 2009; Ssewamala, Neilands, Waldfogel, & Ismayilova, 2012), little is known about the impact of savings-only program on youth outcomes. Most savings programs for youth in SSA have not been evaluated rigorously or were limited to research designs (e.g., Chowa &

Ansong, 2010) that do not allow for adequate testing of potential causal relationships between savings and a broad range of youth outcomes, including education, financial, and health.

### **Outcomes of savings on youth development**

Despite the low levels of available financial services in general, scholars have documented the range of positive outcomes from savings and account holding. In *Assets and the Poor*, Sherraden (1991) suggested that assets, including savings, have a wide range of positive effects on well-being beyond consumption. These asset effects include improved household economic stability, increased personal efficacy and future orientation, and improved well-being of children (Sherraden, 1991). The outcomes that Sherraden identified are central to successful transitions from youth to adulthood, and have been found to have positive impacts on youth development (Lerman & McKernan, 2008). Evidence from resource-adequate and resource-limited countries suggests that youth in high-wealth households are more likely to have better schooling outcomes (e.g., higher math and reading scores, higher rates of high-school graduation, higher rates of college attendance, higher rates of college graduation) (Admassie, 2002; Ssewamala & Curley, 2005), positive future orientation (Chowa & Masa, 2015), increased self-efficacy (Ansong, Chowa, & Sherraden, 2015), and improved health (Chowa, Ansong, & Masa, 2010; Ssewamala & Ismayilova, 2009) than children from low-wealth households. This range of positive behaviors, in turn, contributes to other desirable outcomes, including economic and financial stability.

The indirect psychological effects of assets have recently been recognized in an emergent body of research that focuses on the relationship of children's savings (i.e., children with savings of their own) and educational outcomes (Ansong, 2013; Elliott, 2009). Researchers in this area have posited that asset ownership has unique qualities such as increasing self-efficacy, resilience, and future outlook (Ansong, Chowa, & Grinstein-Weiss, 2013; Ansong et al., 2015; Chowa & Masa, 2015; Lerman & McKernan, 2008). Researchers in other areas of asset development have suggested similar findings. For example, consumer researchers have proposed that asset ownership instills individuals with a greater sense of perceived control and sense of self more than children whose parents don't have savings (Belk, 1988; Elliot, Chowa, & Loke, 2011). In resource-limited countries, savings has an impact on school enrollment and educational attainment. Evidence is also emerging that shows that children whose parents have savings transition to college and also graduate from college. In resource-limited countries, children whose parents have assets—a robust measure of savings in this context—enjoy better nutrition, access to health services, overall health, and lower mortality rates (Chowa et al., 2010). This evidence demonstrates that assets have impacts that extend well beyond the financial domain. Thus, asset or wealth inequality results in educational, social, and health disparities with life-long adverse effects on individuals' capacity to secure employment and accumulate wealth.

An emerging body of research (e.g., Elliott & Sherraden, 2013; Friedline & Schuetz, 2014) suggests that when youth have their own savings in their own accounts, the effects may be far greater than when parents own the resources. Understanding whether and how youth ownership of their own accounts contributes to gains in youth's education, financial well-being, and health has important policy and regulatory implications. In many countries, youth are restricted from owning their own savings accounts or transacting with financial institutions without parental consent. If evidence supports developmental gains when youth own their savings accounts, current restrictions on account ownership could be reviewed by policymakers to facilitate full financial inclusion of youth

and maximize potential impacts on a broad range of outcomes—from education to health, and psychological to financial capability.

Despite the growing significance of youth financial inclusion, no large-scale financial inclusion intervention in resource-limited countries has been implemented and rigorously evaluated to help inform policies targeting youth and young adults. The Ghana YouthSave Experiment is the first and largest experiment that investigates youth development outcomes of savings in a resource-limited country.

## What is the Ghana YouthSave Experiment?

### The broader project and the experiment in Ghana

YouthSave was a five-year project that investigated the potential of savings accounts as a tool for youth development and financial inclusion in Colombia, Ghana, Kenya, and Nepal. The project's research goals included measuring savings account uptake and savings performance, and describing in detail the saving experiences of youth account holders. YouthSave targeted youth from low-income families to understand how savings affects the lives of youth from this population. Studies on savings performance (Johnson et al., 2015) in these countries and case studies on the context and stakeholders' voices on their experience with the project (Zou et al., 2015) were completed. In addition, a business case component was designed to determine the combinations of product and services and marketing strategies that lead to profitability, sustainability, and commercial adoption of youth savings accounts among financial institutions (CSD, 2011). In Ghana, a cluster randomized experiment was additionally designed to investigate the impact of youth savings accounts (YSAs) on youth development and the economic stability of their households.

The aim of the Ghana YouthSave Experiment (hereafter referred to as the Ghana experiment) was to investigate whether and how savings accounts for youth affect financial capability; psychosocial, education, and health outcomes; and economic well-being of Ghanaian youth and their households. The Ghana experiment employed a cluster randomization of schools to adhere to the gold standard of scientific inquiry, paying close attention to how students, the primary unit of investigation, were clustered within schools. In the experiment, we collected data at baseline and endline using indicators from core youth development areas including financial capability and psychosocial, education, and health outcomes. The research rigor in the experiment offers an opportunity to posit causal relationships between savings and youth development, which is unprecedented in resource-limited countries. The treatment in this experiment was a savings account offered to youth aged 12 to 18 years in schools, where most youth in the selected age range can be found.

### *Theory of change*

YouthSave's theory of change builds on relevant theoretical models and current empirical evidence (both observational and intervention studies). For instance, the theory of asset effects (Sherraden, 1991) explains how asset accumulation affects a broad range of individual (i.e., self-efficacy, future orientation academic performance) and household well-being (i.e., financial stability, planning for the future, risk management) outcomes. Savings can have direct effects, such as accumulating more assets, and also indirect effects in the form of psychological, social, and economic outcomes (Sherraden, 1991). Savings can also increase *financial capability*, which Sherraden (2010) defined as being financially literate and having access to and using accessible, affordable, attractive, easy-to-use,

safe, and reliable formal financial products. For a detailed pictorial display of the theory of change please see Appendix A and refer to the Ghana YouthSave experiment baseline report (Chowa et al., 2012) for detailed discussion of the theory of change.

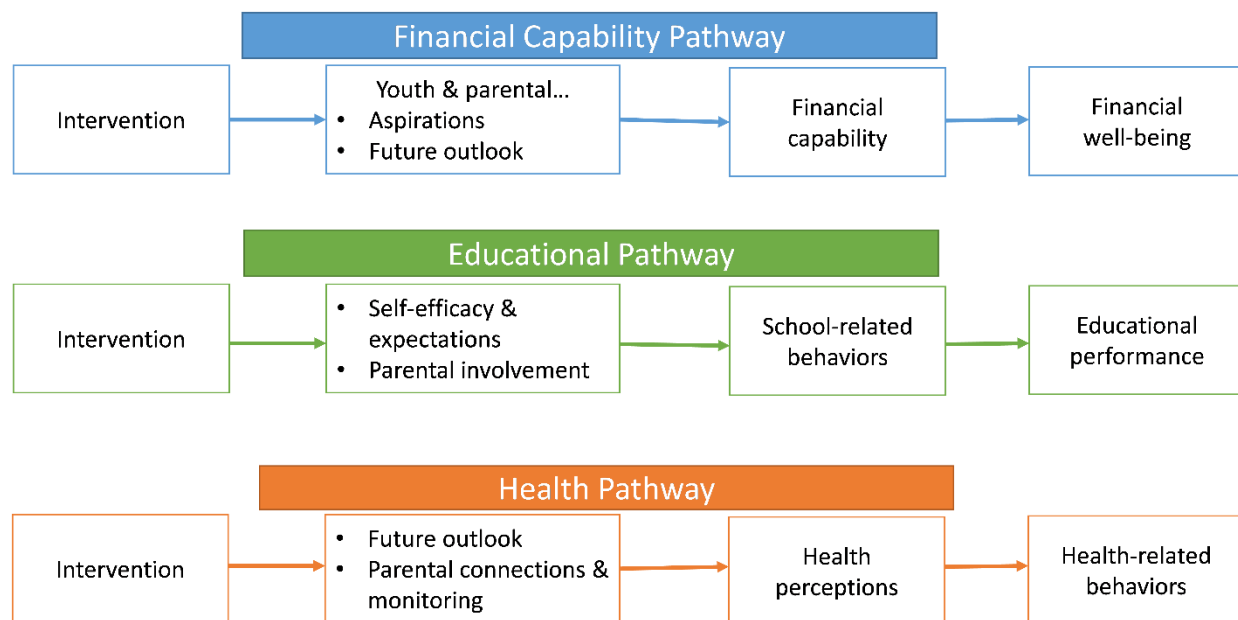
*Pathways in the Ghana experiment*

Figure 1.1 presents a synthesized and high-level conceptualization of the pathways we investigate in the endline report.

*Financial capability pathway.* Low-income people can and will save when given opportunities and access to savings products (Schreiner & Sherraden, 2007). In addition, formal savings accounts enable low-income people to gain access to mechanisms for saving and investment that improve their future prospects. Access, information, facilitation, expectations, and security provide a structured mechanism to keep people engaged and help them meet desired outcomes. The ability of youth to save money and build assets is affected by their financial capability, or the combination of financial literacy (i.e., knowledge and skills) and actual access to and use of formal financial services (Johnson & Sherraden, 2007).

The legal age at which an individual can open an account in Ghana is 18 years old; therefore, financial inclusion statistics are only available for people aged 18 years and older. The World Bank’s Global Findex indicates that 29% of adults in Ghana are banked (Demirguc-Kunt et al., 2015). The same report makes a distinction between financial inclusion and access to financial services: “financial inclusion is focused on use but lack of use does not always mean lack of access” (p. 3). We employ the term *financial capability* to reflect the use of and access to financial services.

Figure 1.1. Developmental pathways in the Ghana YouthSave Experiment





Through the Ministry of Finance (MoF), Ghana's government is currently spearheading the development of a National Financial Inclusion Policy as a requirement of signing onto the Maya Declaration.<sup>2</sup> The MoF is working with the World Bank's universal access-to-finance program to draft the country's financial inclusion policy. This will augment what the country has already implemented in terms of incorporating financial literacy in senior high school (SHS) curricula.

*Education performance and transition to higher education pathway.* Saving money and accumulating assets help youth access educational and entrepreneurial opportunities (Chowa et al., 2010; Elliott, Jung, Kim, & Chowa, 2010) and promotes their future planning (Chowa & Masa, 2015; Scanlon & Adams, 2009). This may be especially important for youth living in SSA, where less than 50% of youth progress to SHS and formal, nonexploitative employment opportunities are scarce (United Nations Children's Fund [UNICEF], 2011; World Bank, 2009). Savings provide the funds needed to pay for educational expenses required at higher levels of education or capital to start business. Children from low-income families rarely have savings to transition to higher levels of education.

Ghana's education system was designed to guarantee all children a minimum of nine years of basic education (i.e., six years of primary or elementary education and three years of junior high school [JHS] or middle school). Students take the basic education certificate examination at the end of their third year of JHS. The examination is the first terminal point of the education system for a number of children. Primary and JHS education are supposed to be free for students who attend public schools in Ghana; however, from SHS through college or university, families must pay school fees, which can be prohibitive for poor families. Because of such fees, most low-income youth drop out of school at this transition point. The drop-out rate at the JHS to SHS levels in Ghana has been between 30% and 34% since 2010 (Ministry of Education [MOE]/ Education Management Information System [EMIS], 2010–2014). The education attainment profile for the population aged 15 years and older in 2013 indicates that 19.7% of this population have never attended school, 65.5% completed JHS or middle school (Ghana Statistical Service [GSS], 2014).

*Health perception and sexual risk behaviors pathways.* In addition to the economic, financial, and educational challenges, youth in resource-limited settings face significant health risks. In Ghana, a combination of being sexually active in adolescence and risky attitudes and behaviors heightens risk of adverse health outcomes (e.g., acquisition of sexually transmitted infections including HIV) (Ghana Statistical Service, Ghana Health Service, & ICF Macro, 2009; Ghana AIDS Commission, 2012). Most interventions have focused on individual behavior change to reduce health risks. However, a growing number of economic-based programs have been tested as a novel way to address health risks and complement health behavior change interventions. Evidence suggests that these economic-based programs, including access to savings accounts, have been effective in promoting positive health behaviors among youth (Baird, Garfein, McIntosh, & Ozler, 2012; de Walque et al., 2012; Ssewamala, Alicea, Bannon, & Ismayilova, 2008; Ssewamala & Ismayilova, 2009). These promising findings suggest that strategies such as access to financial resources (e.g., savings) are important, in addition to information and motivation, to facilitate and maintain behavior

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<sup>2</sup> The Maya Declaration is a statement of common principles regarding the development of Financial Inclusion Policy made by a group of developing nation regulatory institutions. This declaration was made through the Alliance for Financial Inclusion Network of Regulatory institutions. The Bank of Ghana is a signatory to the declaration.

change. Access to these resources might provide incentives that encourage youth to change or maintain positive health behaviors.

#### *Psychosocial mediators of youth outcomes*

Aspirations, expectations, and future orientation influence a range of desirable behaviors—from health (Joireman, Shaffer, Balliet, & Strathman, 2012; Robbins & Bryan, 2004) and education (Adelabu, 2007) to saving and retirement planning (Jacobs-Lawson & Hershey, 2005). However, evidence is limited on whether youth savings affects psychosocial well-being, which in turn, influences other positive youth outcomes.

*Future orientation* refers to individuals' tendency to engage in thinking about the future (Nurmi, 1991; Seginer, 2009). Research has shown that adolescents think about the future and report future-oriented goals in a variety of life domains (Massey, Gebhardt, & Garnefski, 2008; Nurmi, 1991), including education and occupation (Lanz, Rosnati, Marta, & Scabini, 2001; Seginer, 1988), social relationships (Carroll, 2002), and money and financial stability (Budhwar, Reeves, & Farrell, 2000; Cohen & Cohen, 2001). By focusing on future plans, youth may avoid engaging in behaviors that could jeopardize their future. Many empirical studies investigate future orientation as a precursor of behavior (Adelabu, 2007; Ansong et al., 2013; Chowa & Masa, 2015). Among youth, positive future orientation is related to academic achievement (Adelabu, 2007), and youth who are highly oriented toward the future—as measured by future planning—demonstrate lower incidences of misconduct (Chen & Vazsonyi, 2013; Quinton, Pickles, Maughan, & Rutter, 1993), higher rates of intention to use condoms (Bryan, Kagee, & Broaddus, 2006), and higher perceived academic self-efficacy (Kerpelman, Eryigit, & Stephens, 2008). Youth who demonstrate higher levels of future orientation are less likely to engage in drug and alcohol abuse and unsafe sexual practices (Peters et al., 2005; Robbins & Bryan, 2004; Somers & Gizzi, 2001).

#### *Household resilience and parent–youth connection*

Household resilience and parent–youth connection are protective factors, or conditions that facilitate positive youth development and buffer youth from engaging in risky behaviors (Resnick, 2000). Although protective factors exist at different levels (e.g. individual, family, peer, school, community), our focus is on family-level protective factors, including parental connection and parental monitoring. Families can provide protective factors by creating a strong bond between youth and parents, as well as parental involvement in the youth's life.

Theoretical propositions, such as asset effects, posit a positive link between saving and asset accumulation and household resilience and stability of parent–youth relationships. Building on Sherraden's (1991) theory of asset effects, saving and asset accumulation can influence household resilience and stability because savings and assets provide resources that buffer effects of economic shocks on family relationships. For instance, financial stress caused by not having enough resources to provide for the family's basic needs might contribute to deterioration of desirable parent–youth relationships, which, in turn, could lead to other adverse outcomes. However, evidence is limited on whether youth savings affect family resilience and parent–youth relationships, which influences other positive youth outcomes.

## Design and Methods

### Research questions

The aim of the Ghana experiment was to answer the following overall research question: Does access of a savings account affect youth developmental outcomes and the economic well-being of their households? Building on the broader research question and the study's conceptual framework, the following are the experiment's five direct questions:

1. Will participation in YouthSave improve savings patterns and performance for low-income youth?
2. Will participation in YouthSave increase low-income youth's financial capability, assets, and their families' economic stability?
3. Will participation in YouthSave improve the psychological well-being of low-income youth?
4. Will participation in YouthSave improve the educational outcomes of low-income youth?
5. Will participation in YouthSave improve low-income youth's health attitudes and behaviors, including sexual risk taking?

### Experimental design

The Ghana experiment used a cluster randomized, longitudinal treatment and control design with pretest and posttest. The key aspect of this design is its strong internal validity that allows us to make causal inferences. Experimental studies that use random assignment provide high-quality evidence when determining the effects of programs. Randomized studies are considered the gold standard of evidence because they reduce the plausibility of alternative explanations for observed effects (Shadish, Cook, & Campbell, 2002). The random assignment creates a treatment and a control group that are equal on both observed and unobserved factors. By equating treatment and control groups before the intervention started, any observed differences in outcomes between treatment and control groups can be confidently attributed to the intervention. A detailed description of the study's research design is available in the baseline report.

Cluster randomization (or randomization of higher order units; in this case, the schools) is another strength of the Ghana experiment's design for practical and scientific reasons. First, it was not practical to isolate each youth who received the treatment from the same school and give the same youth a unique treatment. In such cases, resentful demoralization or diffusion of treatment might have been the result. Second, youth within the same schools might not have been independent of each other because they were exposed to common influences separate from the treatment. For example, youth from the same schools talked with each other, interacted with the same school staff, had the same teacher, and might have received treatment at the same time of the day. These dependencies contribute to a violation of the statistical assumption that observations are independent of each other.

### Power analysis

Properly designed experiments must have the power to detect the effects of the intervention. We used convention values in the social and behavioral sciences (Cohen, 1988) to establish the parameters of our power analysis. The general hypothesis is that the intervention will have a positive

effect on a range of youth outcomes. The treatment took place at the school level and the design calls for cluster randomization, but the outcomes are assessed at the individual student level; therefore, the design was multilevel by necessity. Using optimal design software (Raudenbush, Bloom, Spybrook, & Martinez, 2011), we conducted the power analysis to determine the total number of clusters and youth per cluster that are needed to achieve power (i.e., the ability to reject a false hypothesis) of .80 and detect a small standardized effect size (i.e., the minimum detectable effect of an experiment) of .20 with statistical significance level set at .05. New studies often require the power to detect a small effect size. Because the Ghana experiment is a cluster randomized study, we added another element—intraclass correlation (ICC) at .05 (i.e., variation between schools)—to the power analysis. The key idea of ICC is that power increases as ICC decreases for a fixed number of clusters and a fixed number of youth per cluster. Results of the power analysis indicated that a total of 100 schools (50 treatment schools and 50 control schools) with at least 60 youth per school are sufficient to both achieve power of at least .80 and also detect a small standardized effect size.

If we reduce the total number of youth per cluster (e.g., from 50 to 20), we would need more clusters to both achieve power of at least .80 and also detect a small standardized effect size of .20. However, increasing the total number of youth per cluster ( $n$ ) does not substantially increase power towards 1 without increasing the total number of clusters. For instance, when there are 100 clusters, increasing the total number of youth per cluster from 60 to 80 does not substantially increase power.

In summary, the influence of the number of clusters on power is stronger than the number of youth per cluster. If we increase the number of clusters, power increases much more rapidly towards 1. Although increasing the number of youth per cluster increases power, at some point, increasing the number of youth per cluster without increasing the number of clusters provides no further benefit. Given these considerations, the most optimal design for the experiment was 100 clusters with at least 60 youth per cluster or treatment school. Of the 100 clusters, we randomly assigned half (or 50) to the treatment group and the other half to the control group. Furthermore, we oversampled by 3%, which translated to two to three students per school.

## Sampling

The sampling framework for the Ghana experiment was all districts in eight of the ten regions of Ghana where HFC Bank, the partner financial institution (FI) for the YouthSave project in Ghana, operates. We randomly selected 100 JHSs to participate in the YouthSave project from the 54 districts of HFC's catchment area. We used submetropolitan areas in metropolitan areas of Accra, Kumasi, and Sekondi-Takoradi where HFC operates, as districts. Given the Ghana experiment's focus on low-income youth, we deliberately targeted the 581 public schools in HFC's catchment area. We obtained the list of these public areas from District Education offices from the districts in the HFC catchment area. From this list, we selected 100 schools using simple random sampling (50 to the treatment schools, and 50 to the control schools). Within the 50 treatment schools, there were two treatment arms: in-school banking and market outreach. We used a list of students compiled from class registers to randomly select 61–63 youth from each school using simple random sampling.

## Instrumentation/Data collection/Pilot-testing

We developed a survey to measure the main youth development outcomes outlined in the conceptual framework. This survey included both scales and items that represent different

dimensions and constructs of youth development. The survey covers information on youth's educational, health, psychosocial, and financial characteristics. The survey includes youth and parental demographics and household socioeconomic characteristics.

Survey development was a six-month process that involved examination of relevant indicators and scales by a team of researchers in Ghana and the United States. In addition, experts in youth development and measurement from University of Ghana, University of North Carolina at Chapel Hill, University of Michigan who were independent from the Ghana YouthSave research team, reviewed the survey content. Researchers examined individual items for developmental appropriateness and potential biases (e.g., language and gender), as well as content validity. The Ghana experiment team then pilot-tested the data collection procedures, which included conducting the survey with intended respondents (i.e., JHS youth). During the pilot-testing, we reviewed and discussed individual questions with Ghanaian researchers and trained interviewers to examine applicability and validity in the local context. After the final draft was compiled, we pilot-tested the questionnaire to allow for evaluation of the survey, collect accurate information, and determine the efficiency of the data collection methods (comparing self-administered and face-to-face interviewing) and the overall adequacy of field procedures (including negotiating with schools about timing of interviews and follow up with parents). In addition, survey items from all youth development dimensions (e.g., financial capability, education, economic, psychosocial, health) underwent cognitive testing to check whether the survey questions were accurately measuring what the researchers intended, and to determine whether youth understood the questions. For a list of scales and indicators that measure youth development constructs listed in the conceptual framework, see Appendix B.

In addition to the survey, we employed three other data collection mechanisms: (1) a qualitative study, (2) an implementation monitoring tool to monitor the fidelity of treatment, and (3) a Savings Demand Assessment (SDA), which collected data on bank transactions and main household and youth characteristics. Appendix C details the qualitative study protocol, details of the SDA can be found in the SDA report (Johnson et al, 2015), and the implementation tool is in Appendix D. The implementation monitoring instrument was primarily targeted at bank branches in the experiment. The instrument captured a range of indicators that measured the number of times bank staff visited schools, how many staff were assigned to each school, what activities took place during each visit, and if there were any incentives for bank staff to visit schools. The bank staff self-administered the monitoring tool every quarter from September 2013 to August 2014. The implementation instrument captures more indicators, and more details can be found in Appendix D.

### **Sample distribution**

To demonstrate whether randomization worked after selection, the following three tables show sample distribution on the main youth demographics (Table 1.1), the results of randomization (Table 1.2), and how attrition has affected distribution of the sample between baseline and endline.

The baseline youth sample size was 6,267. Of the 6,267 youth surveyed at baseline, 49.5% (or 3,101) were in treatment schools and 50.5% (or 3,166) were in the control schools. At endline, the youth sample size was 4,289 (or 68% of the baseline sample). Of the 4,289 youth surveyed at endline, 50.2% (or 2,153) were in the treatment schools and 49.8% (or 2,136) were in the control schools. A slightly higher percentage of treatment youth (69%) were surveyed at baseline and endline compared

with control youth (67%). Table 1.1 presents key characteristics of youth by group and measurement occasion.

Table 1.1. Youth Characteristics by Group and Measurement Occasion

Indicator	All		Treatment		Control	
	Baseline ( <i>N</i> = 6,267)	Endline ( <i>N</i> = 4,289)	Baseline ( <i>N</i> = 3,101)	Endline ( <i>N</i> = 2,153)	Baseline ( <i>N</i> = 3,166)	Endline ( <i>N</i> = 2,136)
Gender						
Boys	49%	50%	49%	50%	49%	50%
Girls	51%	50%	51%	50%	51%	50%
Mean Age (years)						
2011	14.11	13.66	14.07	13.63	14.16	13.69
2014	17.11	16.66	17.06	16.63	17.16	16.69
Grade Level						
Class 6	36%	35%	36%	36%	36%	34%
JHS1 Cohort 1	32%	24%	32%	23%	32%	25%
JHS1 Cohort 2	32%	41%	32%	41%	32%	41%
Region of Residence						
Eastern	24%	23%	24%	23%	24%	24%
Greater Accra	22%	20%	23%	20%	22%	20%
Ashanti	19%	18%	19%	18%	19%	17%
Brong Ahafo	12%	12%	12%	12%	12%	12%
Central	10%	12%	10%	12%	9%	12%
Northern	8%	9%	8%	9%	8%	8%
Western	4%	5%	4%	6%	4%	5%
Volta	1%	1%			2%	2%

We tested whether randomization worked (i.e., whether the Ghana experiment created a balanced baseline sample of youth in both treatment and control groups). Results of randomization tests indicate that random assignment worked (see Table 1.2). Using cluster-adjusted tests, we found that treatment and control youth did not differ significantly on youth characteristics and most parent and household variables (third column, Table 1.2). Treatment and control youth differed significantly ( $p < .05$ ) on three indicators out of 23—parent employment status, homeownership, and ownership of livestock. Randomization results by each variable presented in Table 1.2 are discussed in greater details in Chapter 2. We also tested whether there were differences between treatment and control youth using unadjusted tests (or bivariate tests that do not take into account the clustering of youth within schools). These unadjusted tests are not ideal given the cluster randomized nature of the Ghana experiment. However, we presented the results for descriptive purposes. Unlike the adjusted results, unadjusted results (second column, Table 1.2) indicate poor randomization (i.e., treatment and control youth differed significantly on 16 variables including all household characteristics [asset ownership and living conditions]).

Additionally, we tested whether randomization worked across the two treatment (in-school banking and marketing) and control groups. Results are consistent with the overall randomization results (i.e., comparison of general treatment and control groups). In-school banking, marketing, and control youth did not differ significantly on youth characteristics and most parent and household variables. Unlike results of the overall randomization, in-school, marketing, and control youth did not differ significantly on ownership of livestock. However, in-school banking, marketing, and control youth differed significantly ( $p < .05$ ) on two indicators—parental employment and homeownership.

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Table 1.2. Randomization Results (General Treatment and Control)

Variable	Results (without cluster adjustment)	Results (with cluster adjustment)
Youth		
Gender	$p = .866$	$p = .899$
Age	$p = .106$	$p = .532$
Grade level	$p = .484$	$p = .484$
Region of residence	$p = .000$	-
Parent/Guardian		
Relationship with youth	$p = .463$	$p = .962$
Gender	$p = .861$	$p = .921$
Age	$p = .493$	$p = .650$
Marital status	$p = .153$	$p = .579$
Education level	$p = .001$	$p = .461$
Employment status	$p = .000$	$p = .004$
Household dependent (all ages)	$p = .005$	$p = .215$
Household income	$p = .340$	$p = .524$
Asset Ownership (Dichotomous Variables)		
House	$p = .000$	$p = .035$
Land	$p = .001$	$p = .232$
Transport-related asset	$p = .000$	$p = .107$
Livestock	$p = .000$	$p = .043$
Household possession	$p = .001$	$p = .088$
Living Conditions (Categorical Variables)		
Type of house	$p = .000$	$p = .380$
Source of drinking water	$p = .000$	$p = .072$
Source of electricity	$p = .000$	$p = .648$
Toilet facility	$p = .000$	$p = .448$
Wall	$p = .000$	$p = .612$
Floor	$p = .002$	$p = .630$
Roof	$p = .000$	$p = .965$

Next, we compared baseline sample with and without follow-up surveys (i.e., endline data). Given that 32% of the original baseline sample was not successfully surveyed at endline, we tested whether or not the two groups of baseline sample (i.e., with and without endline) differed significantly. Consistent with our randomization tests, we used cluster-adjusted tests because of the experiment's cluster randomized design. Results are presented in Table 1.3. Youth with and without endline surveys differed significantly ( $p < .05$ ) on four indicators—youth's age, grade level, relationship of interviewed parents, and household's source of electricity (third column, Table 1.3). Youth with and without endline surveys were not significantly different on all other variables in Table 1.3. Using unadjusted tests, the two groups of baseline sample differed significantly ( $p < .05$ ) on 12 variables (second column, Table 1.3). Again, these unadjusted tests are not ideal given the cluster randomized nature of the Ghana experiment. In our multivariate analyses that include the two groups from the baseline sample, we controlled for these statistically different indicators to more accurately examine statistical relationships.

Table 1.3. Attrition (Comparing Baseline Sample with and without Endline)

Variable	Results (without cluster adjustment)	Results (with cluster adjustment)
Youth		
Gender	$p = .016$	$p = .067$
Age	$p = .013$	$p = .013$
Grade level	$p = .000$	$p = .000$
Region of residence	$p = .000$	-
Parent/Guardian		
Relationship with youth	$p = .000$	$p = .000$
Gender	$p = .606$	$p = .770$
Age	$p = .832$	$p = .889$
Marital status	$p = .352$	$p = .763$
Education level	$p = .062$	$p = .799$
Employment status	$p = .095$	$p = .328$
Household dependent (all ages)	$p = .003$	$p = .187$
Household income	$p = .423$	$p = .595$
Asset Ownership (Dichotomous Variables)		
House	$p = .496$	$p = .814$
Land	$p = .167$	$p = .618$
Transport-related asset	$p = .381$	$p = .790$
Livestock	$p = .052$	$p = .593$
Household possession	$p = .140$	$p = .429$
Living Conditions (Categorical Variables)		
Type of house	$p = .000$	$p = .115$
Source of drinking water	$p = .259$	$p = 1.00$
Source of electricity	$p = .000$	$p = .010$
Toilet facility	$p = .000$	$p = .919$
Wall	$p = .002$	$p = .987$
Floor	$p = .023$	$p = .810$
Roof	$p = .000$	$p = .978$

## Impact analysis plan

### *Intent-to-treat*

The unit of analysis is the individual student. We examined the treatment effects using an intent-to-treat (ITT) analysis. The ITT analysis includes outcomes of all treatment participants—whether they received all or part of the treatment—compared with the outcomes of all control participants. The ITT analysis is a solution to some of the practical issues of intervention research, including noncompliance and treatment attrition (Frangakis & Rubin, 1999).

### *Efficacy subset analysis*

We also conducted an efficacy subset analysis (ESA). The ESA estimates treatment outcomes on the basis of treatment exposure, dose, or compliance (Fraser et al., 2009). In intervention research, treatment might not be implemented in the way it was designed; for example, not all treatment participants received the same level of exposure. In the ESA, we included a subset of participants that met a desired efficacy criterion and defined the dosage of treatment or treatment exposure based on the number of times bank staff visited a school. We used the average (or mean) for the



bank visits to create two groups. Schools with visits above the mean were assigned a higher dosage; and schools with visits below the mean were assigned a lower dosage.

### *Analysis plan*

Because of the randomization used in the study, simple differences in the distributions of outcomes between treatment and control group members are unbiased estimates of program impacts or treatment effects. We analyzed data using appropriate tests for two waves of data: baseline and endline. For instance, we conducted bivariate tests based on the lagged dependent variable model (Halaby, 2004) and the change score model (i.e., the difference between the score at baseline from the score at endline) (Allison, 1990; 2009). In addition, because the study used a cluster randomized design, we performed statistical tests that considered the clustering of youth within schools (i.e., adjusted for the intraclass correlation). We used parametric (e.g., *t* test, ANOVA) and nonparametric (e.g.,  $\chi^2$ , Mann-Whitney rank-sum and Kruskal-Wallis rank) tests. In our analyses, we set  $\alpha$  at .05, consistent with most research in social and behavioral sciences. In other words, statistically significant differences throughout this report referred to  $\alpha = .05$ . Results with *p* values  $> .05$  but  $< .10$  were referred to as approaching or demonstrating statistical trend.

### **Qualitative study**

To augment the quantitative data from the Ghana experiment, we conducted a qualitative study prior to the endline data collection. The main objectives of the qualitative research were to (a) understand how the lives of youth are affected when opportunities to save are available or when these opportunities are absent, and (b) document how these saving experiences affected their behaviors, relationships at home and school, cognitions, attitudes and aspirations, and how they think about their future. The underlying premise of this inquiry was to allow the youth to narrate how the opportunity to save affects them, without restricting them to hypothesized outcomes. We selected samples from the treatment and control schools to participate in the qualitative study. We used a multistage sampling approach that combined cluster, stratified, random, and purposive sampling techniques to select 24 youth and one parent/guardian of each of the 24 sampled youth, giving a total sample size of 48 for the study. Other variables that were considered in the sampling are locality type (rural and urban), saver type (high and low savers), gender (male and female), and asset index (low and high index). We recruited and trained five interviewers (two males and three females) to assist with the in-depth interviews. We developed two interview guides to guide the in-depth interviews with youth participants and their parents. The in-depth interviews were conducted between July and August of 2014. The following broad questions guided the interview process:

1. How do youth sign up for the account (hear about it, access it, etc.) and why?
2. How do youth save (both informal and formal savings mechanisms)?
3. How effectively do youth save in the account (for those who have savings accounts)?
4. What factors influence savings performance among youth?
5. What are the effects of savings in the daily lives and in longer term development of youth?
6. What makes it easy/hard to deposit/withdraw savings?

7. How do the youth like the account, HFC Bank, or the YouthSave program (i.e., financial education, in-schooling banking, and marketing)?
8. How did parents know about *Enidaso* and/or their child's involvement; how involved were parents?
9. What do youth and parents recommend for improvement?

### Intervention

#### *Enidaso account*

The savings product in the Ghana experiment was called *Enidaso*, which means “hope” in Twi, one of the two dialects that make up the Akan macrolanguage. The *Enidaso* account included a free photo automated teller machine (ATM) card that could be used only to check account balance. Withdrawals were restricted for the first three months and could only be made with an adult, although this restriction was later waived for boarding school students, who needed consistent access to their funds. However, youth were allowed to make deposits by themselves.

#### *Two treatment arms: In-school banking & marketing outreach*

The first treatment arm of the Ghana experiment was in-school banking, which included visits from bank staff to introduce the *Enidaso* account to youth in the school. In collaboration with students, the bank staff conducted bank transactions on site at schools. There was no restriction on the number of visits. At each school, a teacher acted as a product champion to coordinate between bank staff, the school administrators, and the students. The product champions coordinated times for, and reminded students about, the bank visits.

The second treatment arm was marketing outreach, which involved the bank visiting schools once to introduce *Enidaso*. The bank staff could open accounts and take the initial deposit on site. However, this was the only time the bank could conduct transactions at schools for the marketing-outreach treatment arm. Unlike in-school banking, youth in marketing outreach schools could only conduct additional transactions (i.e., after the initial deposit) at the bank. However, bank staff encouraged youth to visit the bank for future transactions.

### Fidelity

#### *Treatment delivery*

Bank staff visited schools and gave presentations on the importance of savings, *Enidaso's* account features, and account opening requirements. Each presentation took an average of 10 to 15 minutes during school assemblies. Product fliers, posters, and pull-up banners were also placed at various view points at schools. Bank staff gave youth pens, t-shirts, piggy banks, pencil cases, and notebooks at various points of the treatment period. The bank reported that youth were very responsive to the presentations, particularly because they were excited about opening their own accounts. For over 90% of the schools visited, teachers endorsed the product, which made the bank's interaction with the youth more successful.

*Number of staff assigned to treatment schools.* Between September 2013 and August 2014, the bank directly assigned an average of four staff to each treatment school to implement intervention activities and

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engage with school authorities and pupils. In this period, the bank assigned a minimum of two staff to a treatment school. As illustrated in Figure 1.2, during the first quarter, a maximum of 11 bank staff was involved in promoting *Enidaso* in the treatment schools. This decreased to nine staff during the second quarter and seven staff during the third and fourth quarters.

*Number of staff visits to treatment schools per quarter.* Depending on the type of treatment school, results show that the number of visits to in-school banking treatment schools ranged from 5.04 to 7.32 per quarter, compared to 2.4 to 3.91 times for the marketing outreach schools (Figure 1.3). Ideally, the number of visits to marketing outreach schools should only be one to introduce the account to students. However, these visits may reflect the number of times the bank staff visited the school to engage the school administration and obtain permission to operate in the school, and not necessarily multiple visits to conduct banking transactions on site.

Figure 1.2. Number of Bank Staff Directly Assigned to Treatment Schools

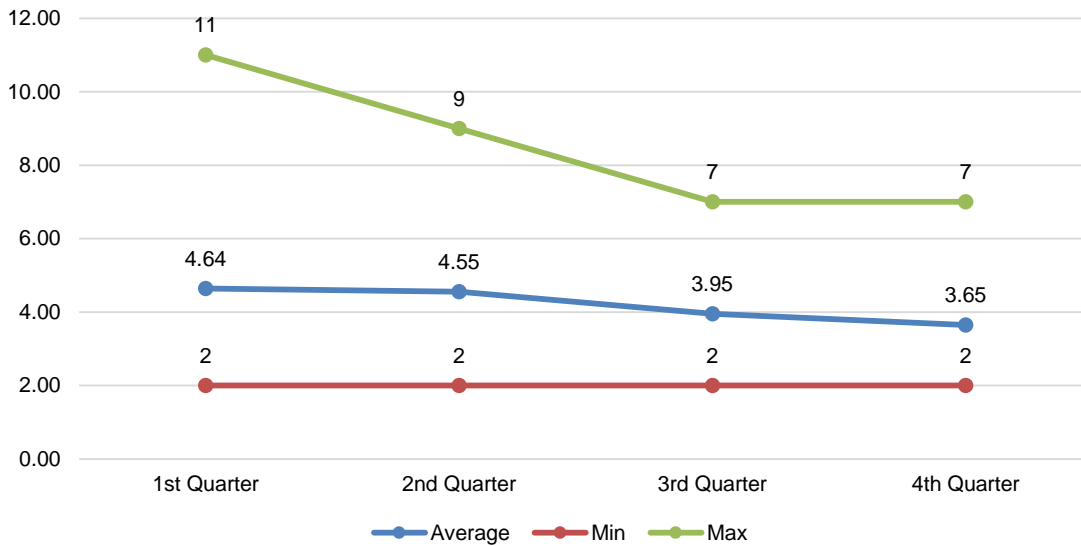
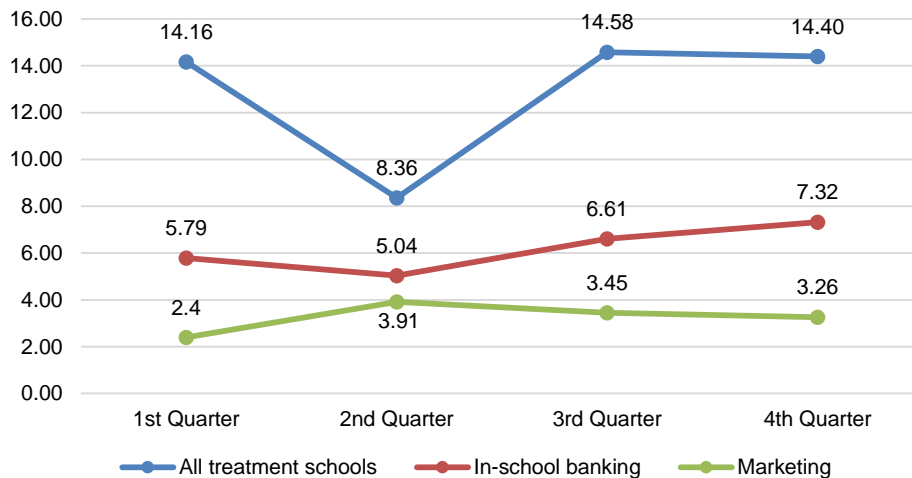


Figure 1.3. Average Number of Bank Staff Visits per Quarter to Promote YouthSave Account in Schools



During the first quarter, bank staff made an average of 5.79 school visits to conduct in-school banking. Bank staff visited marketing schools an average of 2.4 times. The number of staff visits to conduct in-school banking decreased slightly during the second quarter to an average of 5.04, while the visits to conduct marketing increased to an average of 4. The third quarter saw an increase in the number of school visits to an average of 6.61, while the average number of visits to conduct marketing fell slightly to 3.45.

### School Characteristics

This section describes the characteristics of JHSs that participated in the Ghana experiment. Most schools had electricity connection; only 16.28% of treatment schools and 28.57% of control schools had no electricity connection (Table 1.4). Nearly a third of treatment schools (27.91%) had their own drinking water; 35.71% of control schools did not. The majority of the schools had toilet facilities on the school premises (60.47% of treatment schools and 71.43% of control schools). Approximately 12% of treatment and control schools respectively required students to bring their own desk and chair to school.

Table 1.4. School Characteristics

Characteristic	Treatment Freq.(%)	Control Freq.(%)	X <sup>2</sup>	p-values
Free lunch				
Yes	1(2.33)	4(9.52)	0.04	.85
No	42(97.67)	38(90.48)		
Electricity				
Yes	36(83.72)	30(71.43)	0.81	.37
No	7(16.28)	12(28.57)		
Drinking water				
Yes	12(27.91)	15(35.71)	1.67	.20
No	31(72.09)	27(64.29)		
Toilet Facility				
Yes	26(60.47)	30(71.43)	1.38	.24
No	17(39.53)	12(28.57)		
School provides furniture for students				
Yes	38(88.37)	37(88.10)	.002	.97
No	5(11.63)	5(11.90)		

Table 1.5 presents additional school characteristics. The average student-to-staff ratio was 20.25 for treatment schools and 18.57 for control schools, but the difference between the schools was not statistically significant. The treatment schools were typically larger, with an average enrollment of 256.09 students, compared to 192.62 at control schools, although the difference was not statistically significant at the .05 level. The average number of teachers at treatment schools (12.91) was similar to the number of teachers at control schools (11.24), and almost all teachers in both schools have postsecondary certificates. Treatment and control schools had an average of one health screening event per year. Across groups, the schools took an average of 0.5 excursions per year, with a minimum of 0 and a maximum of four trips for treatment schools and two trips for control schools, although the two types of schools did not vary significantly ( $p = .49$ ). The average number of parent-teacher association meetings per year was similar across schools, averaging about three per year. The mean length of the academic term for all schools in the study was about 71 days, ranging

from 51 to 91 for treatment schools and 51 to 95 for control schools; however, this difference was not statistically significant.

Table 1.5. School Characteristics (Continuous Variables)

Variable		N	Mean (SD)	Min	Max	t-value	p-value
Student to staff ratio	Treatment	20	20.25 (6.94)	11	35	0.98	.33
	Control	42	18.57 (8.47)	4	45		
Number of students are enrolled	Treatment	43	256.09 (209.01)	64	1268	1.65	.10
	Control	42	192.62 (137.18)	35	610		
Number of teachers	Treatment	43	12.91 (6.35)	5	36	1.28	.20
	Control	42	11.24 (5.65)	5	28		
Number of teachers without post-secondary certificate	Treatment	43	0.47 (1.03)	0	4	0.06	.95
	Control	42	0.45 (0.83)	0	4		
Number of health screening events per year	Treatment	43	0.91 (0.97)	0	3	1.28	.39
	Control	42	1.09 (1.03)	0	4		
Number of excursions and field trips per year	Treatment	43	0.58 (0.88)	0	4	2.18	0.54
	Control	42	0.5 (0.63)	0	2		
Number of parent-teacher association meetings	Treatment	43	3.12 (1.61)	0	6	-0.42	.68
	Control	42	3.26 (1.62)	1	6		
Number of required school days in an academic term	Treatment	43	70.81 (4.71)	51	91	-0.03	.97
	Control	42	70.86 (7.02)	51	95		

### Overview of the Impact Investigation

This report aims to answer the main questions in the experiment using key indicators for YouthSave’s impact on financial capability, education, health, and psychosocial constructs. To determine the impact on financial capability, we used data from bank transactions collected using the SDA, and self-reported measures on money management and financial behaviors. To determine the impact on education, we used indicators for school-related attitudes and behaviors, as well as academic performance in English and math. For health, we used indicators for health perception and risky health attitudes and behaviors. For psychosocial well-being, we used indicators for expectations and aspirations, future orientation, and self-efficacy. Overall, we sought to answer the question of whether participation in YouthSave increases savings patterns and performance for low-income youth, increases low-income youth’s financial capability, improves expectations and aspirations, improves academic performance, and improves low-income youth’s health attitudes and behaviors, including sexual risk taking.

This chapter summarizes the current literature on youth savings and describes the conceptual framework that guided the Ghana experiment. This chapter also explains the experiment’s rigorous research design and methods. The next chapter outlines the key demographic, social, and economic characteristics of youth and their households in the Ghana experiment.

## Chapter 2: Demographics and Socioeconomic Characteristics of Youth and their Households

This chapter describes the baseline and endline survey results on the demographic and socioeconomic characteristics of youth and their households. The chapter also examines distribution of key demographic and socioeconomic characteristics, and evaluates whether these characteristics are not significantly different between treatment and control groups. Demographics cover youth’s gender, age, and grade level, as well as parents’ gender, age, marital status, education level, and employment status. Household characteristics include economic dependents, income, types of living conditions, asset ownership, and food security.

### Youth Characteristics

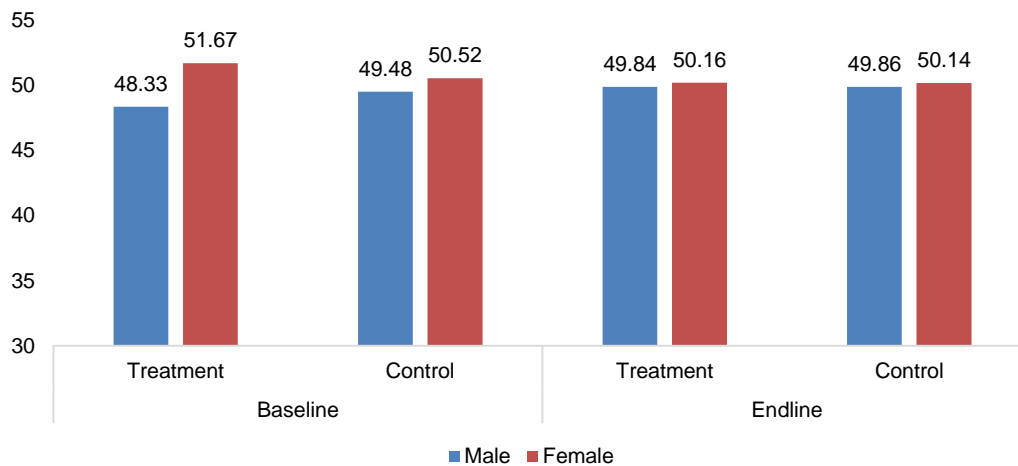
#### Gender

In general, the gender distribution of youth was balanced within and across the treatment and control groups. At baseline, the treatment group consisted of 48% males and 52% females, whereas the control group consisted of 49% males and 51% females (Figure 2.1). The baseline gender distribution between treatment and control groups was not significantly different ( $p = .24$ ). At endline, the gender ratio remained nearly equivalent for the control group, with a slight decrease in the percentage of females in the treatment group (from 52% to 50%).

#### Age

At baseline, the age distribution of youth was balanced and not significantly different between treatment and control groups ( $p = .24$ ). Nearly a third of participants in each group were aged between 15 and 17 years, and one in six participants were aged between 18 and 20 years. Youth aged 12 to 14 years accounted for 6% of the total, and the remaining 2% of participants were aged between 21 and 23 years (Figure 2.2). At endline, the age distribution of youth remained balanced and did not vary significantly between the treatment and control groups ( $p = .29$ ).

Figure 2.1. Percentage of Youth by Gender



### Grade level

At baseline, 36% of youth were enrolled in class 6 and 64% in junior high school (JHS) 1. The baseline grade level distribution was equivalent across treatment and control groups ( $p = .48$ , Figure 2.3). At endline, the grade level distribution for the treatment group was consistent with baseline. However, for the control group, the distribution was slightly different with 34% from the baseline class 6 and 66% from baseline JHS 1.

Figure 2.2. Percentage Distribution of Age Categories

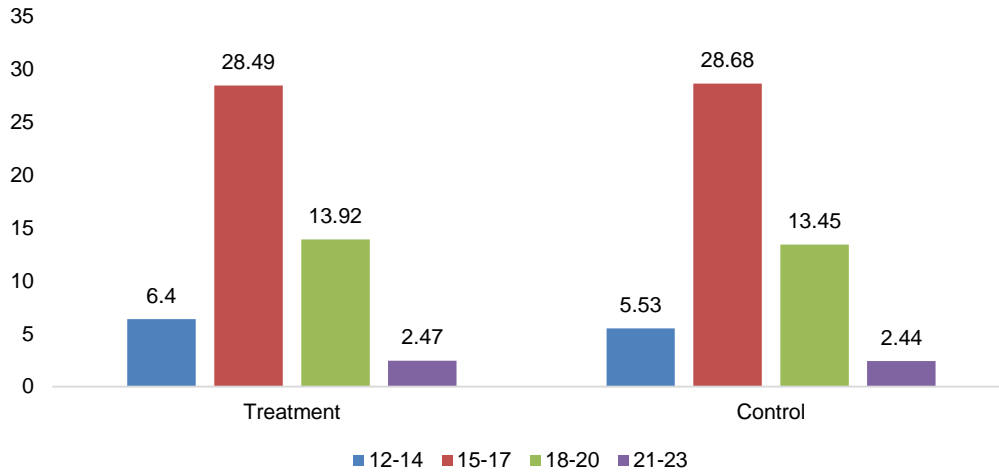
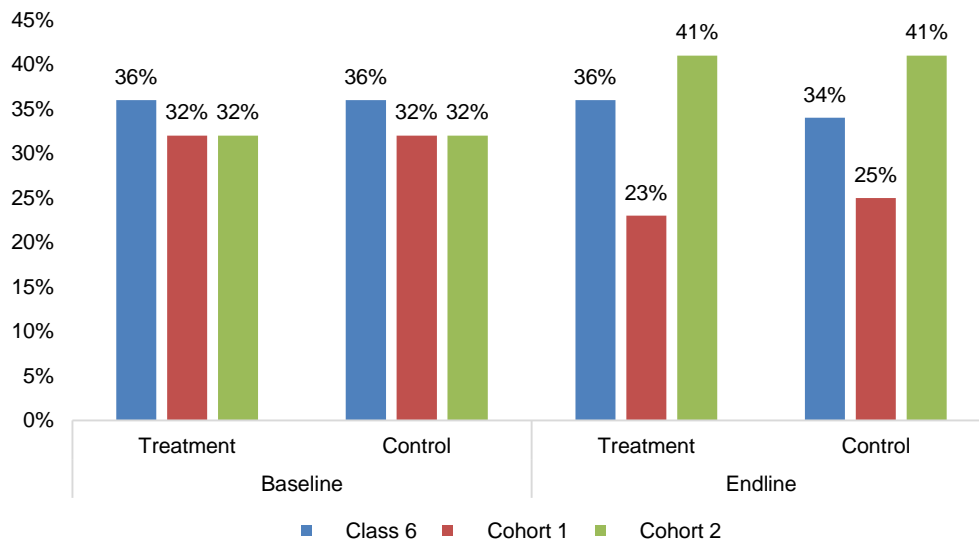


Figure 2.3. Percentage of Youth by Grade Level



## Parent/Guardians Characteristics

### Gender

Parents of youth interviewed at baseline were predominately female (treatment = 69%; control = 70%). Across treatment and control groups, the proportion of women interviewed at baseline outnumbered men by a ratio of more than 2:1. However, the distribution was not significantly different between treatment and control groups ( $p = .77$ ). At endline, the gender distribution trends between the treatment and control groups were consistent with baseline, as illustrated in Figure 2.4. In general, women (including mothers) were more likely to be found at home for interviews compared with men (including fathers).

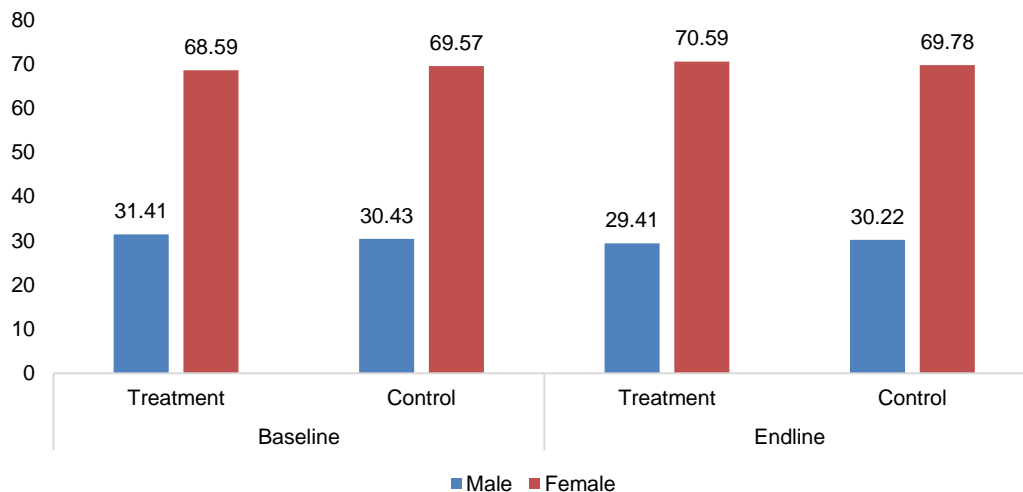
### Age

At baseline, parents' average (mean) age was 45.07 years. Parents' average age across treatment and control groups were virtually the same (treatment = 44.95; control = 45.20) and not significantly different ( $p = .65$ ). As expected, parents' average age at endline increased to 47.38 years. Consistent with baseline results, parents' average age across treatment and control groups were nearly identical (treatment = 47.10; control = 47.65).

### Marital status

At baseline, 70% of parents were married (Figure 2.5). The proportion of married and not married parents at baseline was not significantly different between treatment and control groups ( $p = .58$ ). At endline, the proportion of married parents (69%) was similar to baseline results. Across treatment and control groups, a much higher percentage (>65%) of parents reported being married at baseline and endline. However, the percentage of unmarried parents decreased for the treatment group (from 33% at baseline to 23% at endline), whereas the percentage of unmarried parents increased for the control group (from 28% at baseline to 36% at endline).

Figure 2.4. Percentage of Parents/Guardians by Gender





## Employment status

The majority (>75%) of parents across treatment and control groups reported being self-employed at both baseline and endline. However, the distribution of baseline employment status was significantly different between treatment and control groups ( $p < .05$ ). As illustrated in Figure 2.6, a higher proportion of control parents (79%) were self-employed than treatment parents (73%). A lower percentage of control parents (13%) were formally employed compared with treatment parents (16%). Though the proportion of self-employed parents in the treatment group remained constant at baseline and endline, self-employment decreased by 2% for parents of the control group participants. Notably, the proportion of unemployed parents decreased by 5% in the treatment group and 3% in the control group from baseline to endline (Figure 2.6).

Figure 2.5. Percentage of Parents by Marital Status

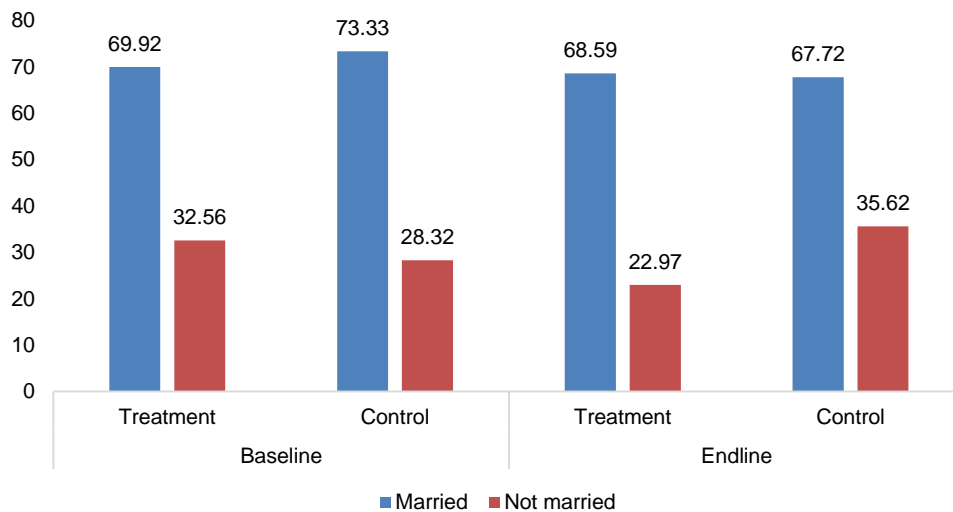
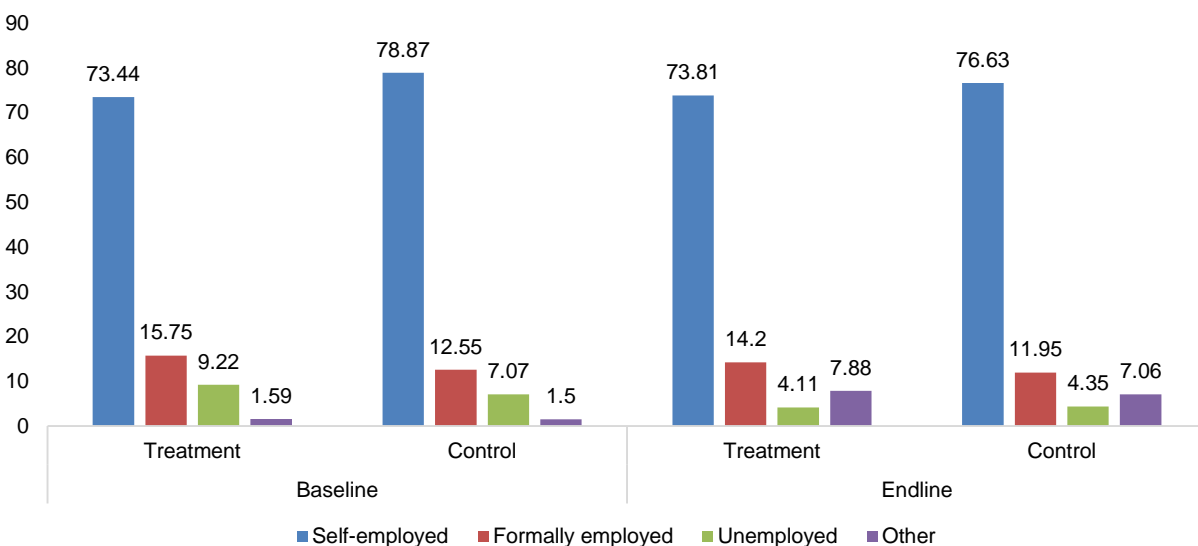


Figure 2.6. Percentage of Parents by Employment Status



### Education level

Parents reported varying levels of educational attainment at baseline and endline. About two thirds of parents in the treatment and control groups had no formal education, with no statistically significant difference between the two groups ( $p = 0.46$ ). At endline, the majority of parents reported no formal education (38% for the treatment group and 41% for the control group). As shown in Figure 2.7, the next largest number of parents reported primary education (26% of the treatment group and 28% of the control group), followed by junior high (24% of treatment group parents and 20% of control group parents). Only 10% to 12% of parents across all groups reported attainment of senior high school or postsecondary education.

### Relationship to the youth

Of the 5,035 parents or guardians interviewed at baseline, 68% were parents, 7% grandparents, 7% siblings, 6% aunts or uncles, and 12% other relatives and friends. The distribution was nearly identical across treatment and groups ( $p = .96$ , Figure 2.8).

Figure 2.7. Parents' Educational Attainment at Baseline and Endline

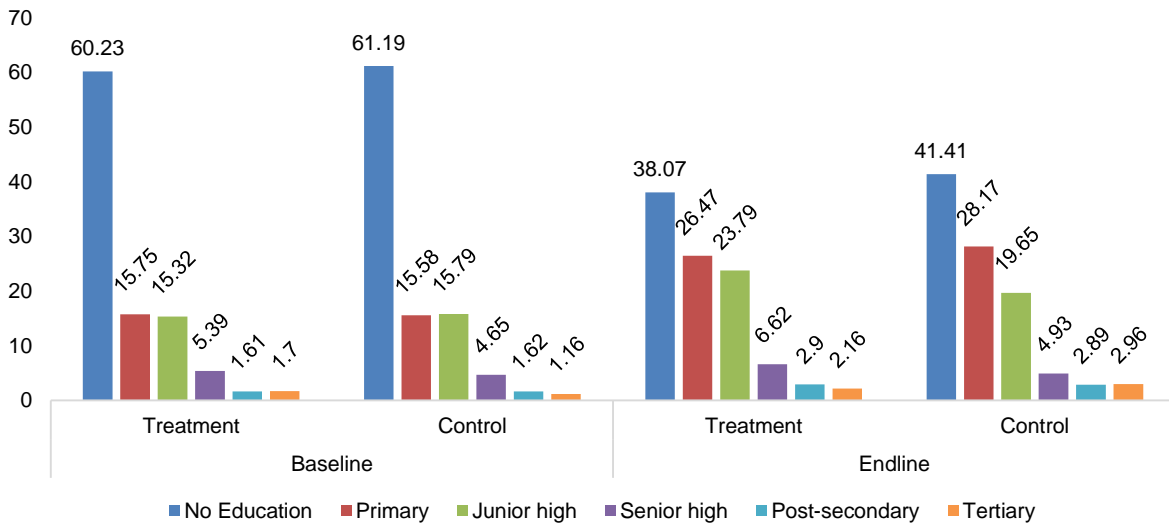
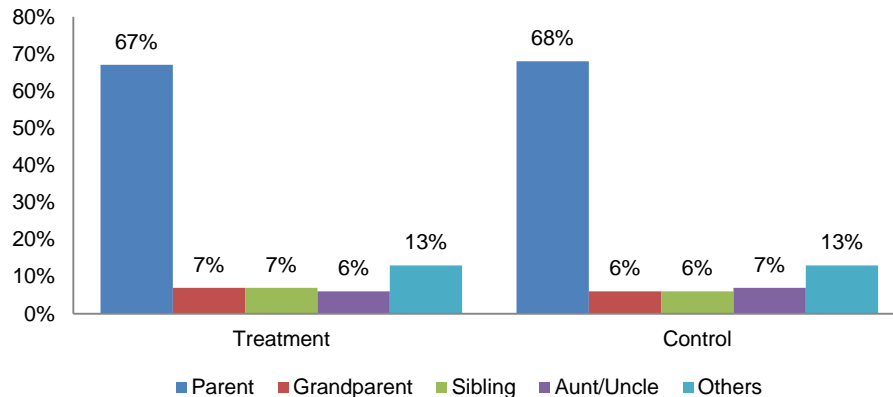


Figure 2.8. Percentage of Parents by Relationship to Youth

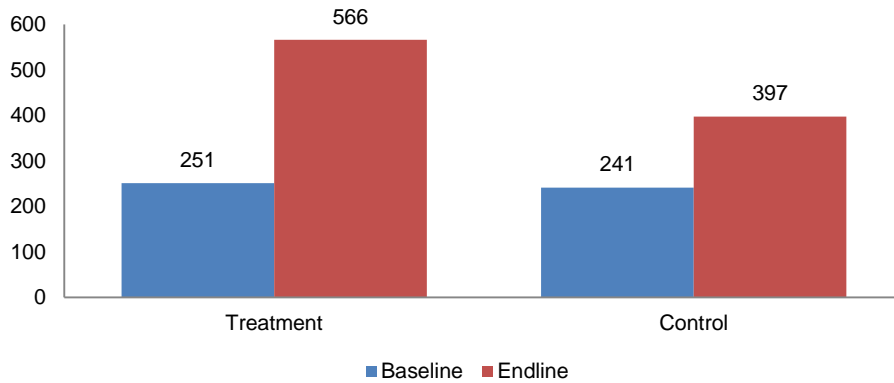


## Household Characteristics

### Household income

At baseline, the average monthly income of all households was 246 Ghana Cedis (GHS). The average monthly income of the treatment group (251 GHS) was slightly higher than the control group (241 GHS), but the difference was not statistically significant ( $p = .52$ ). At endline, the average income increased. The average monthly income of all households at endline was 479 GHS. Consistent with baseline findings, average monthly income of the treatment group (566 GHS) was higher than the control group (397 GHS). However, the differences remained statistically insignificant ( $p = .28$ , Figure 2.9).

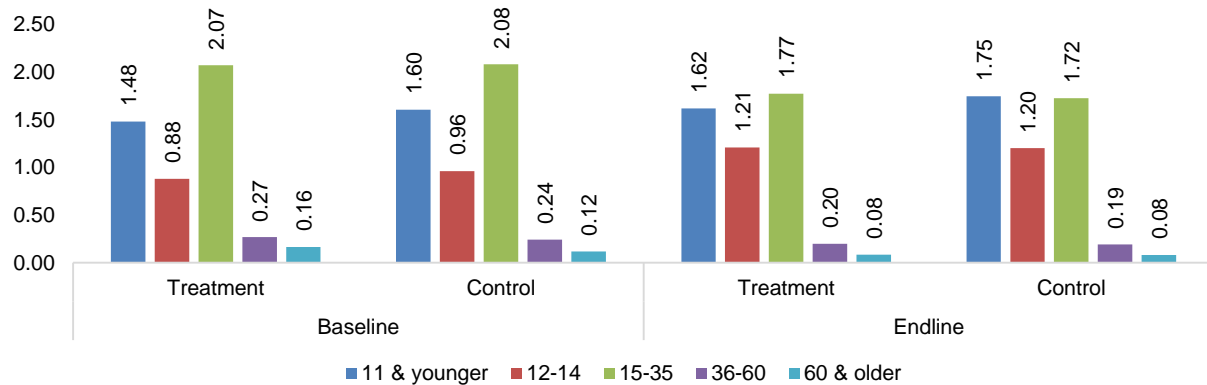
Figure 2.9. Average Household Monthly Income (in GHS)



### Household dependents

At baseline, the average number of dependents in households of the control group ( $M = 4.99$ ) was slightly higher than those of the treatment group ( $M = 4.72$ ), though the group difference was not statistically significant ( $p = .21$ ). At endline, the average number of dependents across groups was consistent with baseline results ( $M = 4.86$  for treatment, and  $M = 4.98$  for control). As shown in Figure 2.10, most households had economic dependents who were aged 15 to 35 years (80%), followed by those aged younger than 12 years (84%), and those aged 12 to 14 (74.01%).

Figure 2.10. Average Number of Household Dependents by Age Group

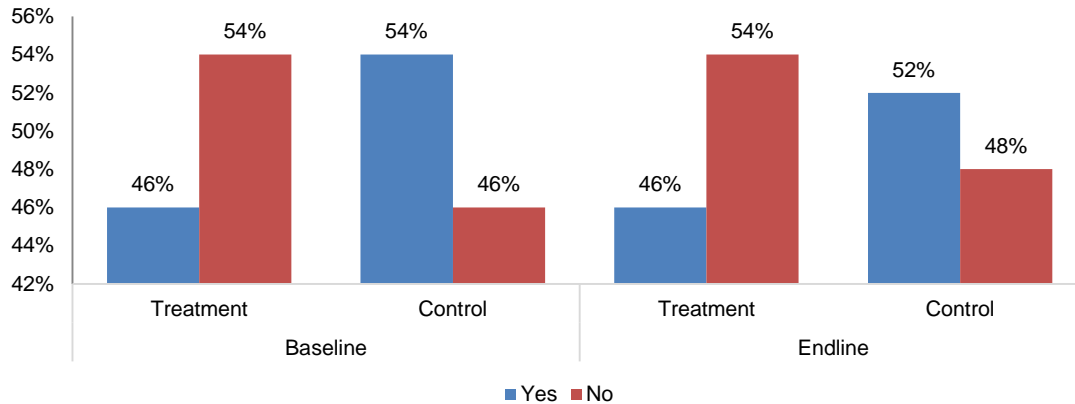


## Asset ownership

### Homeownership

At baseline, half of all households reported owning a house. A higher percentage (54%) of households in the control group owned a house compared to households in the treatment group (46%, Figure 2.11). The distribution of baseline homeownership by group assignment was statistically significant and different between treatment and control groups ( $p = .03$ ). At endline, 49% of all households reported owning a house. Consistent with baseline findings, a higher percentage (52%) of households in the control group reported owning a house at endline contrasted with households in the treatment group (46%).

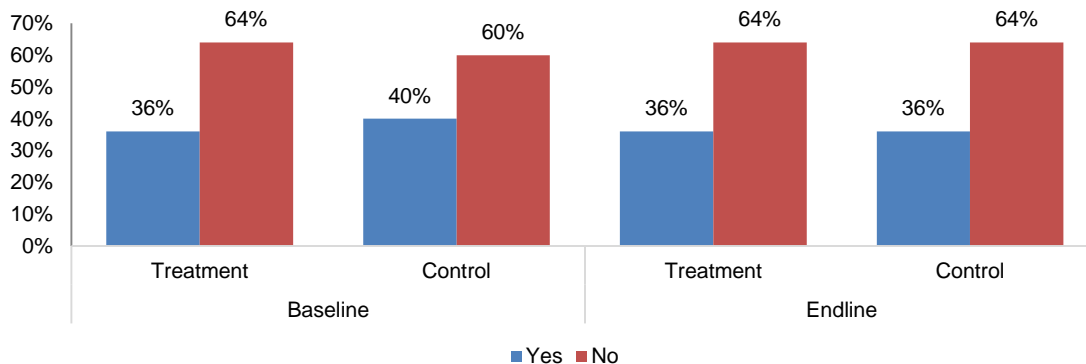
Figure 2.11. Percentage of Households by Homeownership



### Landownership

At baseline, 38% of all households reported owning a plot of land. Furthermore, a higher percentage (40%) of households in the control group owned a plot of land, in contrast to households in the treatment group (36%). The distribution of landownership by group assignment at baseline was not significantly different between treatment and control groups ( $p = .23$ ). At endline, 36% of households reported owning a house. The percentage of households that owned a plot of land at endline was the same for treatment and control groups, at 36% (Figure 2.12).

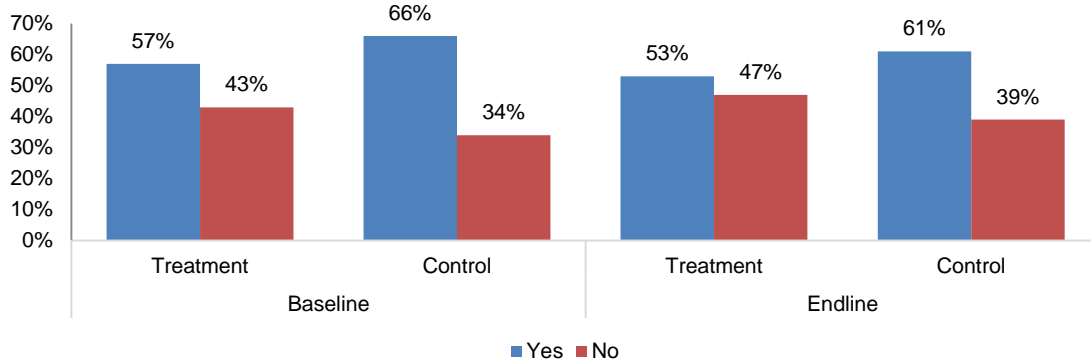
Figure 2.12. Percentage of Households by Landownership



*Livestock ownership*

At baseline, 61% of all households owned one type of livestock. Chicken was the most commonly owned livestock (54%), followed by goats (28%), and sheep (14%). Furthermore, a higher percentage (66%) of households in the control group owned one type of livestock compared to households in the treatment group (57%, Figure 2.13). The distribution of livestock ownership at baseline was statistically different between treatment and control groups ( $p = .03$ ). Compared to baseline, a lower percentage (57%) of households reported owning one type of livestock at endline. Chicken remained the most commonly owned livestock (50%), followed by goats (25%), and sheep (10%). At endline, the percentage of livestock-owning households in both treatment and control groups decreased to 53% and 61%, respectively. The percentage point decrease from baseline to endline was slightly higher in the control (-5) than treatment (-4) group.

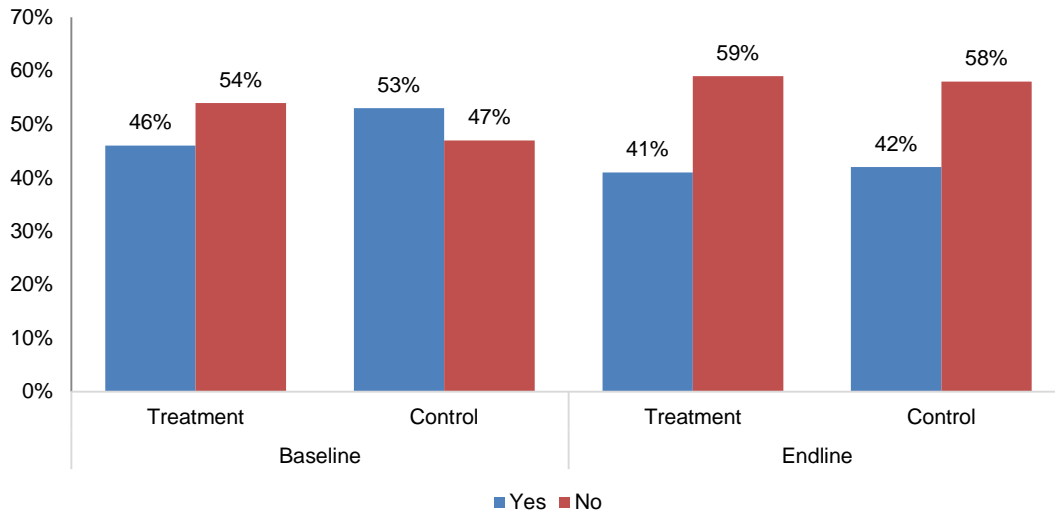
Figure 2.13. Percentage of Households by Livestock Ownership



*Ownership of transportation-related assets*

At baseline, half of all households owned one type of transportation-related asset. Bicycles (39%) were the most commonly owned mode of transportation, followed by other types of motor vehicle (14%) and motorcycles (12%). Furthermore, a higher percentage (53%) of households in the control group owned one type of transportation-related asset contrasted with households in the treatment group (46%, Figure 2.14). The distribution of livestock ownership at baseline was not statistically different between treatment and control groups ( $p = .11$ ). Compared to baseline, a lower percentage (42%) of households reported owning one type of transportation-related asset at endline. Bicycles remained the most commonly owned mode of transportation (31%), followed by motorcycles (12%), and other types of motor vehicle (11%). At endline, the percentage of transportation-owning households in both treatment and control groups decreased to 41% and 42%, respectively. The percentage point decrease from baseline to endline was higher in the control (-11) than treatment (-5) group.

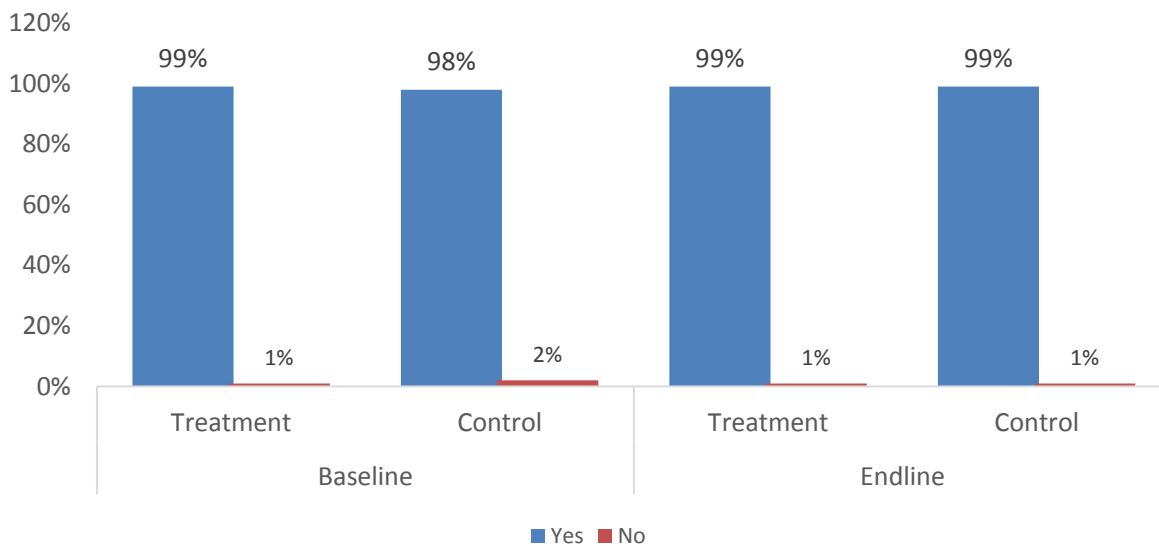
Figure 2.14. Percentage of Households by Ownership of Transportation-Related Assets



*Ownership of household possessions*

Household possessions were the most commonly owned asset. At baseline, 99% of households owned at least one type of household possessions. Cellular phones (92%) were the most commonly owned household possessions, followed by radios (85%), televisions (72%), and electric irons (63%). The percentage of households in the treatment (99%) and control (98%) groups that owned household possessions was virtually the same (Figure 2.15). The distribution of ownership of household possessions at baseline was not statistically different between treatment and control groups ( $p = .09$ ). At endline, the percentage of households in the treatment and control groups that owned household possessions was the same at 99%. Consistent with baseline findings, cellular phones (95%) were the most commonly owned household possessions, followed by radios (80%), televisions (75%), and electric irons (67%).

Figure 2.15. Percentage of Households by Ownership of Household Possessions

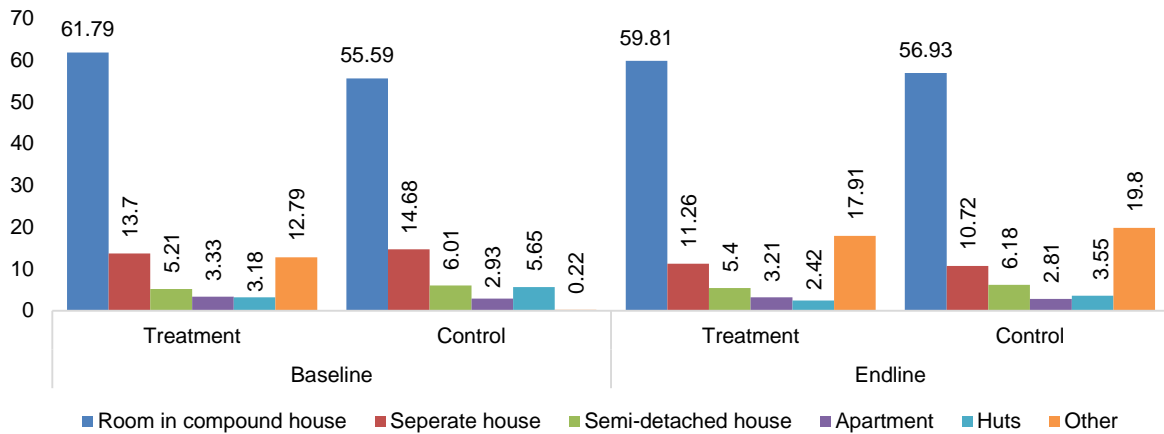


## Living conditions

### *Type of dwelling*

Across groups and measurement occasions, the majority (>50%) of youth and their households reported living in rooms in a compound house. As shown in Figure 2.16, the next most common type of dwelling was a separate house, occupied by 11% of the treatment and control groups at endline. Between 2% and 6% of respondents lived in semidetached houses, apartments, or huts at endline. A considerable number of respondents, 18% of the treatment group and 20% of the control group, lived in some other types of dwelling at endline.

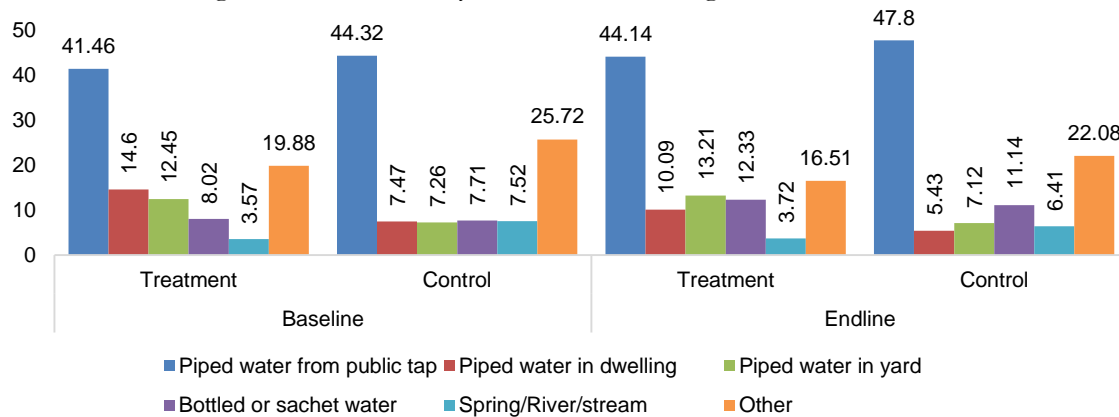
Figure 2.16. Percentage of Households by Type of Dwelling



### *Source of drinking water*

Youth and their households received drinking water from different sources. Across groups and measurement occasions, the most common source of drinking water was piped water from a public tap (>40%, Figure 2.17). At endline, slightly higher percentages of treatment group households received their drinking water from piped water in their dwelling, piped water in their yard, or bottled or sachet water than the control group. Between 16% and 26% of households reported receiving their drinking water from other sources.

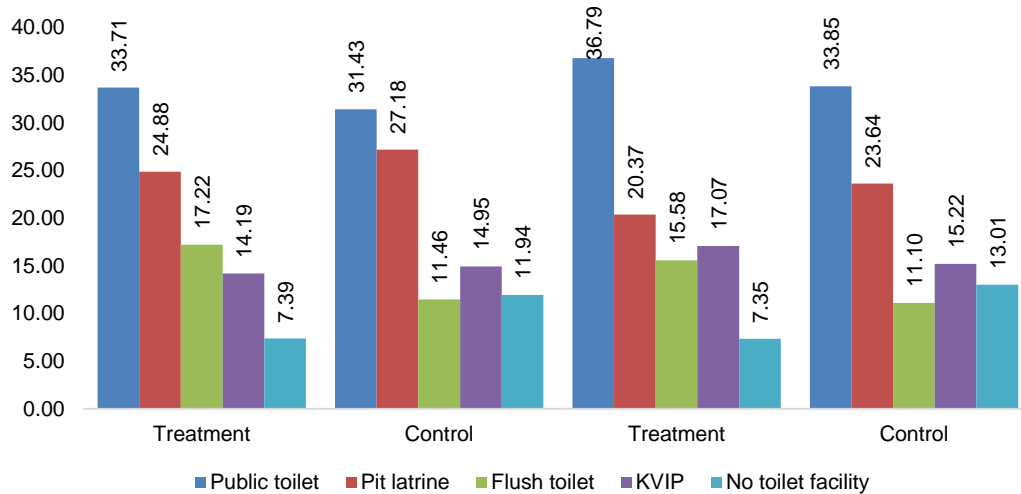
Figure 2.17. Percentage of Households by Source of Drinking Water



*Type of toilet facility*

Across groups and measurement occasions, the two most common types of toilet facility youth and their households used were public toilets (>30%) and pit latrines ( $\geq 20\%$ ). As shown in Figure 2.18, between 10% and 15% of participants reported using flush toilets and Kumasi Ventilated-Improved Pits (KVIP) at endline. Seven percent of the treatment group and 13% of the control group had no toilet facility in the household.

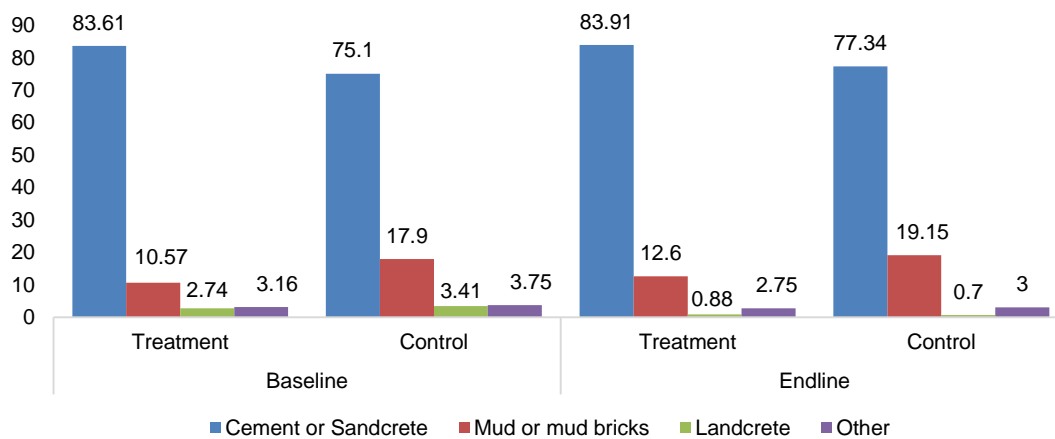
Figure 2.18. Percentage of Households by Type Toilet Facility



*Type of outer wall*

Across groups and measurement occasions, most households (>70%) had dwellings with outer walls made of cement or sandcrete. As depicted in Figure 2.19, the next most common type of outer wall, reported by 13% of the treatment group and 19% of the control group, was mud or mud bricks. Across groups and measurement occasions, less than 8% of households reported living in dwellings made of landcrete or other construction materials.

Figure 2.19. Percentage of Households by Type of Outer Wall

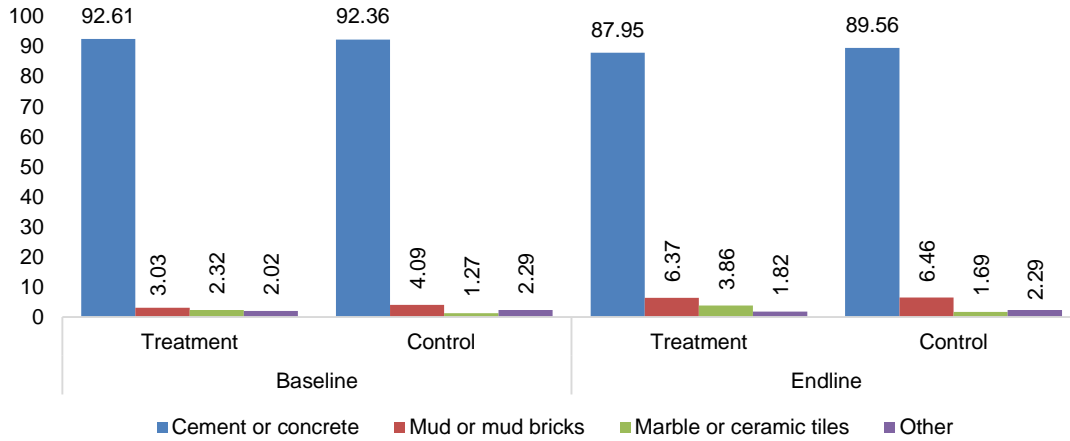




*Type of floor*

Across groups and measurement occasions, most households (>85%) reported having a cement or concrete floor. As shown in Figure 2.20, approximately 6% of all households at endline reported having a floor made of mud or mud bricks. Between 3% and 6% of all households at endline reported that their dwelling floor was marble, ceramic tiles, or some other materials.

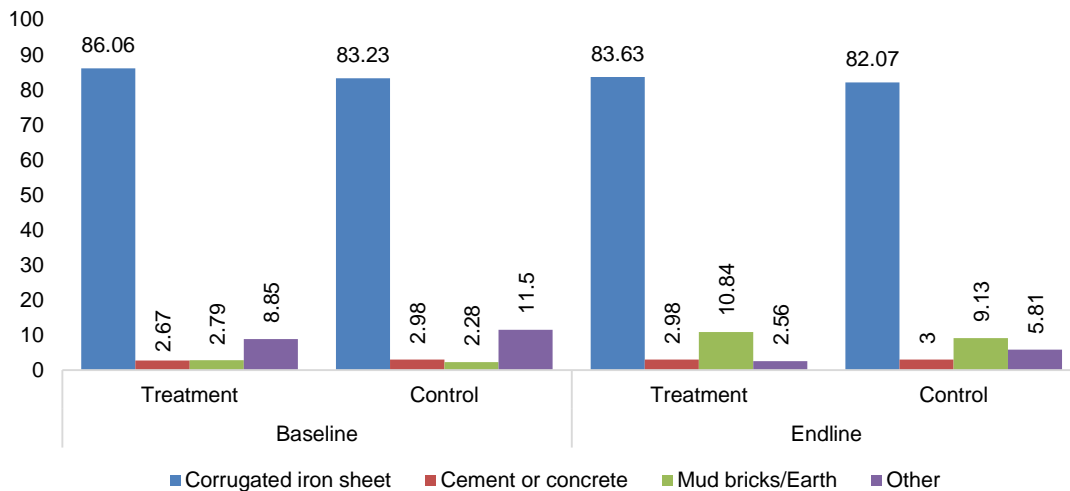
Figure 2.20. Percentage of Households by Dwelling Floor Type



*Type of roof*

Across groups and measurement occasions, corrugated iron sheets (>80%) were the most common type of roof. As illustrated in Figure 2.21, 84% of the treatment group and 82% of the control group at endline reported that their dwellings have corrugated iron sheet roofs. At endline, 11% of the treatment group and 9% of the control group reported having roofs made of mud bricks or earth. Another 6% to 9% of households at endline have roofs made of cement/concrete or another material.

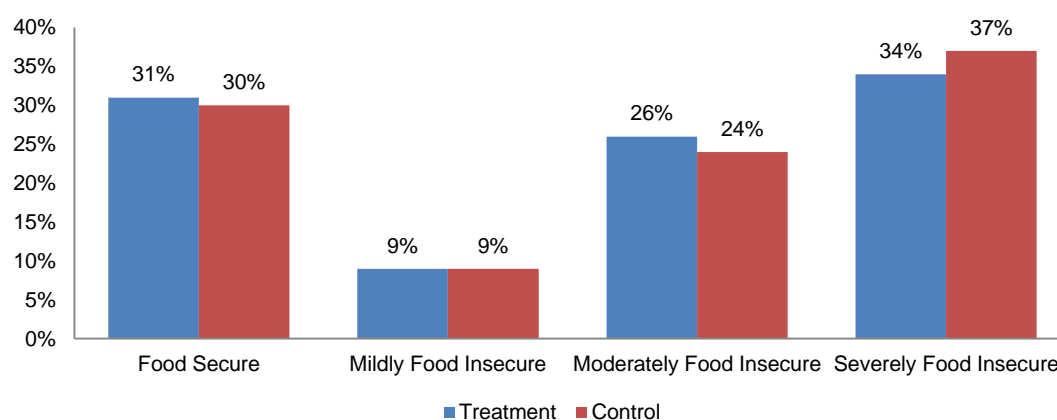
Figure 2.21. Percentage of Households by Dwelling Roof Type



### Food security

At endline, the research team assessed the household food security.<sup>3</sup> A majority of households (69%) reported having experienced food insecurity; 9% of households experienced mild food insecurity; 25% experienced moderate food insecurity; and 36% experienced severe food insecurity. Across treatment and control groups, similar percentages of households reported food insecurity (Figure 2.22). However, a slightly higher percentage of households in the control group (37%) reported severe food insecurity compared to households in the treatment group (34%). Furthermore, the overall average household food insecurity score was 5.51 (minimum = 0, maximum = 27). Households in the control group scored higher on the food insecurity scale (mean = 5.70) contrasted with households in the treatment group (mean = 5.32). In-school banking households reported lower food insecurity score (mean = 5.17) than marketing households (mean = 5.46).

Figure 2.22. Percentage of Households by Food Security Status



### Key Findings

Overall, youth and parent characteristics at baseline were not significantly different between treatment and control groups. These results suggest that the baseline sample was balanced between the two groups, and randomization worked. One parent characteristic—employment—was significantly different between the two groups. At baseline, more self-employed parents were assigned to control groups, whereas more formally employed parents were assigned to treatment groups. Most baseline household characteristics were also not significantly different between treatment and control groups. Two baseline asset variables—homeownership and livestock ownership—were significantly different between treatment and control groups. A higher percentage of control households owned houses and livestock compared to treatment households.

We tracked and surveyed nearly 70% of the baseline sample at endline. The 30% attrition rate is consistent with other longitudinal studies conducted in Sub-Saharan Africa (e.g., Alderman et al., 2001; Campbell & Rudan, 2011). We used bivariate tests to compare sample with and without endline surveys. Overall, attrition did not significantly affect sample distribution of most demographic and socioeconomic characteristics. Only four characteristics of 24 were significantly different between sample with and without endline surveys. These characteristics include youth's

<sup>3</sup> Food insecurity was measured using the Household Food Insecurity Access Scale (HFIAS; Coates, Swindale, & Bilinsky, 2007). Higher scores on HFIAS indicate higher levels of household food insecurity.

age, youth's grade level, parents' relationships with youth, and households' sources of electricity. In addition, attrition did not significantly affect balance between treatment and control groups—with virtually the same proportion of treatment (31%) and control participants (32%) not interviewed at endline.

This chapter presents the baseline and endline characteristics of youth and their households in the Ghana experiment. The next chapter outlines the experimental impacts of YouthSave on financial capability, including savings-related attitudes and behaviors such as savings performance.

## Chapter 3: Financial Capability

This chapter describes the baseline and endline survey results as they relate to youth financial characteristics and experiences, as well as findings regarding the effects of participation in the Ghana experiment on key financial capability outcomes. Financial capability is having both the knowledge to make financial decisions and access to financial services and products (Sherraden, 2013). Accordingly, this chapter explores outcomes of money management; savings behaviors; and attitudes toward, understanding of, and access to financial services in Ghana. Finally, the chapter discusses youth's awareness, use of, and experiences with *Enidaso*, the youth savings account that HFC offers. All of the data we present in this chapter to discuss findings came from the YouthSave Questionnaire for Youth, which we administered at baseline and follow-up. Impact data were collected using savings demand assessment (SDA) records and survey questionnaires.

### Saving Performance and Behaviors from SDA Data

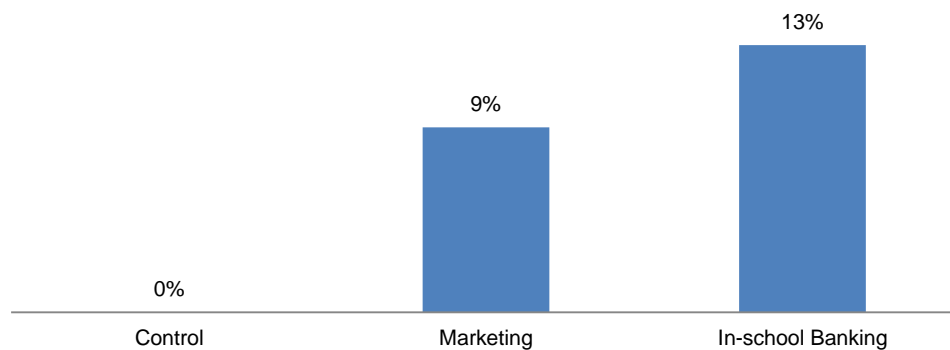
The results in this section include all youth in the experiment from whom we collected both baseline and endline data. The treatment was offered to all students at treatment schools, but at least 60 students were randomly selected to be surveyed. The total sample size in the analysis in the experiment is 4,289 youth, or the total number of youth with baseline and endline surveys. The total number of youth in the experimental schools with accounts based on HFC records at the time of collecting endline data was 2,000. However, we only matched 309 accounts with the experiment survey data. Out of the 309 accounts, 242 accounts have both baseline and endline surveys. We employ the impact analysis to compare in-school banking and marketing outreach with the control schools.

#### Account uptake from HFC records

Eleven percent of surveyed youth in treatment schools (i.e., 242 youth) opened an *Enidaso* account, and no control youth opened an account. The difference in *Enidaso* account uptake between treatment and control groups was statistically significant ( $p < .001$ ).

Comparing the two treatment arms with the control group, a higher percentage of in-school banking youth (13%) opened an *Enidaso* account compared to marketing (9%) and control youth (0%), possibly because of greater number of visits to schools that received in-school banking. The difference in account uptake between groups remained statistically significant ( $p < .001$ ) (Figure 3.1).

Figure 3.1. *Enidaso* Account Uptake by Treatment Group

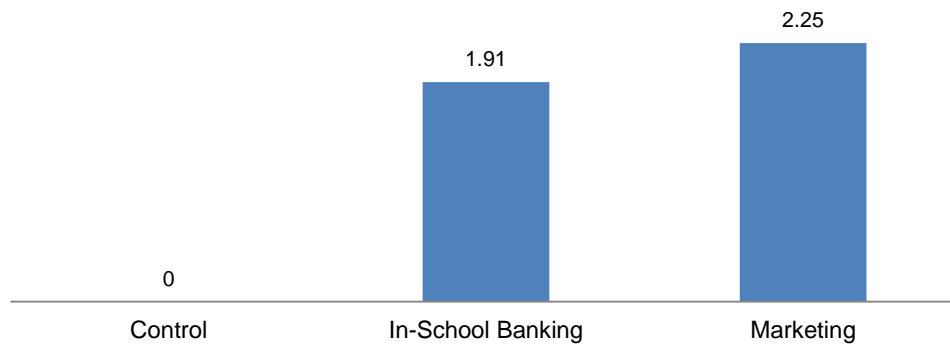


### Cumulative net savings in *Enidaso* accounts (Ghana Cedis)

According to HFC records, the mean cumulative net savings (in Ghanaian Cedis [GHS], Ghana's national currency) was 18.57 ( $SD = 70.59$ ) for treatment youth with *Enidaso* accounts ( $N = 242$ ). When comparing all treatment and control youth, the mean cumulative net savings (in GHS) was 2.09 ( $SD = 24.34$ ) for treatment youth and 0 for control youth. The difference between groups was statistically significant ( $p < .001$ , Figure 3.2).

For in-school banking youth with *Enidaso* accounts ( $n = 138$ ), the mean cumulative net savings was 14.54 ( $SD = 24.65$ ). For marketing-only youth with *Enidaso* accounts ( $n = 104$ ), the mean cumulative net savings was 23.91 ( $SD = 103.02$ ). When comparing all in-school banking and marketing-only youth, mean cumulative net savings were 1.91 ( $SD = 10.18$ ) for in-school banking and 2.25 ( $SD = 32.52$ ) for marketing youth (Figure 3.2). The difference between in-school banking and marketing treatment arms was not statistically significant ( $p > .05$ ).

Figure 3.2. Cumulative net savings (in GHS) in *Enidaso* Account by Group

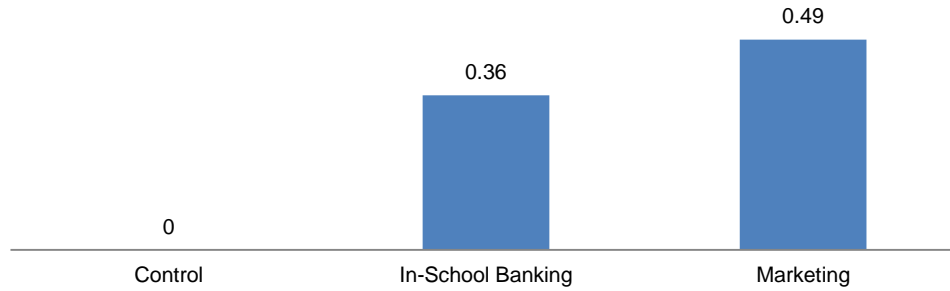


### Average quarterly net savings

For treatment youth with *Enidaso* accounts ( $N = 242$ ), the average quarterly net savings (in GHS) was 3.78 ( $SD = 12.61$ ). When comparing all treatment and control youth, the average quarterly net savings (in GHS) was 0.42 ( $SD = 4.39$ ) for treatment and 0 for control youth. The difference between groups was statistically significant ( $p < .0001$ , Figure 3.3).

For in-school banking youth with *Enidaso* accounts ( $n = 138$ ), the average quarterly net savings was 2.71 ( $SD = 4.56$ ). For marketing-only youth with *Enidaso* accounts ( $n = 104$ ), average quarterly net savings was 5.19 ( $SD = 18.46$ ). When comparing all in-school banking and marketing-only youth, the average quarterly net savings was 0.36 ( $SD = 1.89$ ) for in-school banking and 0.49 ( $SD = 5.84$ ) for marketing youth. The difference between the two treatment arms was not statistically significant ( $p > .05$ ).

Figure 3.3. Average Quarterly Net Savings by Group

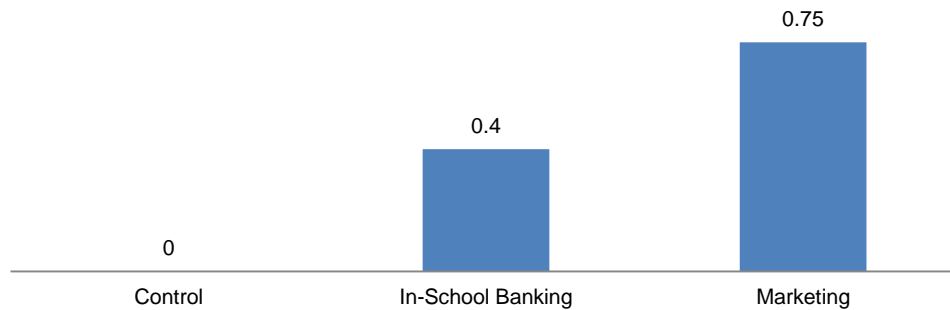


### Average quarterly amount of deposits (in GHS)

For treatment youth with *Enidaso* accounts ( $N = 242$ ), the average quarterly amount of deposits (in GHS) was 5.16 ( $SD = 20.47$ ). When comparing all treatment and control youth, the average quarterly amount of deposits (in GHS) was 0.58 ( $SD = 7.04$ ) for treatment and 0 for control youth. The difference between groups was statistically significant ( $p < .001$ ).

For in-school banking youth with *Enidaso* accounts ( $n = 138$ ), the average quarterly amount of deposits was 3.08 ( $SD = 5.21$ ). For marketing-only youth with *Enidaso* accounts ( $n = 104$ ), average quarterly amount of deposits was 7.91 ( $SD = 30.51$ ). As shown in Figure 3.4, when comparing all in-school banking and marketing-only youth, the average quarterly amount of deposits was 0.40 ( $SD = 2.15$ ) for in-school banking and 0.75 ( $SD = 9.60$ ) for marketing youth. The difference between the two treatment arms was not statistically significant ( $p > .05$ ).

Figure 3.4. Average Quarterly Deposit Amounts by Group



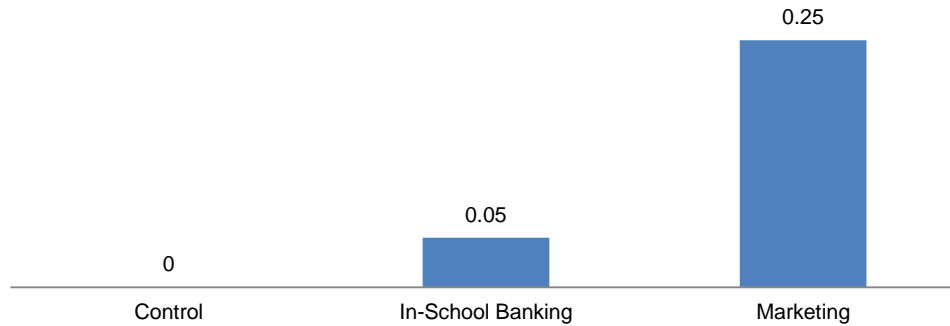
### Average quarterly amount of withdrawal (in GHS)

For treatment youth with *Enidaso* accounts ( $N = 242$ ), the average quarterly amount of withdrawals (in GHS) was 1.36 ( $SD = 16.20$ ). As illustrated in Figure 3.5, when comparing all treatment and control youth, the average quarterly amount of withdrawals (in GHS) was 0.15 ( $SD = 5.44$ ) for treatment and 0 for control youth. The difference between groups was not statistically significant ( $p > .05$ ).

For in-school banking youth with *Enidaso* accounts ( $n = 138$ ), the average quarterly amount of withdrawals was 0.38 ( $SD = 2.48$ ). For marketing-only youth with *Enidaso* accounts ( $n = 104$ ), average quarterly amount of withdrawals was 2.67 ( $SD = 24.56$ ). When comparing all in-school

banking and marketing-only youth, average quarterly amount of withdrawals was 0.05 ( $SD = 0.90$ ) for in-school banking and 0.25 ( $SD = 7.54$ ) for marketing youth. The difference between the two treatment arms was not statistically significant ( $p > .05$ ).

Figure 3.5. Average Quarterly Withdrawal Amounts by Group

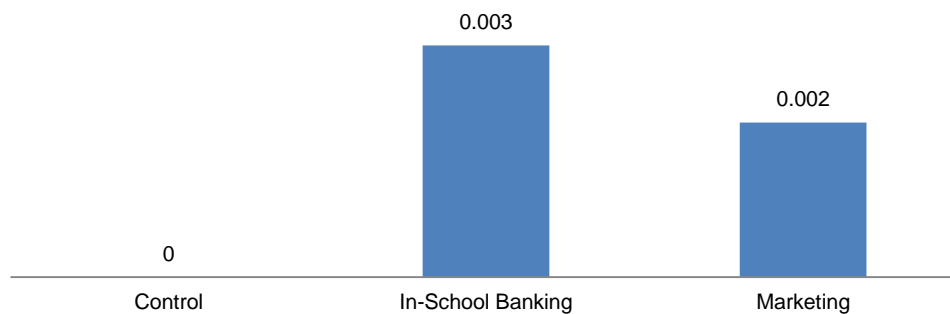


### Average quarterly amount of interest (in GHS)

For treatment youth with *Enidaso* accounts ( $N = 242$ ), the average quarterly amount of interest (in GHS) was 0.02 ( $SD = 0.09$ ) (See Figure 3.6). When comparing all treatment and control youth, the average quarterly amount of interest (in GHS) was 0.002 ( $SD = 0.03$ ) for treatment and 0 for control youth. The difference between groups was not statistically significant ( $p < .01$ ).

For in-school banking youth with *Enidaso* accounts ( $n = 138$ ), the average quarterly amount of interest was 0.02 ( $SD = 0.06$ ). For marketing-only youth with *Enidaso* accounts ( $n = 104$ ), average quarterly amount of interest was 0.02 ( $SD = 0.12$ ). When comparing all in-school banking and marketing-only youth, the average quarterly amount of interest was 0.003 ( $SD = 0.02$ ) for in-school banking and 0.002 ( $SD = 0.04$ ) for marketing youth. The difference between the two treatment arms was not statistically significant ( $p > .05$ , Figure 3.6).

Figure 3.6 Average Quarterly Interests Amounts by Group

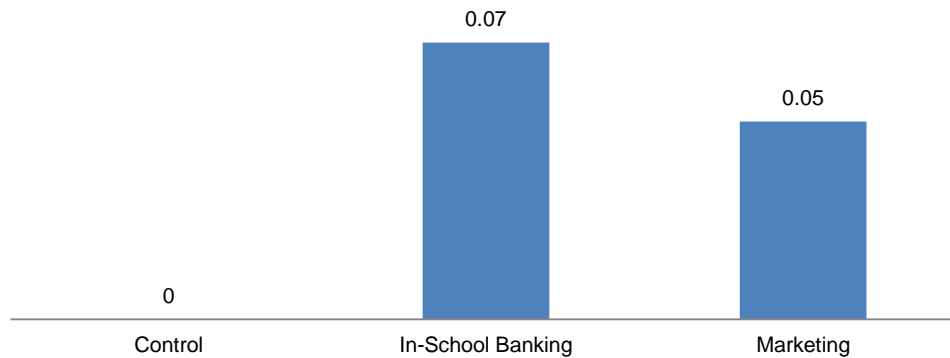


### Frequency of deposit: Average quarterly number of deposits

For treatment youth with *Enidaso* accounts ( $N = 242$ ), the average quarterly number of deposits was 0.54 ( $SD = 0.56$ ). As illustrated in Figure 3.7, when comparing all treatment and control youth, the average quarterly number of deposits was 0.06 ( $SD = 0.25$ ) for treatment and 0 for control youth. The difference between groups was not statistically significant ( $p < .0001$ ).

For in-school banking youth with *Enidaso* accounts ( $n = 138$ ), the average quarterly number of deposits was 0.53 ( $SD = 0.46$ ). For marketing-only youth with *Enidaso* accounts ( $n = 104$ ), average quarterly number of deposit was 0.56 ( $SD = 0.68$ ). When comparing all in-school banking and marketing-only youth, the average quarterly number of deposits was 0.07 ( $SD = 0.24$ ) for in-school banking and 0.05 ( $SD = 0.26$ ) for marketing youth. The difference between the two treatment arms was not statistically significant ( $p > .05$ ).

Figure 3.7. Average Quarterly Number of Deposits by Group

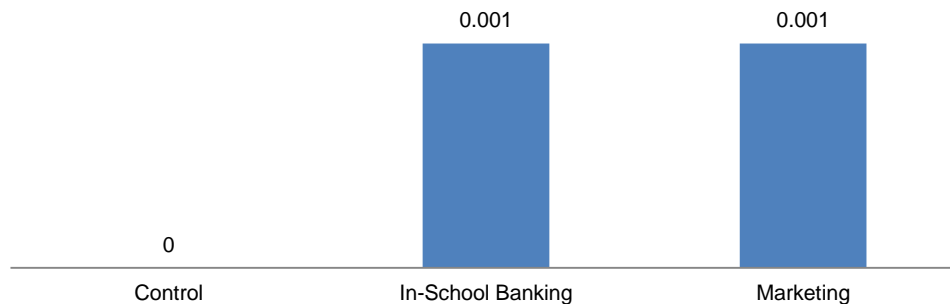


#### Frequency of withdrawal: Average quarterly number of withdrawals

For treatment youth with *Enidaso* accounts ( $N = 242$ ), the average quarterly number of withdrawals was 0.01 ( $SD = 0.05$ ) (see Figure 3.8). When comparing all treatment and control youth, the average quarterly number of withdrawals was 0.001 ( $SD = 0.02$ ) for treatment and 0 for control youth. The difference between groups was not statistically significant ( $p < .05$ ).

For in-school banking youth with *Enidaso* accounts ( $n = 138$ ), the average quarterly number of withdrawal was 0.01 ( $SD = 0.03$ ). For marketing-only youth with *Enidaso* accounts ( $n = 104$ ), the average quarterly number of withdrawals was 0.01 ( $SD = 0.07$ ). When comparing all in-school banking and marketing-only youth, the average quarterly number of withdrawals was 0.001 ( $SD = 0.01$ ) for in-school banking and 0.001 ( $SD = 0.02$ ) for marketing youth. The difference between the two treatment arms was not statistically significant ( $p > .05$ ).

Figure 3.8. Average Quarterly Number of Withdrawals by Group





## Financial Capability Outcomes from Survey Data

This section presents analysis of the data from the survey. Youth self-reported the data. In some cases, the survey featured similar questions to the SDA. We present interesting results to triangulate findings.

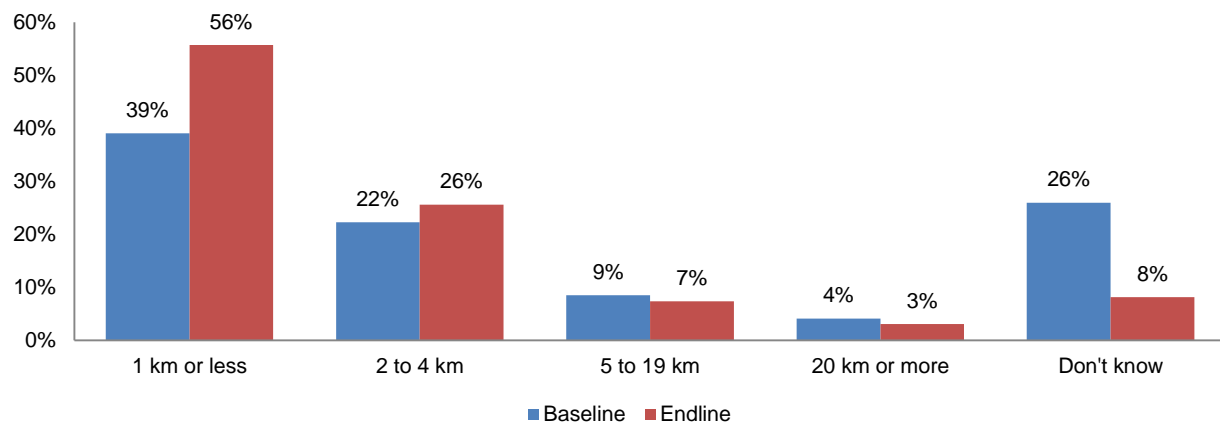
### Access to financial services

#### *Distance to nearest banks*

Regarding access to financial services, most youth live 4 km or less from the nearest bank. As shown in Figure 3.9, the proportion of youth stating they live 1 km or less from the nearest bank increased sharply from 39% at baseline to 56% at endline, possibly because of increased awareness of HFC's branches.

In addition, general awareness of financial services increased, as the proportion of youth who reported not knowing the distance to the nearest bank declined from 26% at baseline to 8% at endline. However, changes in differences concerning living 1 km or less from the nearest bank and not knowing the distance were not statistically significant between treatment and control ( $p = .64$ ); across in-school banking, marketing, and control groups ( $p = .81$ ); and including above/below-average in-school banking dosage group comparisons ( $p = .88$ ).

Figure 3.9. Distance to Nearest Bank by Measurement Occasion

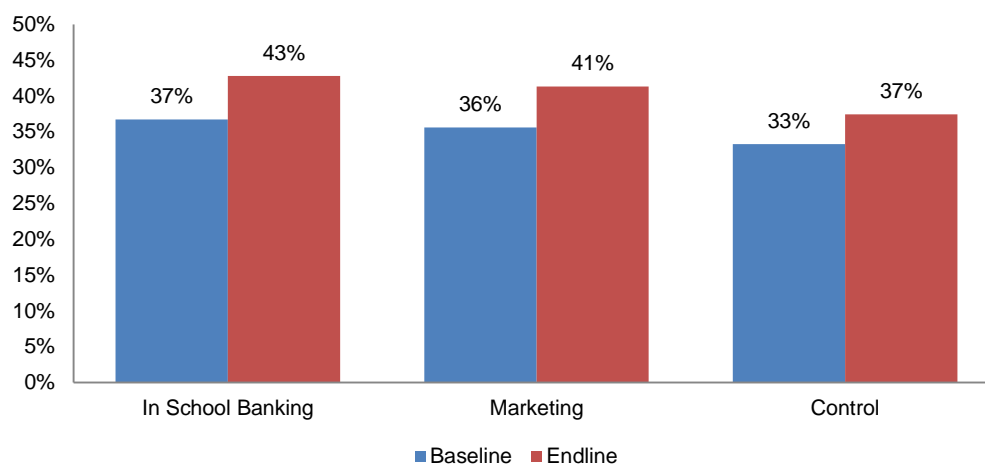


#### *Bank visits*

The proportion of youth who reported having ever visited a bank with a parent or other family member increased from 35% at baseline to 40% at endline. The percentage point increase for treatment group youth was 6% compared to 4% for control group youth, though the difference was not statistically significant ( $p = .79$ ).

As illustrated in Figure 3.10, the percentage point increases in the proportion of in-school banking, marketing, and control group youth who had visited a bank with a parent were between 4% and 6%. The overall difference across these three groups was not statistically significant ( $p = .95$ ).

Figure 3.10. Youth Who Visited a Bank with a Parent by Type of Treatment and Measurement Occasion



Results based on dosage of in-school banking visits are consistent with the above analyses. The proportion of youth who received above-average in-school banking who reported having visited a bank with a parent or other family member increased from 35% at baseline to 41% at endline. The proportion of youth who received below-average in-school banking who reported having visited a bank with a parent or other family member increased from 38% at baseline to 44% at endline. The overall difference across the four groups (above/below-average in-school banking, marketing, and control), was not statistically significant ( $p = .96$ ).

### ***Enidaso* accounts**

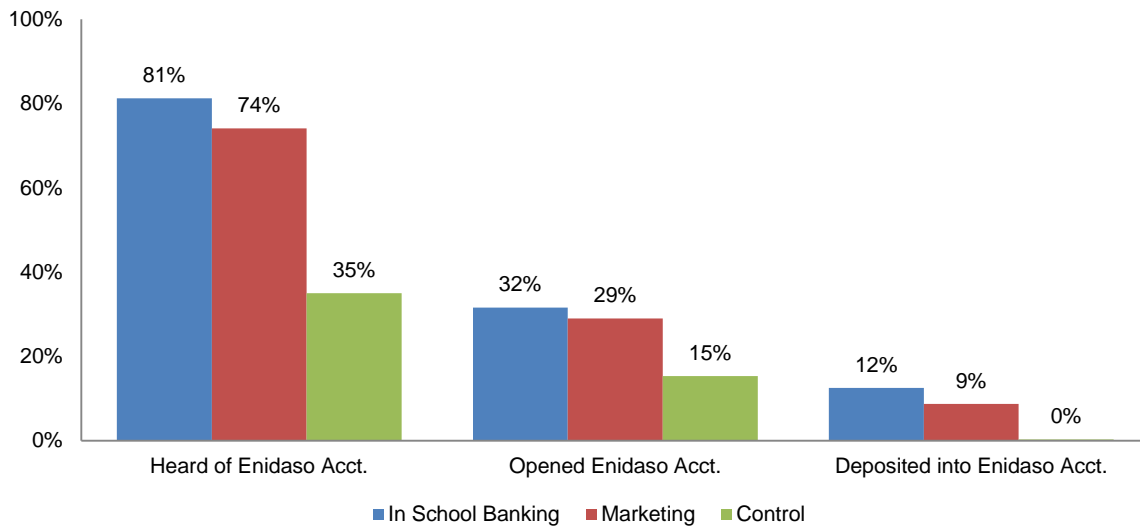
#### *Exposure to Enidaso accounts*

*Enidaso* was the youth savings account HFC Bank offered as part of the YouthSave project in Ghana. As expected, most youth (78%) in the treatment group had heard of *Enidaso*, though only 30% said they had opened and 11% had deposited into an account. The 11% who deposited into their *Enidaso* account might indicate the proportion of youth who made further deposits after the initial minimum deposit for account opening.

Self-reports from the survey indicate over a third of youth (39%) in the control group had heard of *Enidaso*. Also, 15% of the control group youth had opened an account, though only a very small fraction (0.3%) had actually made a deposit. These results suggest spillover effects of HFC's marketing efforts for *Enidaso*. It is important to note that the 15% of control group youth who reported opening an account is not reflected in the SDA data from HFC Bank, which indicates that they may have opened the accounts with other financial institutions.

Greater proportions of youth who received in-school banking had heard of, opened, and deposited into *Enidaso* accounts compared to youth who only received marketing and control group youth (Figure 3.11). Differences across these three groups concerning having heard of and deposited into *Enidaso* accounts were statistically significant ( $p < .001$ ), yet differences regarding having opened an account were not statistically significant.

Figure 3.11. Youth Interactions with *Enidaso* Accounts by Types of Treatment/Control



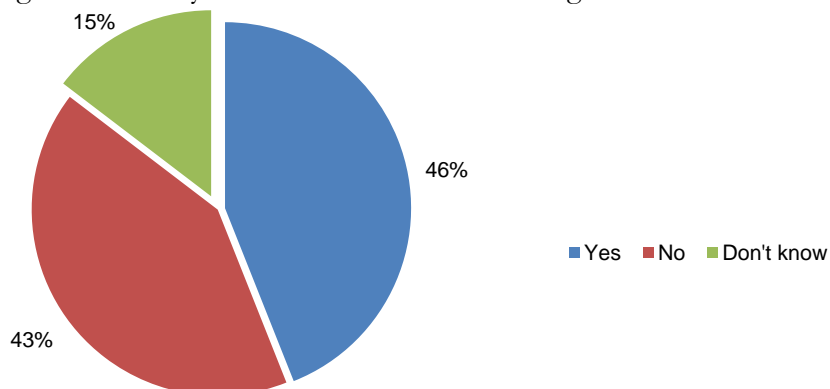
Regarding dosage levels of in-school banking, 83% of youth with above-average exposure reported having heard of *Enidaso*, compared to 80% of youth with below-average exposure. Also, a greater proportion of youth with above-average exposure (47%) had opened an *Enidaso* account, compared to 34% of youth with below-average exposure. In addition, 51% of youth in the above-average exposure group had made deposits into their accounts compared to only 30% of youth in the below-average exposure group.

Across the four groups (above- and below-average in-school banking, marketing, and control), differences were statistically significant for having heard of *Enidaso* accounts ( $p < .001$ ) and having made deposits ( $p < .001$ ), but not for having opened an account ( $p = .24$ ).

#### *Achievement of goals through Enidaso*

Youth's opinions varied about whether *Enidaso* accounts helped them achieve their goals (Figure 3.12). Specific examples of goals included being able to buy books and other school supplies, save for future education needs, and not spending too much.

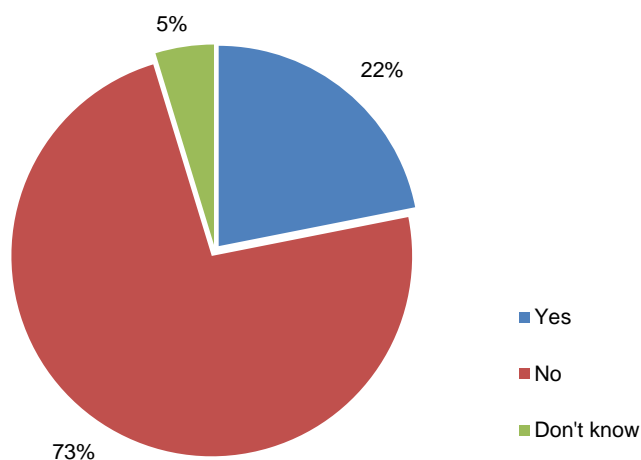
Figure 3.12. Percentage of Youth by Achievement of Goals through *Enidaso*



*Challenges/difficulty of saving in Enidaso*

Only a small proportion of youth (22%) said saving with *Enidaso* was difficult. The most common reason was that youth did not receive enough money from their parents to deposit. Other reasons included being unable to access the account without a teacher, not knowing where and how to deposit, and bank officials not returning to the school.

Figure 3.13. Percentage of Youth by Difficulty of Saving Money with *Enidaso*



*Money management behaviors*

From baseline to endline, a slightly greater percentage of youth indicated using positive financial management skills more frequently (Table 3.1). For example, there was an eight percentage point increase in the number of youth who said they always compare prices when buying things.

Table 3.1. Self-Reported Money Management Behaviors

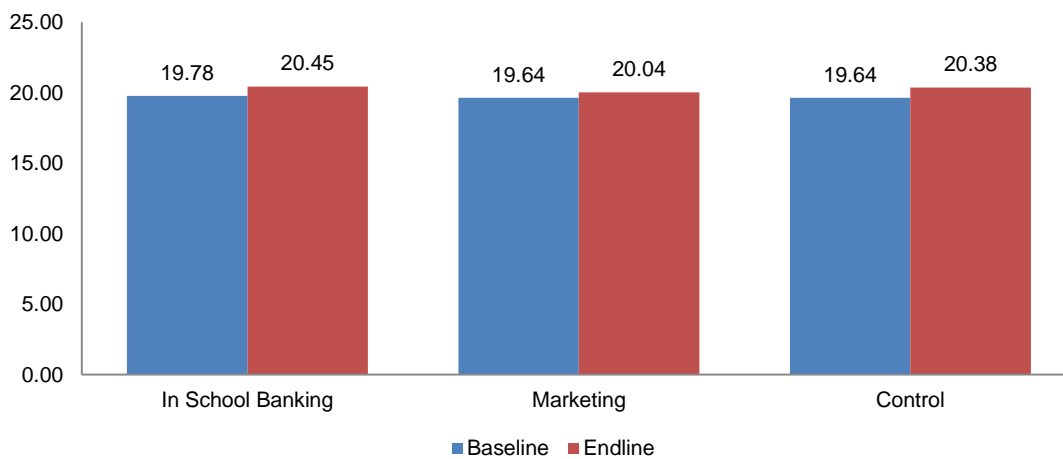
Indicator	Never		Once in a long time		Sometimes		Most of the time		Always	
	Base	End	Base	End	Base	End	Base	End	Base	End
I pay close attention to how much money I spend	4%	5%	4%	5%	21%	23%	30%	24%	40%	43%
Before I buy something for myself, I compare prices on similar items	9%	7%	6%	5%	24%	24%	30%	25%	32%	40%
I have a plan for how to use my money	9%	7%	7%	6%	26%	26%	28%	24%	31%	38%
I follow the plan I have for how to use my money	12%	8%	12%	8%	29%	30%	24%	23%	24%	31%

To examine differences between treatment and control group youth, we created a money management scale (MMS) score by adding responses to the four criteria in Table 3.1 to a question concerning frequency of saving, which we measured on a seven-point scale from “never” to “every day.” The MMS was validated in a prior study (Despard & Chowa, 2014) and had reliability of  $\alpha = .69$  at endline.

The MMS scores increased from baseline to endline by an average of .63 points. Control group youth experienced somewhat greater change than treatment group youth, though this difference was not statistically significant ( $t[4175] = 1.04, p = .68$ ).

The MMS change scores were also not statistically significant comparing youth who received in-school banking or marketing and control group youth ( $p = .30$ , Figure 3.14).

Figure 3.14. Money Management Scale Scores by Type of Treatment and Measurement Occasion



Results based on dosage of in-school banking visits are consistent with the above analyses. Youth who received above-average in-school banking experienced an average baseline-to-endline change of 0.49 points on the MMS compared to 0.77 points for youth who received below-average in-school banking. Across the four groups (above- and below-average in-school banking, marketing, and control), change score differences were not statistically significant ( $F[3, 3751] = 0.87, p = .46$ ).

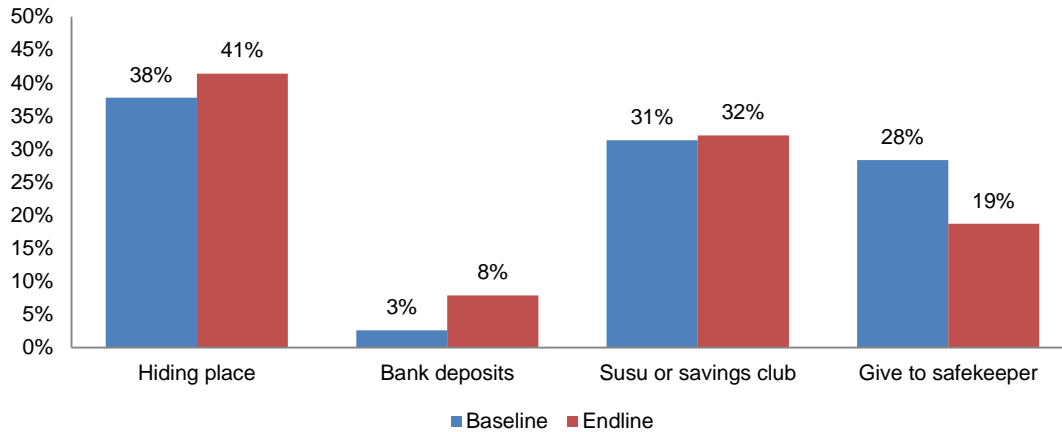
In addition to asking questions about money management habits, the survey featured questions asking whether youth would prefer a smaller/sooner or larger/later reward: “Would you want a prize of 100 Ghana Cedis now or a prize of 150 Ghana Cedis in one month?” The proportion of youth who said they preferred the larger/later reward was 63% at baseline, decreasing slightly to 62% at endline. No baseline to endline changes were statistically significant based on overall treatment status, treatment type, or in-school banking dosage.

From baseline to endline, youth became somewhat savvier money managers, yet the change was not dramatic. Because most youth at baseline said they were regularly engaging in behaviors like careful spending, it may be that there was little room for growth in money management.

*Saving methods*

The number of saving methods youth said they used to save money increased by 21% from baseline to endline. Though using a hiding place remained the most favored method, the greatest proportionate increase from baseline to endline was using a bank to save (Figure 3.15).

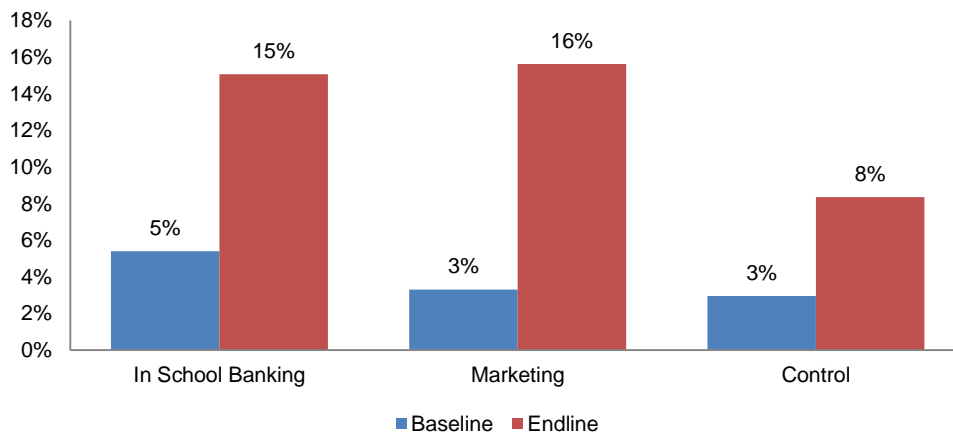
Figure 3.15. Methods of Saving by Measurement Occasion



The percentage point increase from baseline to endline of treatment group youth who reported making bank deposits was 11% compared to 5% for control group youth, a statistically significant difference ( $p < .01$ ).

The percentage point increase from baseline to endline of youth who received in-school banking and reported making bank deposits was 10% compared to 13% for youth who received marketing and 5% for control group youth. Differences across the three groups were statistically significant ( $p < .01$ ), though there was not a statistically significant difference between the in-school banking and marketing groups (see Figure 3.16).

Figure 3.16. Proportion of Youth who Use Banks to Save by Type of Treatment and Measurement Occasion

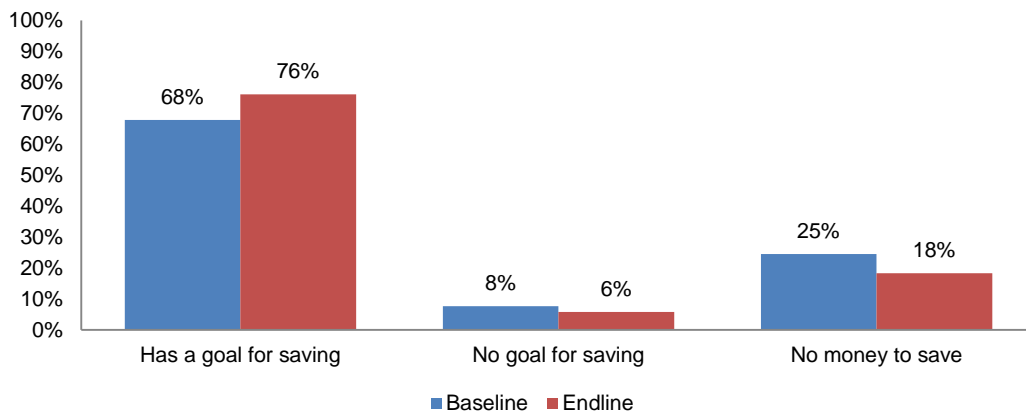


Results based on dosage of in-school banking visits are consistent with the above analyses. The proportion of youth who received above-average in-school banking and reported using banks to save increased from 3% at baseline to 18% at endline, compared to an increase from 5% to 11% among youth who received below-average in-school banking. The overall difference of change from baseline to endline across the four groups (above- and below-average in-school banking, marketing, and control) was statistically significant ( $p < .01$ ).

*Goals for saving*

The proportion of youth who reported having a goal for saving increased from 68% at baseline to 76% at endline. The proportion of youth who had saving goals did not vary by treatment type at both baseline ( $p = .51$ ) and endline ( $p = .78$ ). The proportion of youth who reported having no money to save decreased from 25% at baseline to 18% at endline (Figure 3.17).

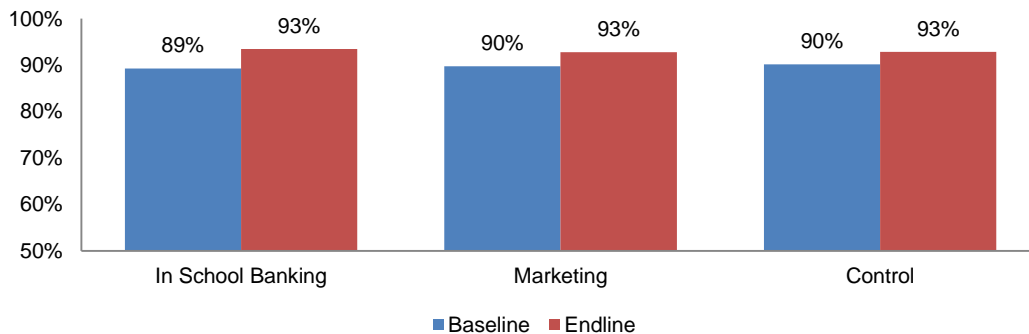
Figure 3.17. Goals for Saving by Measurement Occasion



Among youth who save, the vast majority have goals. The change from baseline to endline was not significantly greater for treatment compared to control group youth ( $p = .71$ ).

The change in having a goal for saving from baseline to endline was not significantly greater across the in-school banking, marketing, and control groups ( $p = .77$ , Figure 3.18).

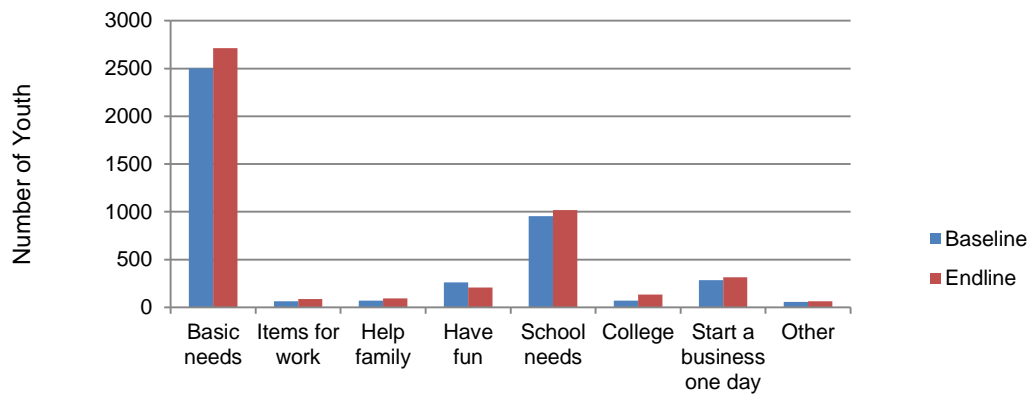
Figure 3.18. Goals for Saving by Type of Treatment and Measurement Occasion



As shown in Figure 3.19, the reasons youth reported for saving remained relatively unchanged from baseline to endline, with basic needs the most common reason.

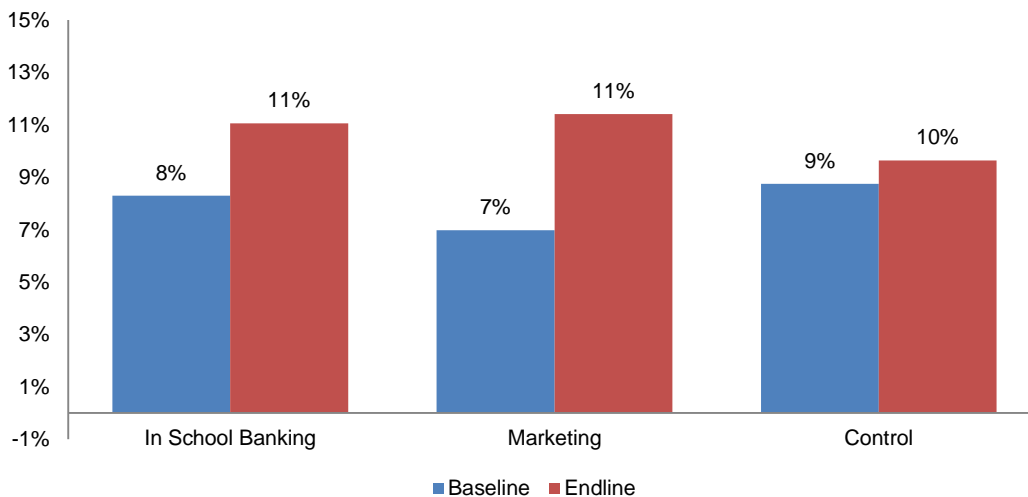
Results based on dosage of in-school banking visits are consistent with the above analyses. The proportion of youth who received above-average in-school banking and reported having a goal for saving increased from 90% at baseline to 93% at endline, compared to an increase from 89% to 94% among youth who received below-average in-school banking. The overall difference of change from baseline to endline across the four groups (above- and below-average in-school banking, marketing, and control) was not statistically significant ( $p = .66$ ).

Figure 3.19. Saving Purposes by Measurement Occasion



The proportion of treatment group youth who said they were saving for education or business increased by 3% from baseline to endline, compared to only 1% for control group youth (Figure 3.20). However, this difference was not statistically significant ( $p = .26$ ).

Figure 3.20. Saving for Education or Business by Type of Treatment and Measurement Occasion





Results based on dosage of in-school banking visits are consistent with the above analyses. In the above-average in-school banking group, 10% of youth had long-term savings goals at baseline compared to 12% at endline. In the below-average in-school banking group, 7% of youth had long-term savings goals at baseline compared to 11% at endline. Change differences from baseline to endline across the four groups (above- and below-average in-school banking, marketing, and control) were not statistically significant ( $p = .72$ ).

In conclusion, from baseline to endline, youth had more money set aside, saved more each month, made greater use of banks to save, and became slightly more long-term goal oriented in their saving.

*Amount and sources of money*

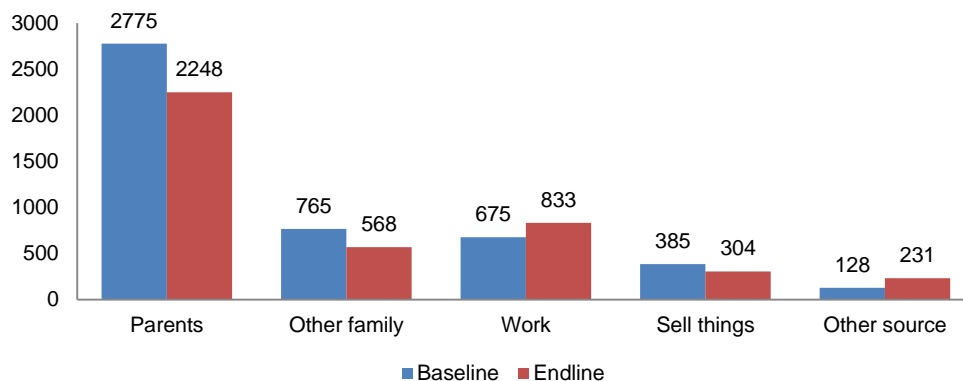
Youth indicated they had an average of GHS 14.09 ( $SD = 42.47$ ) in their possession at baseline, rising to GHS 46.04 ( $SD = 224.43$ ) at endline. This was expected as youth grew older and had more opportunities to obtain money. Median amounts were GHS 3 at baseline and GHS 10 at endline. Median amounts were much lower than average amounts, which means a small percentage of youth reported having large amounts of money in their possession. For example, the top 25% of youth had GHS 35 or more—more than triple the median amount, whereas nearly a third of youth had no money at baseline (29%) and endline (30%).

Boys reported having more money ( $M = 58.82, SD = 297.80$ ) at endline than girls ( $M = 33.37, SD = 109.88$ ), a difference that was statistically significant ( $t[4260] = 3.71, p < .001$ ). It may be that boys have more opportunities to obtain money from a variety of sources, including informal employment.

Youth in the treatment group experienced an average increase of GHS 35.43 ( $SD = 5.06$ ) from baseline to endline in the amount of money they had in their possession, compared to youth in the control group ( $M = 28.32, SD = 4.71$ ), though this difference was not significant ( $t[4260] = 1.03, p = .16$ ).

As seen in the Figure 3.21, youth received money from similar sources at baseline and endline, though parents and other family members were a less common source at endline while work and other sources increased at endline, reflecting more opportunities to earn money as youth grew older and less dependent on family. The sources of money were not statistically different between the treatment and control groups.

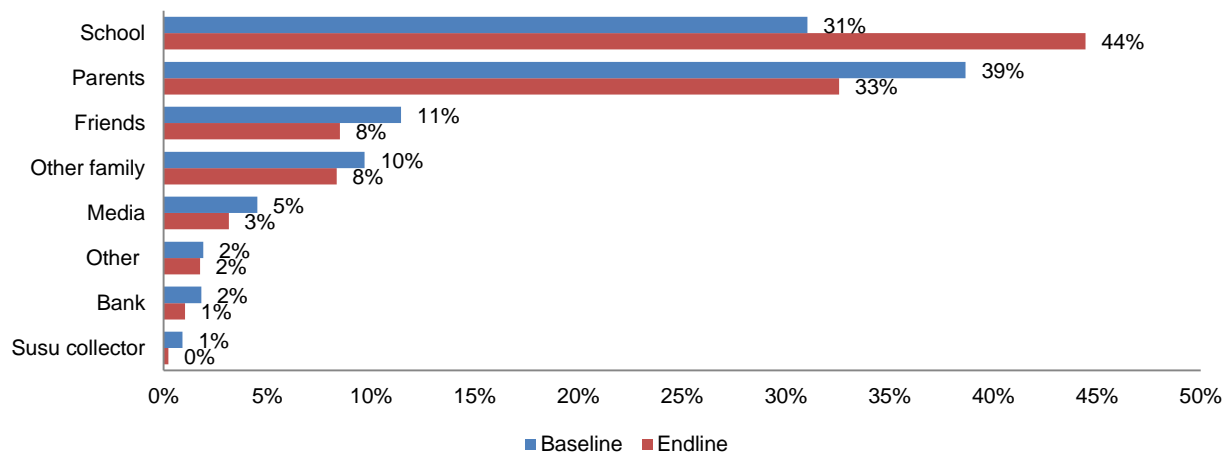
Figure 3.21. Sources of Money



*Source of financial information*

Parents and schools were the two most common sources for how youth learned about money at both baseline and endline, though schools (44% of all responses) replaced parents (33% of all responses) as the top source of financial information at endline. Like sources of money, youth may become less dependent on their parents for financial information as they grow older. It may also be that schools offer financial information in later grades. As shown in Figure 3.22, other sources (e.g., other family members, friends, media, and banks) were far less common sources of financial information at both baseline and endline.

Figure 3.22. Sources of Financial Information by Measurement Occasion



There was little difference in sources of financial information between treatment and control group youth and by types of treatment. As reflected in Figures 3.23 through 3.24, all groups of youth depended less on their parents and more on schools for their financial information at endline compared to baseline in roughly equal proportions.

Figure 3.23. Parents as Sources of Financial Information by Type of Treatment and Measurement Occasion

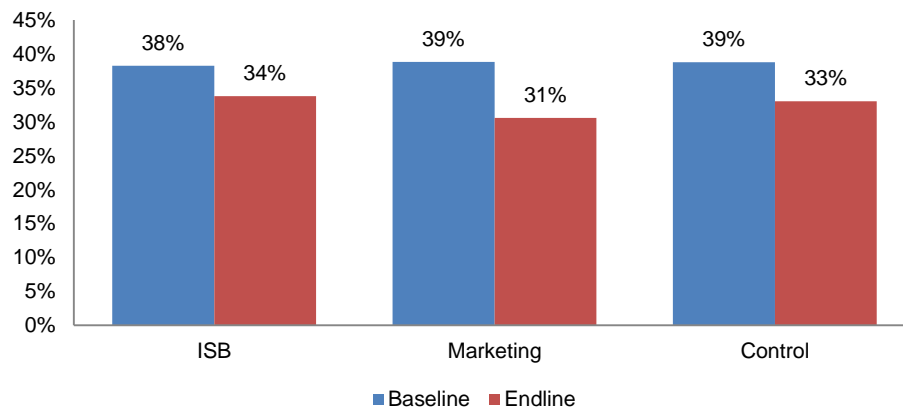
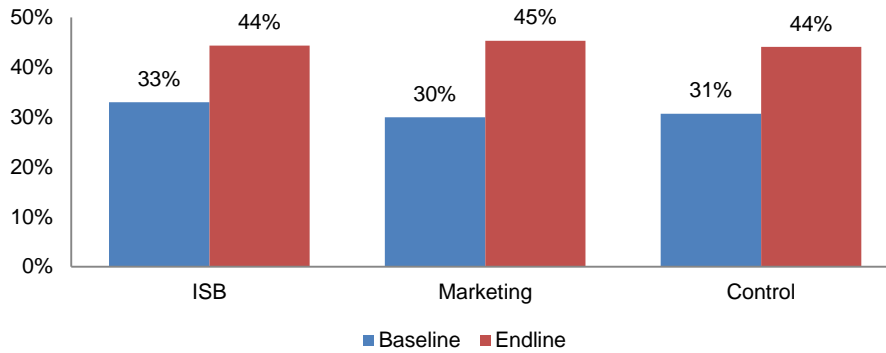


Figure 3.24. Schools as Sources of Financial Information by Type of Treatment and Measurement Occasion



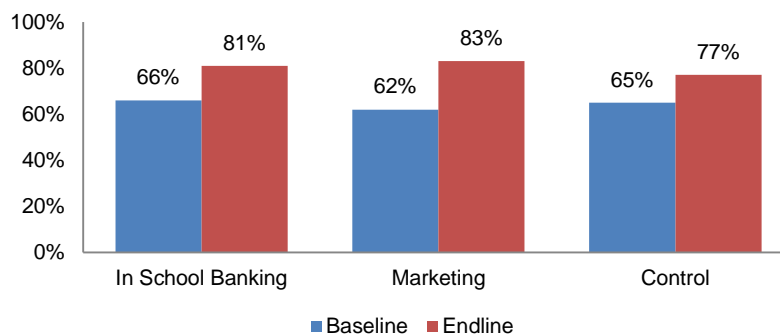
Results based on dosage of in-school banking visits are consistent with the above results. The percentage of youth in the above-average in-school banking condition who depended on their parents for financial information decreased from 40% at baseline to 32% at endline, compared to 37% to 35% for the below-average in-school banking condition, respectively. Conversely, the percentage of youth in the above-average in-school banking condition who depended on school for financial information increased from 30% at baseline to 46% at endline, compared to 34% to 43% for the below-average in-school banking condition, respectively.

For both groups, banks were not a common source of financial information. At endline, only 1% of both above- and below-average in-school banking groups said they turned to banks for financial information.

The percentage of youth who said they had ever had a class about money increased from 64% at baseline to 79% at endline. The baseline-to-endline increase for treatment group youth was 18 percentage points, compared to 12 percentage points for control group youth, though this difference was not statistically significant ( $p = .18$ ).

The baseline-to-endline increase for youth who received in-school banking was 15 percentage points, compared to 19 percentage points for youth who received marketing and 12 percentage points for control group youth, though differences across these three groups was not statistically significant ( $p = .35$ ).

Figure 3.25. Proportion of Youth who have Ever Had a Class about Money by Type of Treatment and Measurement Occasion



Results based on dosage of in-school banking visits are consistent with the above results. The percentage of youth in the above-average in-school banking group who said they had received financial education increased from 61% at baseline to 81% at endline, compared to 68% to 81% in the below-average group. Baseline-to-endline changes were not statistically significant across the four conditions (above- and below-average in-school banking, marketing, and control) ( $p = .74$ ).

Among those who received financial education, most (84% at baseline and 82% at endline) said they received less than five hours. Regarding eight different financial education topics, how to save was the most common (37% at baseline and 35% at endline), followed by making good spending choices (22% and 17%, respectively) and the importance of saving (20% and 18%, respectively). Budgeting, borrowing, debt, investing, and financial services were all much less common topics.

In general, exposure to the YouthSave intervention did not appear to affect how youth receive financial information. This may be because financial information and financial education efforts are widely disseminated, offering a common exposure regardless of random assignment to a treatment or control school.

*Parent/guardian awareness, behavior, and attitudes regarding child savings*

Parents and guardians exert an important influence on their children’s financial knowledge, attitudes, and behaviors. However, many youth (40% at baseline and 42% at endline) said their parents or guardians never explain their financial decisions. Only 20% at baseline and 19% at endline said their parents or guardians explain financial decisions most of the time or always. There were no statistically significant differences between treatment and control groups. Similarly, there were no statistically significant differences among in-school banking, marketing, and control group youth regarding the baseline-to-endline change in having a parent or guardian who explain financial decisions most of the time or always.

A greater proportion of parents and guardians said their child had their own savings account at endline (9%) compared to at baseline (4%), which was a statistically significant difference ( $\chi^2[6, N = 3,664] = 90.30, p < .001$ ). The change from baseline to endline in parents and guardians who said their child had a savings account was statistically significant and greater among treatment group compared to control group parents ( $t[3211] = 3.44, p < .001$ ).

Table 3.2. Parent and Guardian Financial-Related Interactions with Children

Indicator	Treatment		Control		Adjusted DiD <sup>a</sup>	
	Baseline	Endline	Baseline	Endline	Est.	$p$
Child has savings account At least once a month:	5%	11%	4%	6%	.05	<.001
Talk about earning money	40%	56%	43%	54%	.01	.38
Talk about saving money	57%	57%	61%	60%	.006	.44
Talk about managing money	39%	46%	42%	51%	-.02	.66
Take child to bank	6%	7%	5%	8%	-.02	.94

<sup>a</sup> Standard error adjusted for clustering by school.

Participating in YouthSave may have increased the likelihood of parents interacting with their children about a range of financial issues. A greater proportion of parents and guardians said they talk at least once a month with their child about *earning* money at endline (46%), compared to at baseline (41%), which was a statistically significant difference ( $\chi^2[1, N = 3,656] = 38.30, p < .001$ ). However, there was no statistically significant treatment-control group difference in the baseline to endline change. The same proportion of parents said they talk at least once a month with their child about *saving* money at both endline and baseline (59%) and there was no statistically significant treatment-control group difference in the baseline to endline change.

A greater proportion of parents and guardians said they talk at least once a month with their child about *how they manage money and make financial decisions* at endline (49%), compared to at baseline (41%), which was a statistically significant difference ( $\chi^2[1, N = 3,656] = 7.79, p < .01$ ). However, there was no statistically significant treatment-control group difference in the baseline to endline change.

A greater proportion of parents and guardians said they *take their child with them to the bank* at least once a month at endline (7%), compared to baseline (5%), which was a statistically significant difference ( $\chi^2[1, N = 3,533] = 34.47, p < .001$ ). However, there was no statistically significant treatment-control group difference in the baseline to endline change.

The overall differences (i.e., regardless of assignment to treatment or control) from baseline to endline in the proportion of parents and guardians who interact with their children about financial issues may reflect a greater tendency to have these interactions as children grow older. These differences do not appear related to whether youth were assigned to a treatment or control group school.

Lastly, we asked parents about their own financial behaviors. Ownership of savings accounts was higher than of current accounts. The proportion of parents who said they saved money for their children’s future education declined from baseline to endline in both the treatment and control groups, perhaps reflecting that fewer children were expected to continue their educations into senior high school. As seen in Table 3.3, there were not statistically significant differences between treatment and control group parents regarding these financial behaviors.

Table 3.3. Parent and Guardian Financial Behaviors

Indicator	Treatment		Control		Adjusted Change score <sup>a</sup>	
	Baseline	Endline	Baseline	Endline	Est.	<i>p</i>
Have a current account with a financial institution	12%	12%	9%	9%	-.002	.55
Have a savings account with a financial institution	49%	51%	43%	47%	-.01	.73
Save money for child’s future education	20%	12%	19%	10%	.009	.45
Amount saved for child’s future education	530	857	564	816	.09 <sup>b</sup>	.42

<sup>a</sup> Standard error adjusted for clustering by school; <sup>b</sup> log transformed estimate.

## Key Findings

Youth enrolled in the Ghana experiment experienced modest improvements in financial capability. Youth reported saving more, being somewhat more careful with their money, and experiencing greater access to and awareness and use of financial services. Exposure to the YouthSave intervention had impact on use of financial services, including *Enidaso* accounts.

In terms of savings outcomes, treatment youth performed better than control youth. Participation in YouthSave contributed to higher account uptake and savings amount among treatment but not control youth, and the differences between treatment and control groups were statistically significant. Impacts of the two treatment arms (in-school banking and marketing) on savings outcomes were mixed. Account opening was significantly higher among in-school banking than marketing youth. The savings amounts (e.g., average quarterly net savings) were slightly higher among marketing than control youth. However, the savings amount difference between the two treatment groups was not statistically different.

This chapter reports the effects of YouthSave on youth financial capability outcomes, including data collected from SDA and pre- and post-test survey questionnaire. The next chapter describes the effects of YouthSave on broader youth development outcomes, particularly psychosocial, education, and health impacts.

## Chapter 4: Psychosocial, Educational, and Health Youth Developmental Impacts

This chapter describes the baseline and endline survey results related to youth development outcomes and discusses the effects of participation in the Ghana experiment on key development outcomes. These outcomes include psychosocial, education, and health impacts. Psychosocial impacts include two dimensions of youth future orientation: toward success and toward an uncertain future. Education impacts include student traits (e.g., academic self-efficacy, commitment to school, concerns about school, planned effort), academic performance (i.e., math and English scores), and school attendance.

This chapter also examines youth and parent educational aspirations and expectations. Finally, we discuss health outcomes, including family-level protective factors, attitudes and subjective norms toward sex, beliefs about HIV/AIDS and condom use, and sexual risk-taking behaviors such as actual condom use and engagement in paid sex and unwilling sex.

### Psychosocial Impacts

#### Orientation toward success

Overall, youth reported a mean orientation toward success score of 52.17 at baseline, slightly increasing to 52.66 at endline.<sup>4</sup> Treatment youth had a mean score of 52.13 at baseline and 52.67 at endline. In contrast, control youth had a mean score of 52.21 at baseline and 52.65 at endline. Although control youth started with a higher orientation toward success mean score, treatment youth had a slightly higher mean score at endline. In addition, treatment youth (0.54) experienced a larger gain in orientation toward success scores contrasted with control youth (0.44).

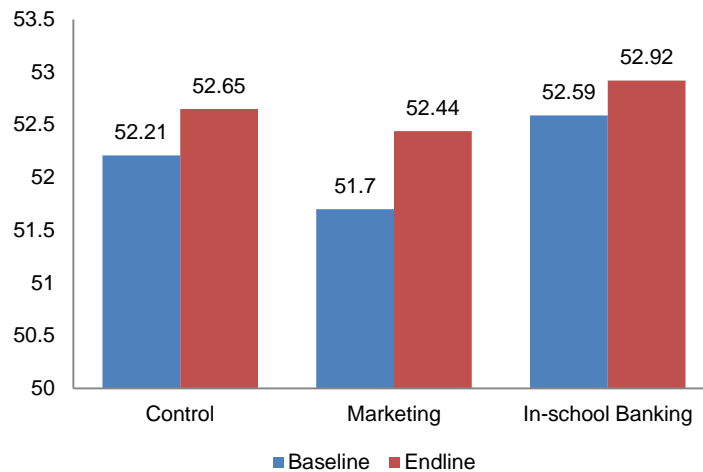
Results based on type of treatment showed a more nuanced effect of YouthSave. As presented in Figure 4.1, in-school banking youth reported the highest baseline mean score of 52.59, followed by control (52.21), and marketing youth (51.70). Consistent with baseline scores, in-school banking youth had the highest endline mean score (52.92), followed by control (52.65), and marketing (52.44) youth. Across all three groups, youth reported higher endline scores contrasted with their baseline scores. Although in-school banking youth had the highest baseline and endline scores, they had the smallest increase in scores between baseline and endline at 0.33. Marketing youth in had the biggest change score of 0.74, whereas control youth had a change score 0.44.

Results based on dosage of in-school banking visits are consistent with the above analyses. In-school banking youth with above-average exposure remained the smallest gainers on orientation toward success scores across all groups (control = 0.44, marketing = 0.74, in-school banking with below-average dosage = 0.40, and in-school banking with above-average treatment dosage = 0.15). Marketing youth remained the largest gainers or having the biggest change score from baseline to endline. However, all findings were not statistically significant.

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<sup>4</sup> Higher scores on orientation toward success indicate positive future orientation or higher levels of future orientation. (Minimum score for this scale = 0; maximum score = 60.)

Figure 4.1. Mean Orientation toward Success Scores by Type of Treatment and Measurement Occasion



### Orientation toward an uncertain future

Overall, youth reported a mean uncertainty-of-the-future score of 7.34 at baseline, slightly increasing to 7.54 at endline.<sup>5</sup> Treatment youth had a mean score of 7.33 at baseline and 7.45 at endline, or a change score of 0.12. On the other hand, control youth had a mean score of 7.35 at baseline and 7.64 at endline, or a change score of 0.29. In both measurement occasions, treatment youth had lower scores on the uncertainty-of-the-future scale contrasted with control youth. Although both groups experienced a slight increase in their uncertainty of the future from baseline to endline, treatment youth had lower scores on this scale in both measurement occasions. In addition, control youth experienced a larger gain in uncertainty of the future scores contrasted with treatment youth.

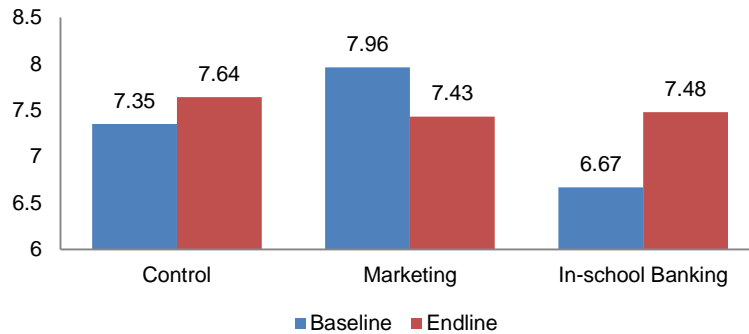
Results based on type of treatment showed a more nuanced effect of YouthSave. As presented in Figure 4.2, in-school banking youth reported the lowest baseline mean score of 6.67, followed by control youth (7.35) and marketing youth (7.96). However, at endline, marketing youth had the lowest mean score of 7.43, followed by in-school banking (7.48) and control (7.64) youth. Control and in-school banking youth reported slightly higher endline scores contrasted with their baseline scores. In-school banking youth had the largest change score of 0.81, whereas control youth had a change score of 0.29. However, marketing youth reported a decrease from baseline to endline, or a change of score of -0.53.

Results based on dosage of in-school banking visits are consistent with the above analyses. In-school banking youth with above- and below-average exposure remained the largest gainers on uncertainty toward the future scores across all groups (control = 0.28, marketing = -0.53, in-school banking with below-average dosage = 0.73, and in-school banking with above-average treatment dosage = 1.00). Marketing youth remained the only group that experienced a decrease in their scores. However, all findings were not statistically significant.

<sup>5</sup> Lower scores on uncertainty-of-the-future subscale indicate positive future orientation. (Minimum score for this scale = 0; maximum score = 50.)



Figure 4.2. Mean Uncertainty of the Future Scores by Type of Treatment and Measurement Occasion



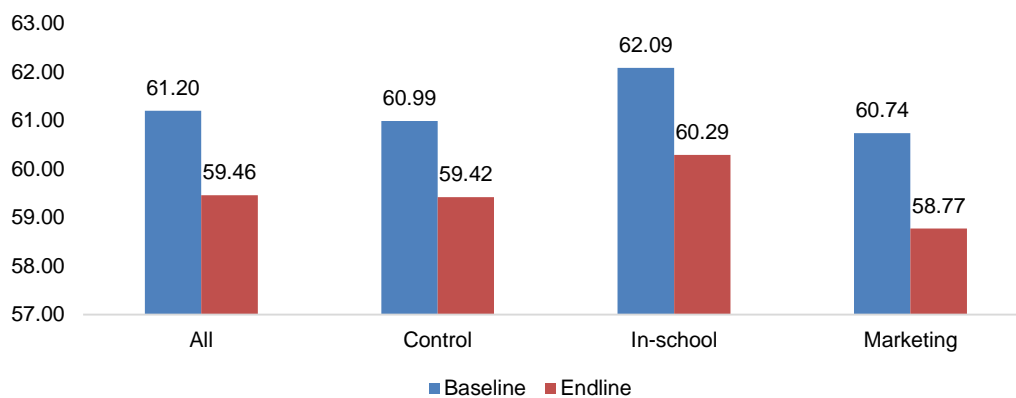
### Educational Impacts

#### Academic self-efficacy<sup>6</sup>

Overall, youth’s academic self-efficacy decreased from baseline to endline by an average of 1.74 points. As depicted in Figure 4.3, in-school banking youth had the highest self-efficacy score at endline (60.29 points). However, in-school banking (-1.80 points) and marketing youth (-1.97 points) experienced steeper decreases in academic self-efficacy from baseline to endline compared with control youth (-1.57 points). The differences among the three groups were not statistically significant ( $p > .05$ ).

Results based on dosage of in-school banking visits are consistent with the above findings. All groups reported a decline in their academic self-efficacy. The in-school banking youth with above-average exposure reporting the steepest decrease (-2.97 points) followed by the marketing (-1.99 points), control (-1.51 points), and in-school banking with below-average dosage (-1.32 points). None of the decreases were statistically significant ( $p > .05$ ).

Figure 4.3. Mean Academic Self-Efficacy Scores by Treatment Group and Measurement Occasion



<sup>6</sup> Eight items on the academic self-efficacy scale were added to create an overall academic self-efficacy score. The original items were measured on an 11-point response scale from ranging from “cannot do at all” to “highly certain can do.” The aggregate academic self-efficacy score has high reliability scores at baseline ( $\alpha = .74$ ) and endline ( $\alpha = .79$ ).

## Aspirations and expectations

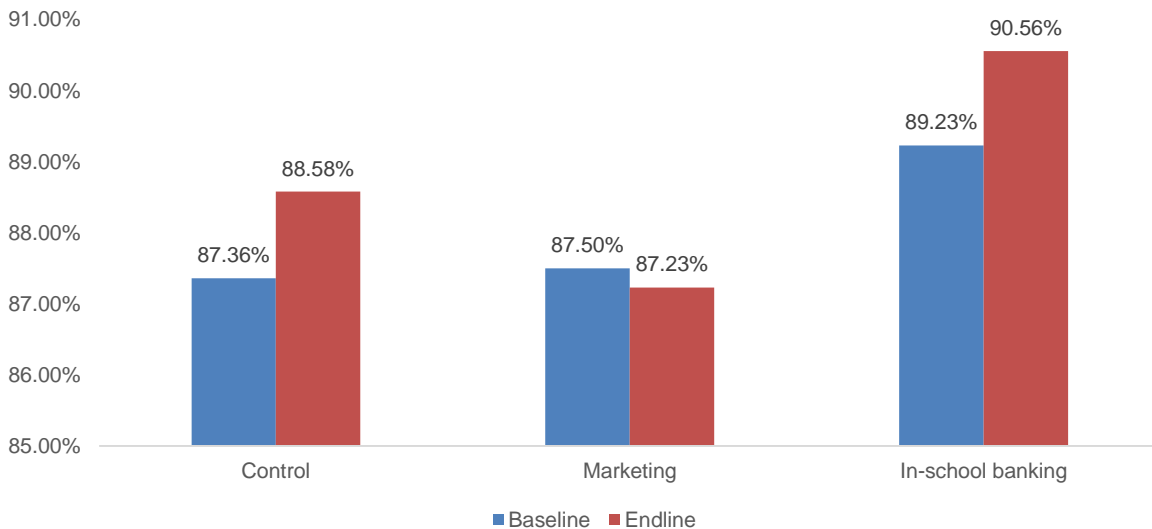
### *Aspirations for higher education*

Overall, youth reported an increase from baseline (+0.87%) in their aspirations for higher education, but parents reported a decrease (-5%) in their aspirations for youth’s higher education. The proportion of treatment youth who reported an increase in their aspirations from baseline to endline (+0.51%) was less than the proportion of control youth (+1.22%) who experienced an increase in their aspirations for education beyond senior high school (SHS). However, contrasted with the control youth (88.58%), slightly more treatment youth (88.85%) reported having aspirations for education beyond SHS at endline. The increases were not statistically significant for the treatment and control groups ( $p > .05$ ).

When youth were categorized based on type of treatment, a higher proportion of in-school banking youth reported having aspirations for education beyond SHS at endline (91%), followed by the control (89%) and marketing youth (87%). The in-school banking youth experienced the highest increase in aspirations from baseline to endline (+1.33%), followed by the control youth (+1.22%), but the marketing youth reported a slight decrease (-0.27%). The group changes in level of aspirations among the three groups from baseline to endline were not statistically significant ( $p > .05$ ). Figure 4.4 illustrates youth’s aspirations by treatment group.

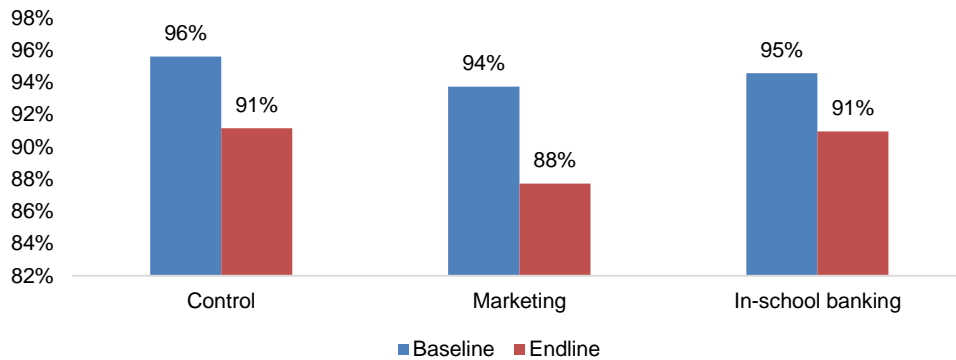
Further analysis reveals that a greater proportion of in-school banking youth with above-average exposure reported an increase in their aspirations (+6.51%) compared to all other groups (in-school banking with below-average dosage = -0.80%, marketing = -0.29%, and control = +1.23%). None of the increases and decreases were statistically significant ( $p > .05$ ).

Figure 4.4. Percentage of Youth with Aspirations for Education beyond SHS by Treatment Type and Measurement Occasion



Contrary to the overall trends in youth aspirations, the proportion of parents who aspire to have their youth pursue education beyond SHS decreased from baseline to endline (-4.92%). However, as illustrated in Figure 4.5, the decrease in parent’s aspirations favored the in-school banking group. The drop in parents’ aspirations from baseline to endline was steeper for the marketing (-6.85%) and control groups (-4.45%) than the in-school banking group (-3.62%). However, none of the changes was statistically significant.

Figure 4.5. Percentage of Parents with Aspirations for Youth’s Education beyond SHS

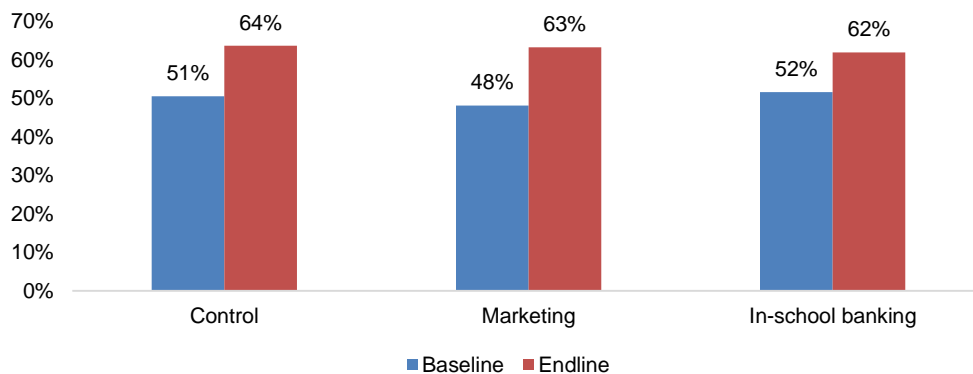


*Expectations for higher education*

Overall, the percentage of youth expecting to attain education beyond SHS increased from 50.21% at baseline to 63.16% at endline. As Figure 4.6 shows, a higher percentage of marketing youth (+15.14%) reported expecting to attain education beyond SHS from baseline to endline compared to the in-school banking youth (+10.31%) and control youth (13.12%), but the level of increases did not vary statistically significantly among the three groups ( $p > .05$ ).

Results based on dosage of in-school banking visits reveal stronger treatment effects on expectations. From baseline to endline across all groups, the marketing youth experienced greater increase in expectations for higher education (+16.03%) followed by the in-school banking youth with above-average treatment exposure (+15.33%) and the control youth (+12.86%). The in-school banking youth with below-average treatment exposure had the smallest proportion of students who experienced an increase in their expectation to pursue education beyond SHS.

Figure 4.6. Percentage of Youth with Expectations for Education beyond SHS

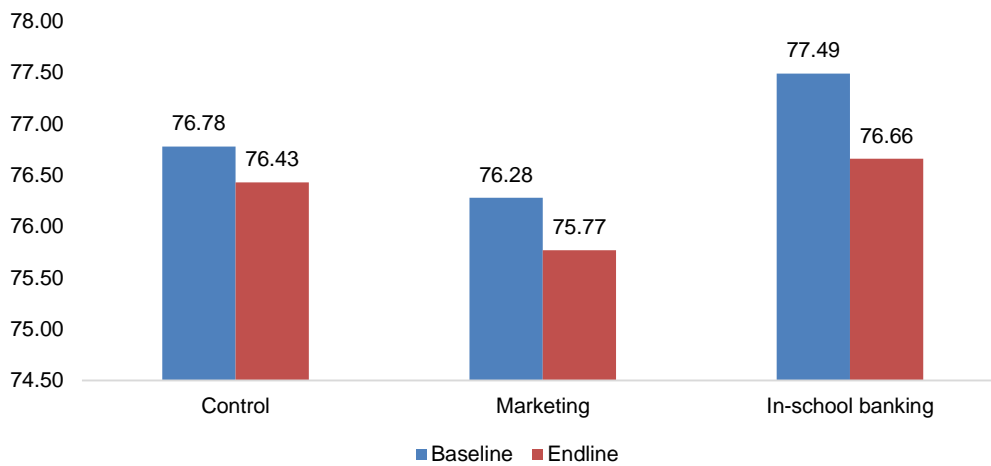


*Commitment to school*

Overall, youth commitment to school decreased by an average of 0.51 points.<sup>7</sup> Treatment youth experienced a decrease of 0.66 points while the control youth’s score decreased by an average of 0.35 points. When comparing the baseline-to-endline change scores for the three groups (control, in-school banking, and market outreach), control youth experienced the smallest decrease (-0.35) followed by marketing (-0.51) and in-school banking youth (-0.83). However, the differences among the three groups’ change scores were not statistically significant ( $p > .05$ ). As presented in Figure 4.7, even though the in-school banking group experienced the biggest drop in their level of commitment, this group still had the highest commitment to school score at endline (76.66) compared to the marketing (75.77) and control groups (76.43).

Results based on dosage of in-school banking visits are consistent with the above analyses. In-school banking youth with above-average exposure reported the steepest decline in level of commitment (-1.39) followed by the in-school banking youth with below-average exposure, marketing (-0.44) and control youth (-0.29). However, none of the declines in commitment level was statistically significant ( $p > .05$ ).

Figure 4.7. Mean Commitment to School Scores by Treatment Group and Measurement Occasion



*Concern about school*<sup>8</sup>

Although both treatment and control youth reported that on average they were more concerned than before, the change in the level of worry was slightly higher among control youth (+0.06) than treatment youth (+0.05). The increased level of concern did not vary significantly between the two groups ( $p > .05$ ). Contrasted with the control group, the treatment group was less concerned at both baseline and endline, although the gap between the two groups widened marginally from 0.01 to a 0.02 gap at endline.

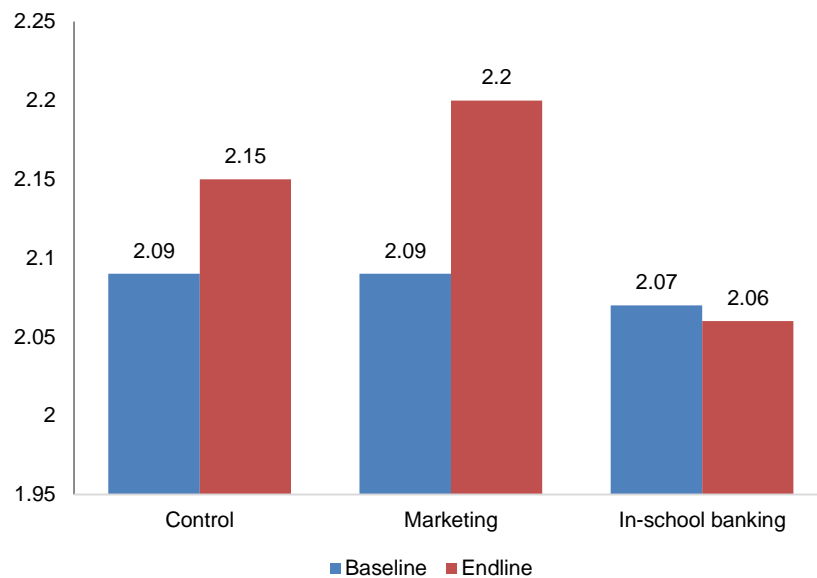
<sup>7</sup> Nine school commitment items were added to create a composite commitment to school score. All items were measured on an 11-point scale from 0 (Strongly disagree) to 10 (Strongly agree). The commitment score had good reliability values at baseline ( $\alpha = .70$ ) and endline ( $\alpha = .78$ ).

<sup>8</sup> The original response scale ranged from scale of 1 (worried all the time) to 5 (never worried) but was reverse coded for intuitive interpretation in this report.

When youth were classified into three groups (control, marketing, and in-school banking), results showed that in-school banking youth became less concerned about writing essays at endline (i.e., from 2.07 at baseline to 2.06 at endline). On the contrary, control and marketing youth experienced increased levels of concern at endline. As Figure 4.8 shows, marketing and control youth reported the same level of concern at baseline (2.09), but, by endline, marketing youth reported a greater increase in their level of concern (2.20) compared with control youth (2.15).

Further analysis reveals that among the in-school banking youth, those who received above-average exposure reported the steepest decline in their level of concern (-0.23), but the rate of decrease was not statistically significant ( $p > .05$ ). Figure 4.8 illustrates the youth's level of concern about writing essay by type and level of treatment dosage.

Figure 4.8. Youth's Level of Concern about Writing Essays by Treatment Group and Measurement Occasion

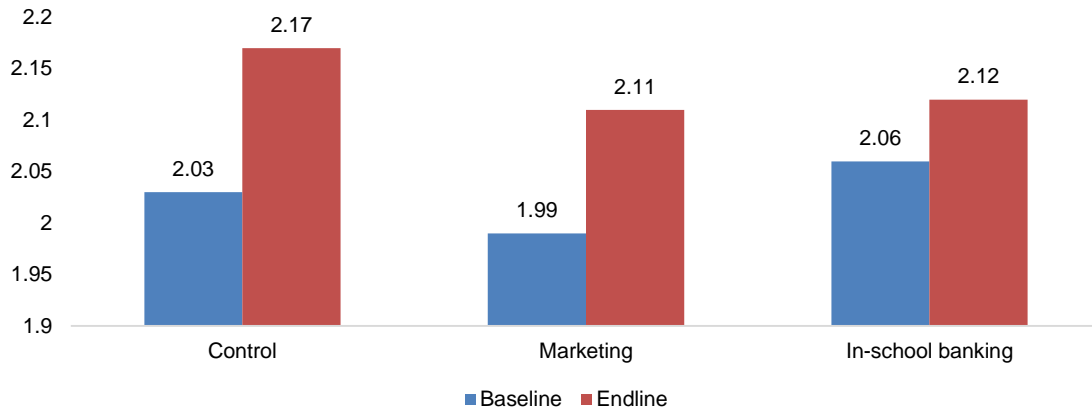


Treatment and control groups reported increased levels of concern about reading and understanding class assignments at endline.<sup>9</sup> However, the treatment group reported a greater increase (+0.15) than the control group (+0.09). The increased level of worry in each group was statistically significant ( $p < .05$ ).

When youth were classified into three groups (control, marketing, and in-school banking), results showed that all three groups were more concerned at endline. However, as Figure 4.9 shows, the in-school banking group's level of concern about reading and understanding class assignments (+0.06) did not increase as much as the marketing (+0.12) and control groups (+0.14). Contrasted with the in-school banking group, the increased level of worry among the control and marketing groups were statistically significant ( $p < .05$ ).

<sup>9</sup> Original response scale ranged from scale of 1 (worried all the time) to 5 (never worried) but was reverse coded for intuitive interpretation in this report.

Figure 4.9. Youth’s Level of Concern about Reading and Understanding Class Assignments by Treatment Group and Measurement Occasion

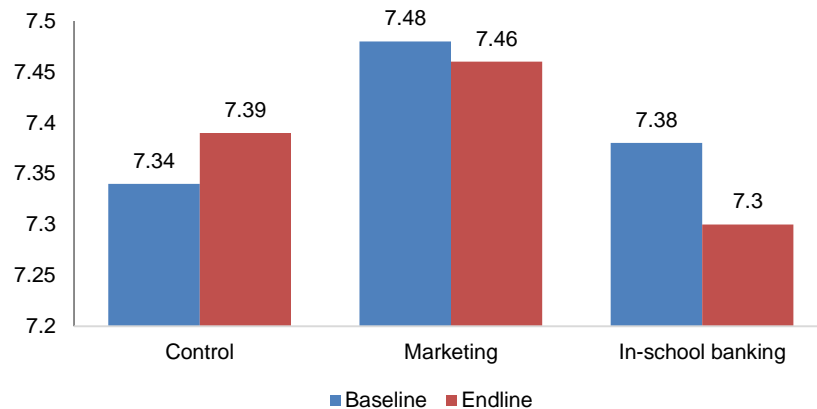


*Planned effort*

Overall, hours that youth spent on schoolwork outside normal school hours did not change significantly from baseline ( $M = 7.39, SD = 5.17$ ) to endline ( $M=7.39, SD = 5.63; p = .98$ ). The treatment group reported a slight decrease in hours spent on schoolwork from 7.43 hours ( $SD = 5.18$ ) to 7.39 hours ( $SD = 5.54$ ), while the control group reported a slight increase in hours spent from 7.34 at baseline to 7.40 at endline. However, the change scores did not vary significantly by treatment group. Likewise, the endline scores did not differ significantly between the treatment and control groups ( $p = .93$ ).

As Figure 4.10 shows, when the groups were categorized into control, marketing and in-school banking, the endline scores for the marketing group was higher (7.46) compared to the in-school banking (7.30) and control groups (7.39). However, the differences were not statistically significant ( $p > .05$ ). Results based on dosage of in-school banking visits show that youth with above-average exposure reported 17 minutes increase in their study time from baseline to endline while those with below-average treatment dosage decreased their study time by the same margin.

Figure 4.10. Hours Spent per Week on School Work Outside Normal School Hours by Treatment Group and Measurement Occasion



## Parental involvement

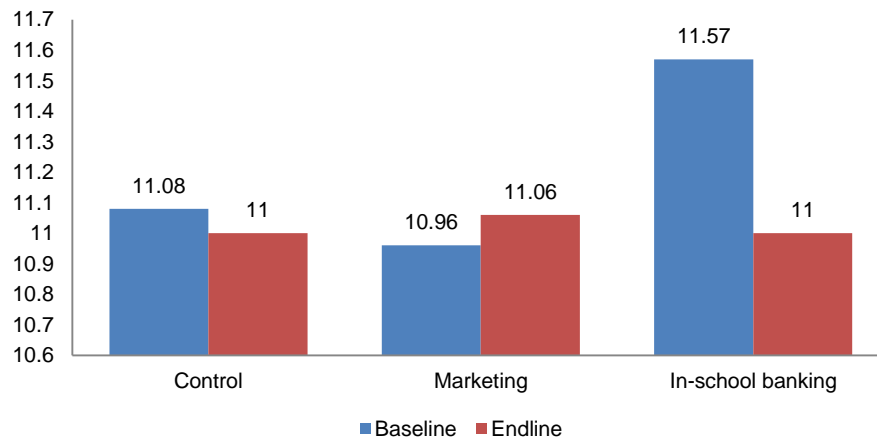
### *Parental school involvement*

The mean parental school involvement score was 11.17 at baseline, slightly decreasing to 11.01 at endline.<sup>10</sup> Parents of treatment youth reported a mean score of 11.27 at baseline and 11.03 at endline, or a change score of -0.24. On the other hand, parents of control youth reported a mean score of 11.08 at baseline and 11.00 at endline, or a change score of -0.08. Parents of both treatment and control youth had lower school involvement scores at endline. However, parents of treatment youth had higher baseline and endline school involvement scores.

When youth were classified into control, marketing, and in-school banking, results suggest a more nuanced effect of the treatment. As presented in Figure 4.11, parents of in-school banking youth reported the highest school involvement scores at baseline (11.57), followed by control (11.08), and marketing (10.96). Parents of in-school banking and control youth reported slightly lower endline scores contrasted with their baseline scores. However, parents of marketing youth reported a slightly higher mean endline score. Parents of in-school banking youth reported the steepest decline in school involvement scores (-0.57), followed by control youth (-0.08). Parents of marketing youth reported a slight increase in their school involvement scores (0.10).

Results based on dosage of in-school banking visits are consistent with the above findings. In-school banking youth with above- and below-average exposure reported the largest decrease in parental school involvement scores across all groups (control = -0.08, marketing = 0.10, in-school banking with below-average dosage = -0.51, and in-school banking with above-average treatment dosage = -0.71). Marketing youth remained the only group that reported an increase in parental school involvement. However, in-school banking youth with below average treatment exposure had the highest endline score (11.15). However, all findings were not statistically significant.

Figure 4.11. Mean Parental School Involvement Scores by Treatment Group and Measurement Occasion



<sup>10</sup> Higher scores on the parental school involvement indicate more frequent involvement with school staff and activities (Minimum score = 0; maximum score = 20).

*Parental home involvement*

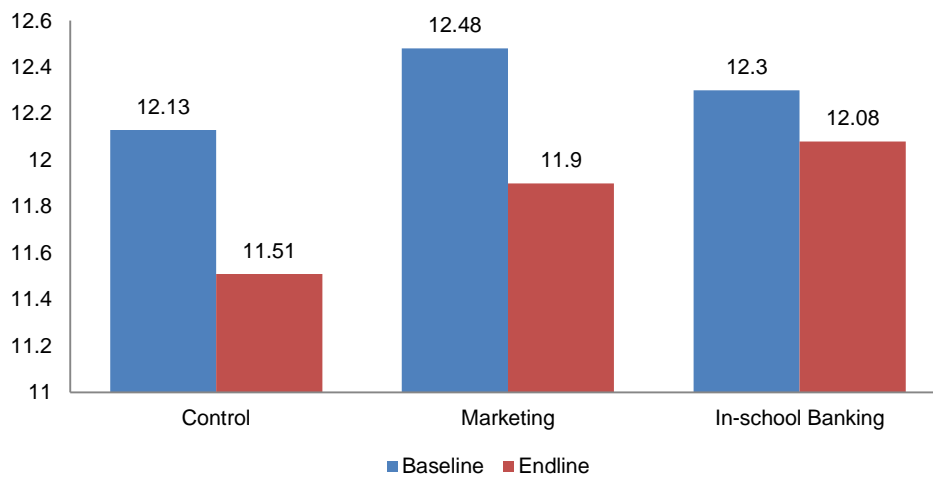
The mean parental home involvement score was 12.25 at baseline, slightly decreasing to 11.74 at endline.<sup>11</sup> Parents of treatment youth reported a mean score of 12.38 at baseline and 11.99 at endline, or a change score of -0.39. Parents of control youth reported a mean score of 12.13 at baseline and 11.51 at endline, or a change score of -0.62. Parents of treatment and control youth had lower home involvement scores at endline. Parents of treatment youth had higher baseline and endline scores than parents of control youth. The mean endline scores difference between treatment and control groups approached statistical significance ( $p = .06$ ).

When youth were classified into control, marketing, and in-school banking, results suggest a more nuanced effect of the treatment. As presented in Figure 4.12, parents of marketing youth reported the highest home involvement baseline scores (12.48), followed by in-school banking (12.30) and control (12.13). All parents reported lower endline scores contrasted with their baseline scores. Parents of control youth reported the steepest decline in home involvement scores (-0.62), followed by marketing and in-school banking (-0.40). The mean endline scores difference approached statistical significance ( $p < .10$ ).

Results based on dosage of in-school banking visits are consistent with the above findings.

Parents of control youth reported the largest decrease in parental home involvement scores across all groups (control = -0.62, marketing = -0.40, in-school banking with below-average dosage = -0.32, and in-school banking with above-average treatment exposure = -0.57). However, in-school banking youth with above average treatment exposure had the highest endline score (12.15). The mean endline scores difference approached statistical significance ( $p < .10$ ). However, none of the change scores were significantly different between groups.

Figure 4.12. Mean Parental Home Involvement Scores by Treatment Group and Measurement Occasion



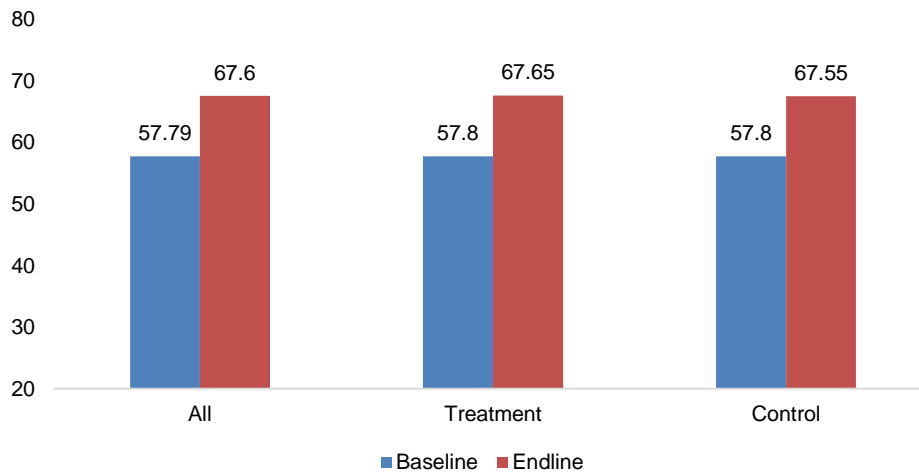
<sup>11</sup> Higher scores on the parental home involvement indicate more frequent involvement with youth's homework and engagement with youth's education (Minimum score = 0; maximum score = 20.)



## School attendance

Overall, youth’s school attendance increased by nearly 10 days from 57.79 at baseline to 67.69 at endline. As illustrated in Figure 4.13, the increase in the control group’s school attendance was marginally higher (8.16) compared with the treatment youth (7.71). Although both groups experienced a slight increase in the number days they attended school, the increase was not statistically significant ( $p > .05$ ). At both baseline and endline, the treatment youth had lowest school attendance rate. Results based on dosage of in-school banking visits are consistent with the results above. In-school banking youth with above-average treatment exposure had the largest increase in school attendance (+8.52) compared with in-school banking youth with below-average treatment exposure (+7.91).

Figure 4.13. Average School Attendance (Days) by Treatment Group and Measurement Occasion



## Academic performance

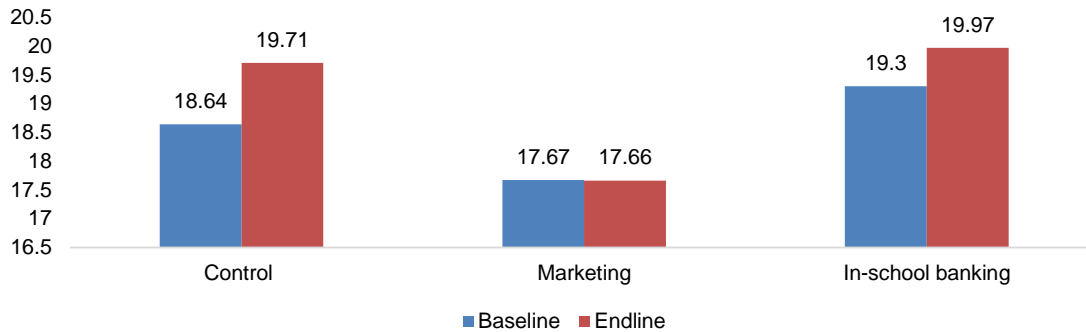
### Math

*Math continuous assessment score.* Overall, youth’s continuous assessment scores increased slightly from baseline to endline (+0.52 points). With the highest possible score of 30 points, the average score of all treatment youth increased from 18.68 points to 18.76 at endline. The control group (18.83 points) scored higher than the treatment group at baseline, but the gap between the two groups widened in favor of the control group at endline (control = +0.98 points; treatment = 0.08 points).

When youth were classified into three groups (control, marketing, and in-school banking), the scores of the control and in-school banking groups increased from baseline to endline. As illustrated in Figure 4.14, the control youth had the largest increase (+1.07) followed by the in-school banking youth (+0.67 point). The marketing group, which started with the lowest baseline scores (17.67 points), had a marginal decrease from baseline to endline (-0.01). The change scores did not vary statistically significant among the three groups ( $p > .05$ ).

Results based on dosage of in-school banking visits show more mixed treatment effects. The scores for the in-school banking youth with below-average treatment exposure decreased (-0.9 point) contrary to those with above-average treatment exposure (+1.11 points).

Figure 4.14. Mean Math Continuous Assessment Score by Treatment Group and Measurement Occasion

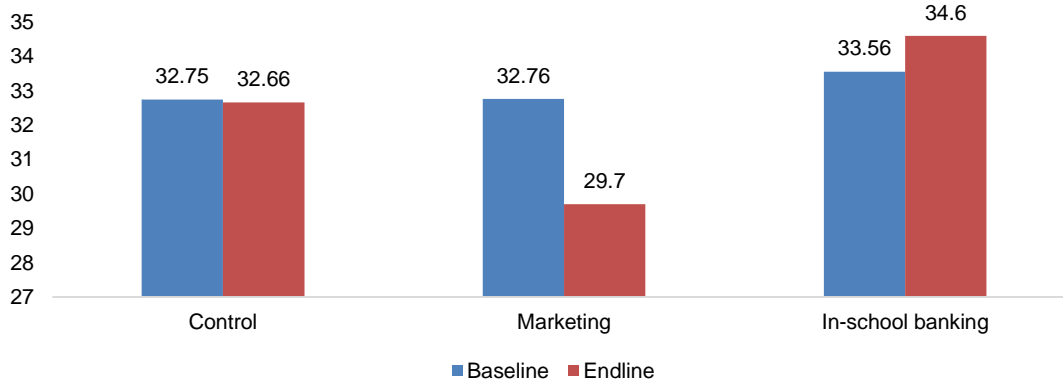


*Math examination score.* The overall trends in youth’s performance on math continuous assessment are consistent with their performance on math examinations.<sup>12</sup> Overall, youth’s math examination scores decreased from 33.39 to 32.30 points although the decrease was not statistically significant ( $p > .05$ ). The treatment group’s average score decreased from 34.04 points at baseline to 31.94 at endline ( $p > .05$ ). Similarly, the control group experienced a statistically nonsignificant decrease from 32.75 to 32.66 points ( $p > .05$ ). Thus, the control group experienced the smallest decrease (-0.09 point) compared with the treatment group (-2.1 points).

Findings based on the three groups (control, marketing, and in-school banking), as illustrated in Figure 4.15, shows mixed treatment effect. The average math examination scores improved for the in-school banking youth (+1.04 points) unlike the scores for the marketing (-3.06 points) and control youth (-0.09 point), and the group differences are statistically significant ( $p < .04$ ).

Results based on dosage of in-school banking visits show a similar trend of mixed treatment effects. Youth in the control (-0.09), marketing (-3.06), and in-school banking with below-average treatment exposure (-1.63) experienced decreases from baseline to endline but the in-school banking that received above-average treatment exposure increased by 4.16 points.

Figure 4.15. Average Examination Scores for Math by Treatment Group and Measurement Occasion



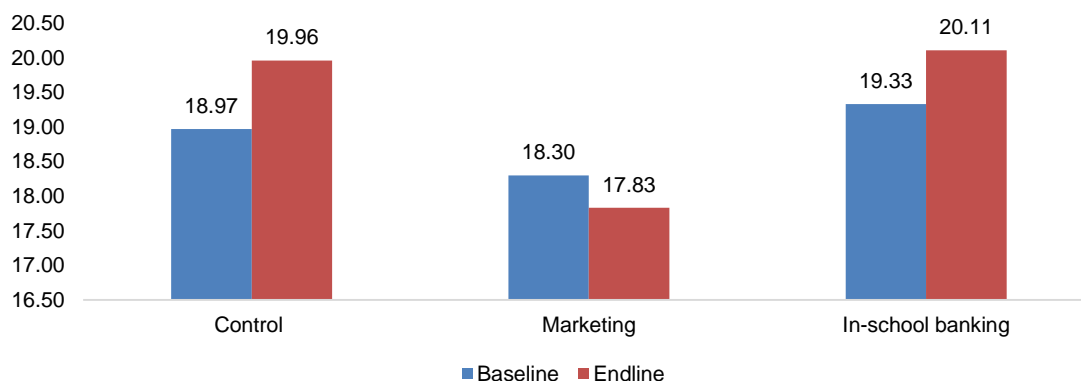
<sup>12</sup> Possible math examination score ranged from 0 to 70 points.

*English*

*English continuous assessment score.* The average continuous assessment scores for English subject increased slightly by 0.56 point at endline ( $p > .05$ ). The mean baseline score was 18.79 points for treatment and 18.97 points for control youth. The 1.10 point difference between the two groups at baseline was not statistically significant ( $p > .05$ ). The control youth had the largest increase (+0.99 point) compared with the treatment youth (+0.07 point) although the group difference was not statistically significant ( $p > .05$ ).

Further analysis, as illustrated in Figure 4.16, shows that only the marketing group (-0.47 point) experienced a decrease in English continuous assessment score. Both control (0.99 point) and in-school banking youth (+0.78 point) experienced increases in their mean scores. None of the change scores was statistically significant ( $p > .05$ ). The in-school banking youth had the highest endline score (20.11 points), followed by the control (19.96 points) and marketing youth (17.83 points). Results based on analysis of treatment dosage reveal a more nuanced treatment effect. In-school banking youth with below average treatment exposure experienced the highest increase (+1.39 points) followed by the control group (+0.99 point) ( $p > .05$ ). On the other hand, both marketing youth (-0.47) and those who received above-average in-school banking treatment exposure (-0.68 point) experienced statistically nonsignificant decreases in their English continuous assessment score ( $p > .05$ ).

Figure 4.16. Average Continuous Assessment Score for English Subject by Treatment Group and Measurement Occasion



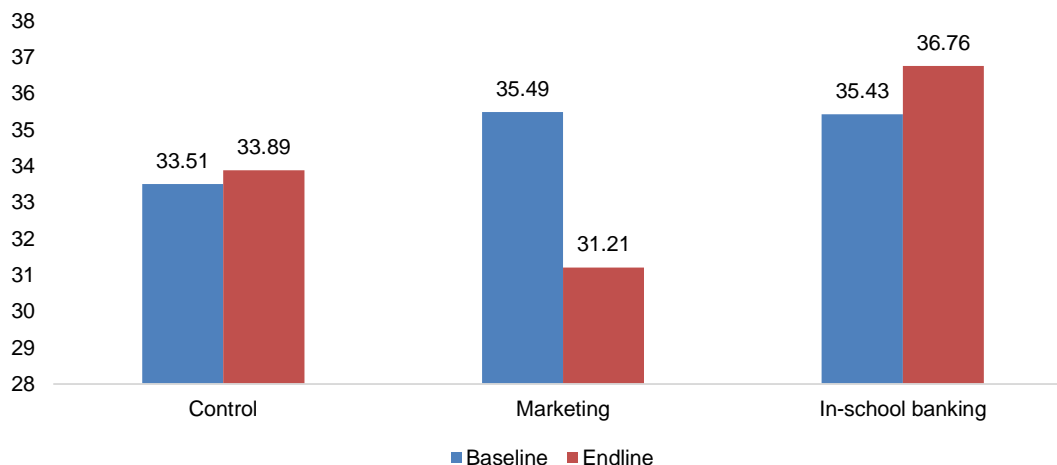
*English examination score.* Overall, youth reported a mean English examination score of 34.48 points at baseline, decreasing to 33.89 points at endline.<sup>13</sup> The treatment youth experienced a decrease in their mean score from 35.46 points at baseline to 33.89 points at endline (i.e., -1.57 points). Conversely, the control youth experienced a marginal increase from 33.51 points at baseline to 33.89 points at endline (i.e., +0.38 point). The change scores did not vary significantly by treatment group ( $p > .05$ ).

Comparison of the two types of treatment (marketing and in-school banking) and the control reveal varying treatment effects. As presented in Figure 4.17, the average English examination scores for both control (+0.38 point) and in-school banking youth (+1.33 points) improved at endline, while the marketing youth experienced a decrease of 4.28 points. These differences among the three

<sup>13</sup> Examination scores can range from 0 to 70 points.

groups were statistically significant ( $p < .05$ ). Results based on dosage of in-school banking visits show even stronger positive treatment effects on youth who had above-average exposure to in-school banking (+6.31 points) compared to those who had below-average exposure (+0.78 points).

Figure 4.17 Average Examination Scores for English Subject by Treatment Group and Measurement Occasion



## Health Impacts

### Parent–youth relationship

#### *Parental connection*

Youth reported a mean parental connection score of 14.66 at baseline, slightly decreasing to 14.48 at endline.<sup>14</sup> Treatment youth had a mean parental connection score of 14.63 at baseline and 14.48 at endline, or a change score (i.e., the difference between the score at baseline from the score at endline) of -0.15. On the other hand, control youth had a mean parental connection score of 14.69 at baseline and 14.48 at endline, or a change score of -0.21. The differences in change scores suggest that control youth experienced a steeper decline in their parental connection scores contrasted with treatment youth.

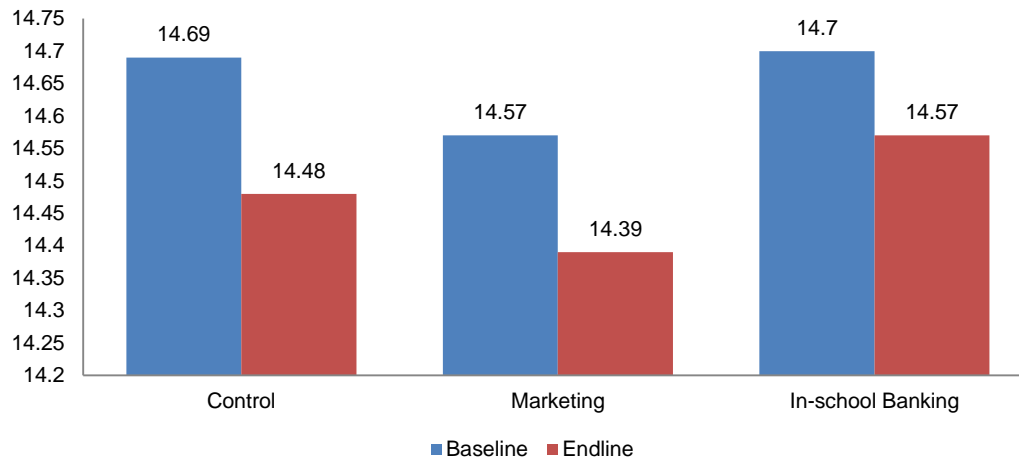
When youth were classified into control, marketing, or in-school banking group, results suggest a more nuanced effect of the treatment. As presented in Figure 4.18, in-school banking youth reported the highest parental connection scores at baseline (14.70), followed by control youth (14.69) and marketing youth (14.57). All youth reported slightly lower endline parental connection scores contrasted with their baseline scores. Consistent with baseline scores, in-school banking youth had the highest parental connection scores at endline (14.57), followed by control youth (14.48), and marketing youth (14.39). Both baseline and endline mean parental connection scores for in-school banking youth were above the mean scores for all youth. In addition, control youth

<sup>14</sup> Higher scores on the parental connection scale indicate closer relationship between parents and their children. Closer relationship includes more frequent communication, show of support and encouragement, and giving of advice and guidance. (Minimum score for this scale = 4; maximum score = 20.)

reported the steepest decline in parental connection scores (-0.21), followed by marketing (-0.18) and in-school banking (-0.13) youth.

Results based on dosage of in-school banking visits show more mixed treatment effects. Across all groups, in-school banking youth with below-average treatment exposure had the highest endline score (12.68) and smallest change score (-0.05). However, in-school banking youth with above-average treatment exposure reported the lowest endline score (14.31) and steepest decrease from baseline to endline (-0.29). However, all findings were not statistically significant.

Figure 4.18. Mean Parental Connection Scores by Treatment Group and Measurement Occasion



### *Parental monitoring*

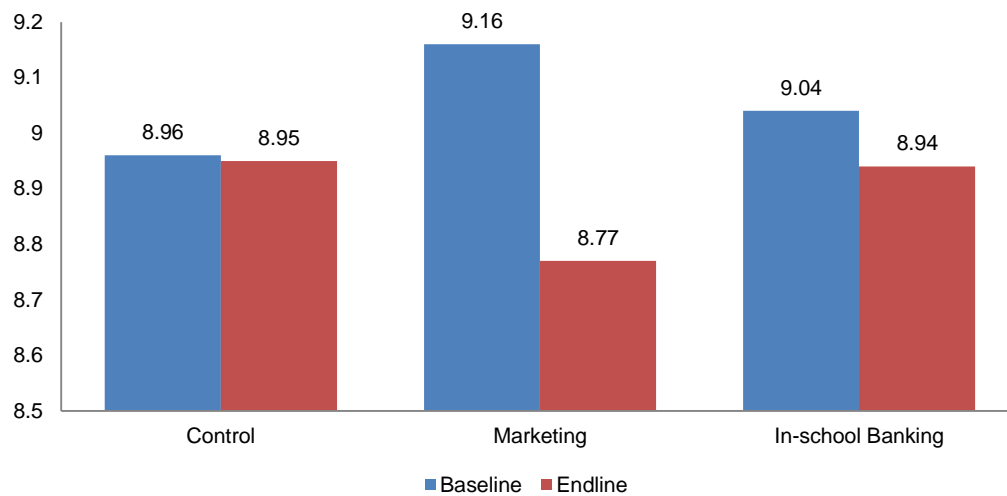
Youth reported a mean parental monitoring score of 9.03 at baseline, slightly decreasing to 8.90 at endline.<sup>15</sup> Youth in the treatment group experienced steeper decrease in parental monitoring scores than the control group. Youth in the treatment group had a mean parental monitoring score of 9.10 at baseline and 8.85 at endline, or a change score of -0.25. In contrast, youth in the control group had a mean parental connection score of 8.96 at baseline and 8.95 at endline, or a change score of -0.01. The differences in change scores suggest that treatment youth experienced a steeper decline in their parental monitoring scores contrasted with control youth.

When youth were classified into control, marketing, or in-school banking group, results suggest a more nuanced effect of the treatment. Although they started with the lowest mean baseline parental monitoring score (8.96), youth in the control group reported the highest mean endline parental monitoring score (8.95). All youth reported slightly lower endline parental monitoring scores contrasted with their baseline scores. As illustrated in Figure 4.19, youth in the marketing schools reported the highest baseline parental monitoring scores (9.16). However, the same group of youth also reported the lowest endline parental monitoring scores (8.77). In-school banking youth had a mean baseline score of 9.04, slightly decreasing to 8.94 at endline. In addition, youth in the marketing schools reported the steepest decline in parental connection scores (-0.39), followed by in-school banking (-0.10) and control (-0.01).

<sup>15</sup> Higher scores on the parental monitoring scale indicate more frequent monitoring of youth's activities, including their friends and how they spend their free time and money. (Minimum score for this scale = 3; maximum score = 15.)

Results based on dosage of in-school banking visits show more mixed treatment effects. Across all groups, in-school banking youth with below-average treatment exposure had the highest endline score (9.18), and the only group that reported an increase in parental monitoring scores from baseline to endline (0.13). All other groups (control, marketing, in-school banking with above-average exposure) reported negative change scores. However, all comparisons of mean scores were not statistically different between groups.

Figure 4.19. Mean Parental Monitoring Scores by Treatment Group and Measurement Occasion



## Attitudes and subjective norms about sex

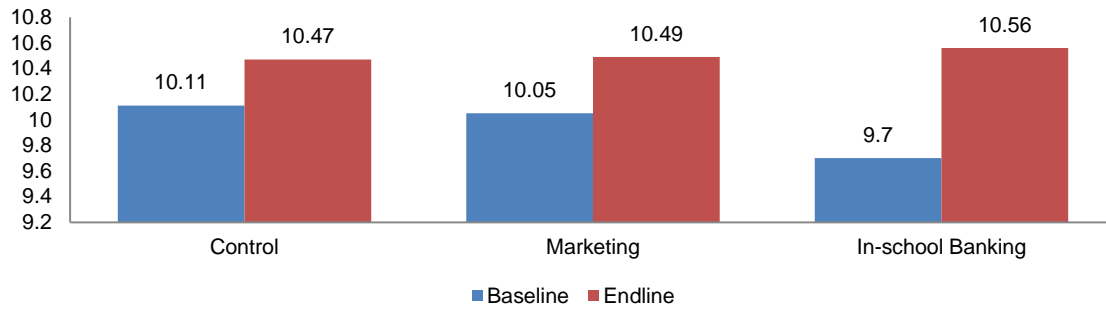
### *Attitudes toward sex*

Overall, youth reported a mean score of 9.99 at baseline, increasing to 10.50 at endline.<sup>16</sup> Although youth in treatment and control schools reported higher attitudes toward sex scores at endline, treatment youth experienced a greater increase in their scores contrasted with control youth. Treatment youth had a mean score of 9.88 at baseline and 10.52 at endline, or a change score of 0.64. On the other hand, control youth had a mean score of 10.11 at baseline and 10.47 at endline, or a change score of 0.36.

When youth were classified by type of treatment, results are consistent with the findings based on general treatment/control status. As Figure 4.20 shows, youth in the two treatment groups (in-school banking and marketing) reported higher mean scores at endline contrasted with control youth. In-school banking youth reported the highest mean score at endline (10.56), followed by marketing youth (10.49) and control youth (10.47). In addition, in-school banking youth reported the largest increase in “attitudes toward sex” scores (0.86), followed by marketing youth (0.44) and control youth (0.36). However, all findings were not statistically significant.

<sup>16</sup> Higher scores on the “attitudes toward sex” scale indicate greater agreement that it is acceptable for young people to have sex with people they love, they just met, or before marriage. (Minimum score for this scale = 6; maximum score = 30.)

Figure 4.20. Mean Attitudes toward Sex Scores by Treatment Group and Measurement Occasion

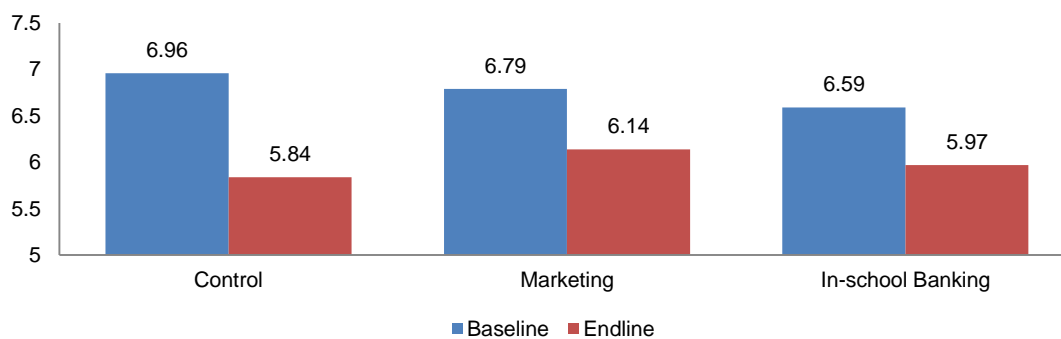


*Motivations to engage in sex*

Overall, youth reported a mean score of 6.82 at baseline, decreasing to 5.95 at endline.<sup>17</sup> Youth in both treatment and control schools experienced a decline in their “motivations to engage in sex” scores. Control youth experienced steeper decrease in their scores than treatment youth. Treatment youth had a mean score of 6.69 at baseline and 6.06 at endline, or a change score of -0.63. Conversely, control youth had a mean score of 6.96 at baseline and 5.84 at endline, or a change score of -1.12. The differences between endline and baseline scores by group approached statistical significance ( $p < .10$ ).

When youth were classified by type of treatment, results suggest a more nuanced effect of the treatment. As presented in Figure 4.21, control youth reported the highest mean score at baseline (6.96), followed by marketing youth (6.79) and in-school banking youth (6.59). All youth reported slightly lower endline scores contrasted with their baseline scores. Unlike the baseline scores, marketing youth had the highest mean scores at endline (6.14), followed by in-school banking youth (5.97) and control youth (5.84). In addition, youth in the control schools reported the steepest decline in “the motivation to engage in sex” scores (-1.12), followed by marketing (-0.65) and in-school banking (-0.62). The differences between endline and baseline scores by group approached statistical significance ( $p < .10$ ).

Figure 4.21. Mean “Motivation to Engage in Sex” Scores by Treatment Group and Measurement Occasion



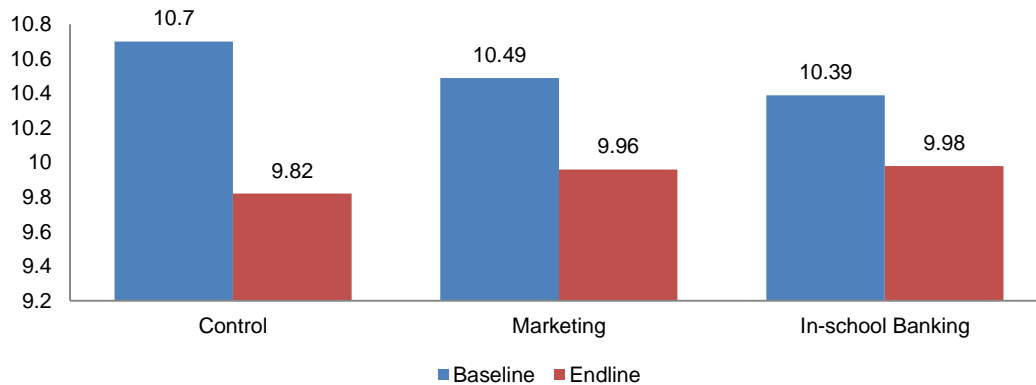
<sup>17</sup> Higher scores on the “motivations to engage in sex” scale indicate greater agreement that having sex will make a person feel good, loved and popular. (Minimum score for this scale = 3; maximum score = 15.)

*Sense of belonging with peers*

Overall, youth reported a mean sense of belonging score of 10.57 at baseline, slightly decreasing to 9.90 at endline.<sup>18</sup> Treatment youth had a mean score of 10.44 at baseline and 9.97 at endline, or a change score of -0.47. On the other hand, control youth had a mean score of 10.70 at baseline and 9.82 at endline, or a change score of -0.88. The negative differences in change scores suggest that the control group experienced steeper decrease in the sense of belonging scale contrasted with the treatment group.

Results based on type of treatment are consistent with the findings based on general treatment/control status. As presented in Figure 4.22, youth in the control schools reported the highest mean score at baseline (10.70), followed by youth in the marketing schools (10.49) and youth in the in-school banking schools (10.39). All youth reported lower endline scores contrasted with their baseline scores. Unlike the baseline scores, control youth had the lowest mean score at endline (9.82), whereas in-school banking youth had the highest mean score at endline (9.98), followed by marketing youth (9.96). Furthermore, control youth experienced the steepest decline (-0.88), followed by marketing youth (-0.53), and in-school banking youth (-0.41). However, all findings were not statistically significant.

Figure 4.22. Mean “Sense of Belonging” Scores by Treatment Group and Measurement Occasion



**Attitudes toward HIV/AIDS and condom use**

*Perceived benefits*

Overall, youth reported a mean perceived benefits score of 13.24, slightly decreasing to 13.11 at endline.<sup>19</sup> Control youth had a higher baseline mean score (13.29) contrasted with treatment youth (13.19). At endline, the pattern was consistent with control youth having a higher endline mean score (13.18) than treatment youth (13.03). Both groups reported lower endline scores contrasted

<sup>18</sup> Higher scores on the “sense of belonging with peers” scale indicate greater agreement that youth are happier if they are part of the crowd and not considered an outsider. In this study, “sense of belonging with peers” pertains to agreeing with risky sexual attitudes or engaging in risky sexual behaviors to be part of a group. Thus, lower scores are desirable. (Minimum score for this scale = 3; maximum score = 15.)

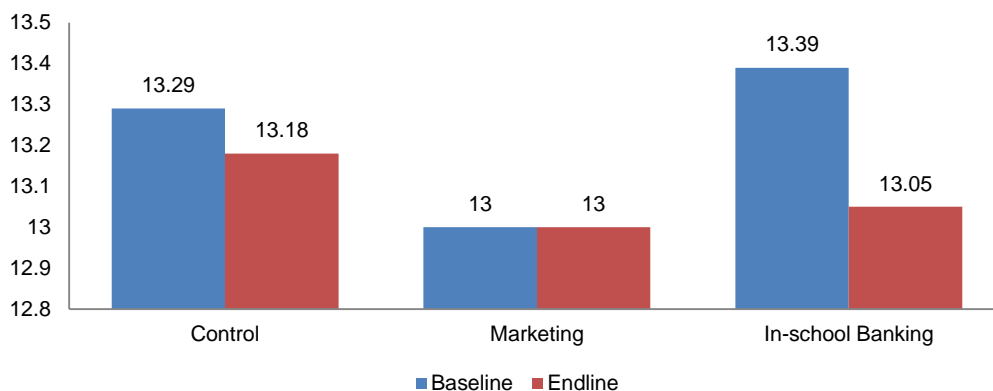
<sup>19</sup> Higher scores on the perceived benefits of condom use indicate greater agreement that condom use protects against unplanned pregnancies and sexually transmitted infections including HIV/AIDS. (Minimum score for this scale = 3; maximum score = 15.)



with their baseline scores. However, treatment youth reported a slightly greater decrease in scores from baseline to endline (-0.16) contrasted with control youth (-0.11).

Findings based on type of treatment show a more nuanced effect of the treatment. As presented in Figure 4.23, in-school banking youth reported higher baseline and endline mean scores contrasted with marketing youth. However, both treatment groups reported lower endline mean scores than the control group. In addition, the overall mean score for the marketing youth did not change from baseline (13.00) to endline (13.00) contrasted with the decrease in scores for in-school banking (-0.34) and control (-0.11) youth. All findings were not statistically significant.

Figure 4.23. Mean Perceived Benefits Scores by Treatment Group and Measurement Occasion



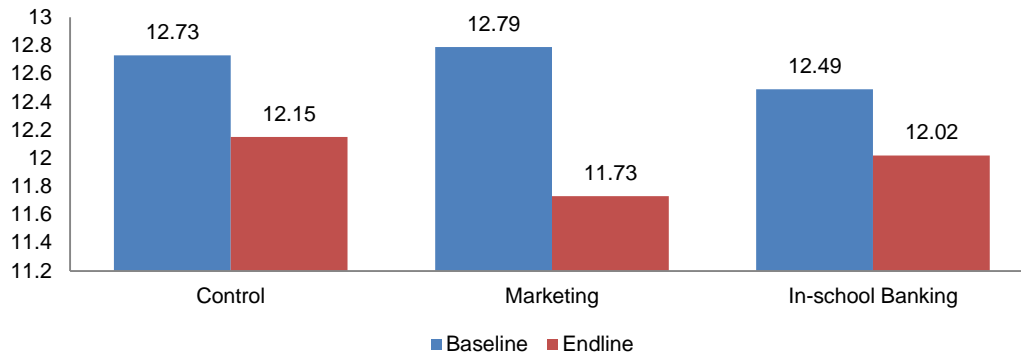
#### *Perceived barriers*

Overall, youth reported a mean perceived barriers score of 12.73, slightly decreasing to 12.15 at endline.<sup>20</sup> Treatment youth had lower baseline and endline mean scores than control youth. Treatment youth had a mean score of 12.66 at baseline and 11.86 at endline, or a change score of -0.80. Control youth had a mean score of 12.73 at baseline and 12.15 at endline, or a change score of -0.58. In addition, treatment youth reported greater decrease in scores from baseline to endline contrasted with control youth.

Findings based on type of treatment show a more nuanced effect of the treatment. As presented in Figure 4.24, marketing youth reported the highest baseline mean score of 12.79, followed by control youth (12.73) and in-school banking youth (12.49). At endline, marketing youth reported the lowest mean score (11.73), followed by in-school banking youth (12.02) and control youth (12.15). All groups reported lower endline scores contrasted with baseline scores. However, marketing youth reported the steepest decrease in scores (-1.06), followed by control youth (-0.58) and in-school banking youth (-0.47). All findings were not statistically significant.

<sup>20</sup> Higher scores on the perceived barriers to condom use indicate greater agreement that there are many barriers to condom use such as condom's unreliability, price, and adverse effects on health and sexual pleasure. In this scale, lower scores are preferred as they suggest that youth perceive fewer barriers to condom use. (Minimum score for this scale = 4; maximum score = 20.)

Figure 4.24. Mean Perceived Barriers Scores by Treatment Group and Measurement Occasion

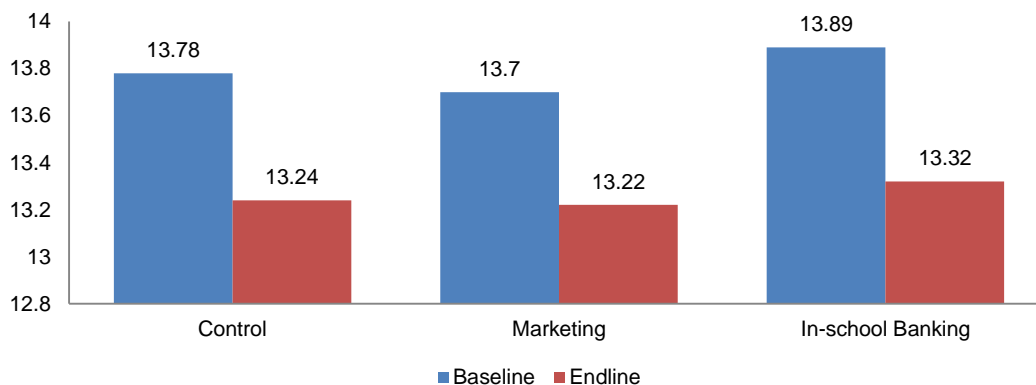


*Perceived severity*

Overall, youth reported a mean perceived severity score of 13.79, slightly decreasing to 13.25 at endline.<sup>21</sup> Youth in the treatment group had a mean score of 13.79 at baseline and 13.27 at endline, or a change score of -0.52. In contrast, youth in the control group had a mean score of 13.78 at baseline and 13.24 at endline, or a change score of -0.54. In both measurement occasions, treatment youth had slightly higher perceived severity scores than control youth.

Results based on type of treatment show a more nuanced effect of the treatment. As presented in Figure 4.25, in-school banking youth reported the highest baseline mean score of 13.89, followed by control youth (13.78) and marketing youth (13.70). Consistent with baseline scores, in-school banking youth had the highest endline mean score (13.32), followed by control (13.24) and marketing (13.22) youth. Across all three groups, youth reported lower endline scores contrasted with their baseline scores. Although in-school banking youth had the highest baseline and endline scores, these youth also had the steepest decrease in scores between baseline and endline at -0.57. Control youth had a change score of -0.54, whereas marketing youth had a change score -0.48. However, all findings were not statistically significant.

Figure 4.25. Mean Perceived Severity Scores by Treatment Group and Measurement Occasion



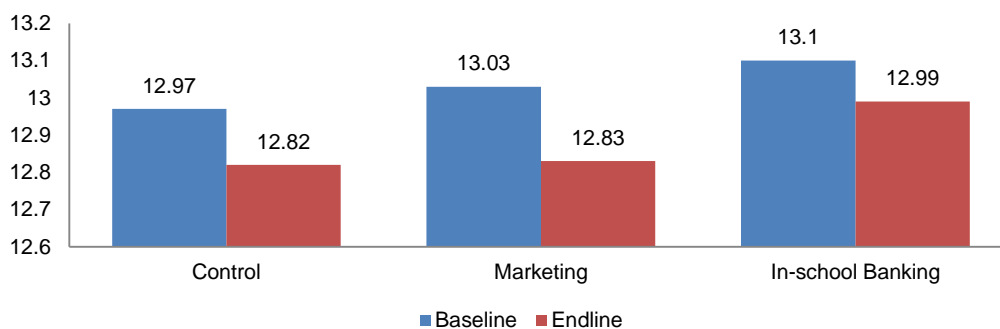
<sup>21</sup> Higher scores on the perceived severity of HIV/AIDS subscale indicate greater agreement that HIV/AIDS is a deadly, incurable disease. Thus, higher scores are desirable. (Minimum score for this scale = 3; maximum score = 15.)

*Perceived susceptibility*

Overall, youth reported a mean perceived susceptibility score of 13.02, slightly decreasing to 12.86 at endline.<sup>22</sup> Youth in the treatment group had a mean score of 13.06 at baseline and 12.91 at endline. On the other hand, youth in the control group had a mean score of 12.97 at baseline and 12.82 at endline. Both groups had an equivalent change score of -0.15. In both measurement occasions, however, treatment youth had slightly higher perceived susceptibility scores than control youth.

Results based on type of treatment show a more nuanced effect of the treatment. As presented in Figure 4.26, in-school banking youth reported the highest baseline mean score of 13.10, followed by marketing youth (13.03) and control youth (12.97). Consistent with baseline scores, in-school banking youth had the highest endline mean score (12.99), followed by marketing (12.83) and control (12.82) youth. Across all three groups, youth reported lower endline scores contrasted with their baseline scores. Although in-school banking youth had the highest baseline and endline scores, these youth had the lowest decrease in scores between baseline and endline at -0.11. Control youth had a change score of -0.15, whereas marketing youth had a change score -0.20. However, all findings were not statistically significant.

Figure 4.26. Mean Perceived Susceptibility Scores by Treatment Group and Measurement Occasion



**Sexual risk-taking<sup>23</sup>**

*Condom use at last sexual intercourse*

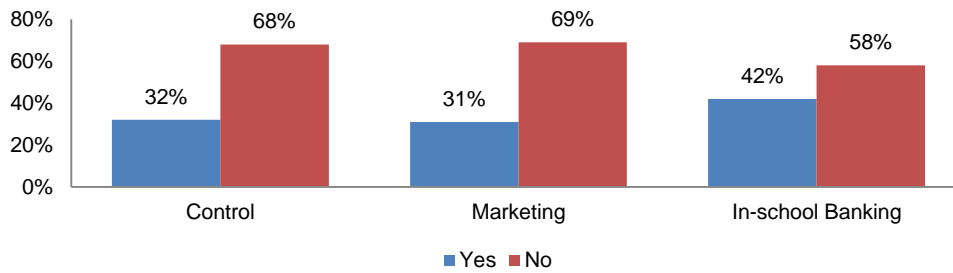
At endline, 634 (66%) youth reported that they or their partner did not use condoms during their last sexual intercourse. Only 323 (34%) youth reported that they or their partner used condoms. A higher percentage of treatment youth (36%) reported condom use contrasted with control youth (32%). However, the difference was not statistically significant ( $p > .05$ ).

When youth were categorized based on type of treatment, in-school banking youth reported the highest percentage of condom use at last sexual intercourse (42%). Marketing (31%) and control (32%) youth had virtually similar percentages of condom use. The relationship between type of treatment and condom use was statistically significant ( $p < .05$ ). Figure 4.27 illustrates condom use by treatment group.

<sup>22</sup> Higher scores on the perceived susceptibility to HIV/AIDS subscale indicate greater agreement that youth can acquire HIV/AIDS. (Minimum score for this scale = 3; maximum score = 15.)

<sup>23</sup> Sexual risk-taking outcomes were collected at endline only.

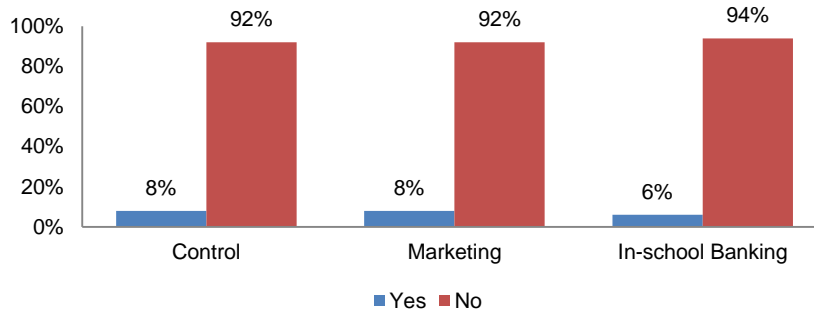
Figure 4.27. Condom Use at Last Sexual Intercourse by Treatment Group



*Paid sex*

Among youth who reported having had sex ( $N = 957$ ), 8% reported engaging in paid sex. A slightly higher percentage of youth in the control group (8%) reported engaging in paid sex contrasted with treatment youth (7%). Furthermore, 8% of youth in the marketing group reported engaging in paid sex, and a slightly lower percentage (6%) of youth in the in-school banking group reported having been paid for sex (Figure 4.28). Results were not statistically significant.

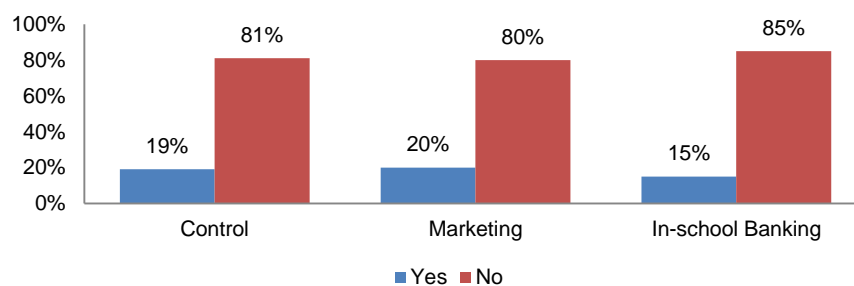
Figure 4.28. Engagement in Paid Sex by Treatment Group



*Unwilling sex*

Among youth who reported having had sex ( $N = 957$ ), 19% reported having had sex against their will. A slightly higher percentage of youth in the control group (19%) reported having had unwilling sex contrasted with treatment youth (18%). Furthermore, 20% of marketing youth reported having had unwilling sex, and a lower percentage (15%) of in-school banking youth reported having had unwilling sex (Figure 4.29). Results were not statistically significant.

Figure 4.29. Engagement in Unwilling Sex by Treatment Group



## Key Findings

Overall, YouthSave had mixed positive psychosocial, education, and health impacts on youth development outcomes in Ghana. When the two treatment groups (i.e., in-school banking and marketing groups) are combined, the magnitude of change in some psychological outcomes from baseline to endline slightly favored the control group. Nevertheless, the treatment group scored highest at endline. For instance, the control youth reported a slightly higher increase in educational aspirations from baseline to endline, but the two treatment groups combined had the highest endline score. YouthSave also positively affected Ghanaian youth's orientation toward the future. Youth's future orientation was higher for the treatment than the control group's future orientation. Concerns about school work were lower among treatment than control youth. Also, despite the pattern of lower endline scores across all groups, the effects on health outcomes were mixed. General treatment youth performed better at endline on five health outcomes (e.g., perceived barriers to condom use, perceived severity of HIV/AIDS, condom use, paid sex, unwilling sex), and control youth reported higher endline scores on five health outcomes (e.g., parental monitoring, attitudes toward sex, motivations to engage in sex, sense of belonging with peers, perceived benefits of condom use). Treatment and control youth reported equal endline scores on two outcomes (e.g., parental connection, perceived susceptibility to HIV/AIDS). Furthermore, treatment youth reported positive change scores on four outcomes (e.g., parental connection, perceived barriers to condom use, perceived severity of HIV/AIDS, perceived susceptibility to HIV/AIDS). Conversely, control youth experienced positive change scores on five health outcomes (e.g., parental monitoring, attitudes toward sex, motivations to engage in sex, sense of belonging with peers, perceived benefits of condom use). However, few outcomes were significantly different (or approached statistical trend) between treatment and control groups (e.g., parental home involvement, motivations to engage in sex, condom use).

In addition, we observed differences in development outcomes based on treatment group. Overall, in-school banking youth performed better than marketing and control youth. Contrasted with marketing and control youth, in-school banking youth had higher endline scores on future orientation, educational aspirations, math and English examinations, parental connection, and attitudes toward condom use. Change scores on future orientation (i.e., uncertainty of the future), concerns about school work, parental connection, and perceived susceptibility to HIV/AIDS were higher among in-school banking youth than marketing and control youth. In-school banking youth were also less likely to engage in risky sexual behaviors contrasted with marketing and control youth. Instead, marketing youth performed better on planned effort, parental involvement, and perceived barriers to condom use contrasted with in-school banking and control youth. Control youth outperformed both treatment groups on academic performance (particularly continuous assessment scores) and attitudes and subjective norms about sex. However, few outcomes were significantly different across groups.

This chapter describes the effects of YouthSave on key youth development outcomes, including psychosocial, education, and health impacts. The next chapter discusses the experimental findings and implications for inclusive youth development policies.

## Chapter 5: Discussion: Key Findings, Voices of Youth, and Interpreting Impacts

This chapter discusses key impact findings from the Ghana experiment and interweaves them with the context in Ghana and the voices of youth from the forthcoming Ghana YouthSave experiment qualitative study. Findings on financial capability impacts indicate that the treatment had statistically significant impacts on account uptake, money management, financial knowledge and awareness. Impacts on psychosocial outcomes indicate impacts on future orientation, with mixed results on educational and health outcome impacts.

### Financial Capability

#### Financial capability facilitators

Addressing youth financial exclusion, particularly limited saving opportunities, was the primary motivation for the Ghana experiment research. The savings demand assessment (SDA) impact findings in this report indicate that there was a statistically significant difference ( $p < .001$ ) in account uptake in the experiment between the treatment schools and the control schools. These findings demonstrate that the experiment accomplished its main goal. HFC Bank's intervention activities, which focused primarily on encouraging youth to open and use *Enidaso* accounts using the in-school banking mechanism compared to marketing outreach mechanism, had the intended effect of increasing the use of financial services.

#### *Bank influence on youth saving*

The difference between the treatment and control groups' exposure to *Enidaso* was statistically significant ( $p < .001$ ). The dosage analysis studied the number of school visits banks made, which measured the level of bank–student interaction. The dosage analysis's results showed a statistically significant difference ( $p < .001$ ) between above-average bank visits and below-average bank visits on those who only heard about the account, those who opened the account, and those who deposited in the account. This confirms Sherraden's (2013) proposition that access, information, and facilitation are drivers for higher financial capability.

In the experiment qualitative study, the influence of these bank visits was evident when treatment youth reported how banks affected their savings behavior. For example, a youth from Ghana's Ashanti region said,

I save at HFC Bank. I heard about it in school at Atasomanso Municipal Authority junior high school. They came to create *Enidaso* accounts for children and that would help their future. That is why I created one. They told us that if we do the savings and we want to progress in our education, they can help us with loans or give us interest on our money. I was able to save up to GHS 110.00.

#### *Postponing consumption and gratification*

Though the overall results of the money management scale were not significant, youth preferred to have larger amounts of money later than smaller amounts of money immediately. From the analysis, the increase from baseline to endline on this indicator was high overall, but higher among the in-school banking treatment group. This could be attributed to the bank staff's explaining savings and

the benefits of postponing consumption to students at schools. The following report from an in-depth interview with in-school banking youth in Ghana's Greater Accra region demonstrates this finding:

I had no idea about the benefits of savings. At first I used to squander all the money I got without saving, hoping that tomorrow I will get another one, but because of the education I have received on this *Enidaso* account I now know there is life tomorrow that I need to save for.

## Financial capability barriers

### *Trust barriers to youth saving*

Although the number of account holders in the experiment is lower than in the overall SDA analysis (Johnson et al., 2015), the impact of the treatment on account uptake still applies. Some of the indicators from the survey (e.g., the indicator that measures savings methods) show that hiding places are the preferred method of saving for youth, followed by saving in *susu* boxes, with a savings club, and by giving money to a safekeeper. The number of youth who saved with a bank increased from baseline to endline, but it was not the most favored method of saving. This might provide some insight into why some youth did not open or use bank accounts. The voices of youth could also help to provide context and interpret such findings. Many youth in the experiment indicated that they prefer the informal savings arrangement, especially saving in their money boxes at home.

For some youth, the issue of trust was the biggest barrier to save outside the home, especially when saving with financial institutions (FIs). For example, one youth from Ghana's Ashanti region reported, "many times when you save at the banks—especially the smaller private banks—you hear stories such as this bank has run away with people's money and so on. This discourages us from saving with the banks."

## Savings impacts

The SDA analysis found statistically significant differences ( $p < .001$ ) in uptake and savings in HFC between control and treatment groups. For average savings and cumulative savings, treatment youth also had significantly more money than control youth. However, this should be framed by the fact that the SDA did not follow the other bank transactions of youth in both treatments and control schools. With their parents or guardians, students could have been saving with other banks or formal FIs of their choice after learning about the benefits of savings. Therefore, the counterfactual in this experiment might have had access to other FIs and informal savings. The question becomes what is the appropriate counterfactual for a youth financial inclusion program: youth with no access to that same bank, or youth with no access to any banks? In this experiment, the control youth might have had access to similar financial inclusion programs, and the marketing youth might have been reached by other institutions marketing similar products. It could also mean that impact estimates might be biased downward by the tendency of the control group to access savings products or financial literacy training on their own. For example, more than a third (35%) of control group youth said they had heard of *Enidaso* and experienced a 12% increase from baseline to endline in having received financial education. The influence of other banks and FIs on the control group also came in the qualitative component of the experiment when some students from control schools

indicated their encounter with knowledge on savings. For example, one youth from Ghana's Eastern region reported,

When I was told about . . . [*Enidaso*], and the fact that if you save there you get interest, I was shocked. If you save money you get more interest, it's a good thing. I like the idea, but I don't know where they are, I also did not ask my friend.

Results show that boys saved more money than girls, which was statistically significant ( $p < .001$ ). This finding has been consistent in the study and is different from findings from other studies in Sub-Saharan Africa in which results mostly show that girls save more than boys. This might be due to the manner in which boys are socialized in Ghana, wherein savings and entrepreneurship is taught throughout boys' formative years.

A greater proportion of parents and guardians said their child had their own savings account at endline compared to baseline, which was a statistically significant difference ( $p < .001$ ). The change from baseline to endline in parents and guardians who said their child had a savings account was statistically significant and greater among treatment group compared to control group parents.

### Psychosocial Outcomes

Based on existing theoretical frameworks such as theory of asset effects and theory of reasoned action/planned behavior, we hypothesized a positive impact of YouthSave on future orientation, or the ability of youth to plan for the future. The findings support our hypothesis. Although not statistically significant ( $p > .05$ ) overall, treatment youth were more likely to be oriented toward success and less likely to be uncertain of the future than control youth. These findings suggest that YouthSave, in particular financial inclusion, provides youth with opportunities—both tangible and intangible—that shape their worldview, expand their perspectives, and allow them to engage in future thinking. Although prior studies have found that asset accumulation positively affects future orientation (Ansong et al., 2013; Scanlon & Adams, 2009), these findings represent early evidence of the impact of savings on future orientation of youth in resource-limited countries.

A closer look at the impacts of YouthSave on future orientation yields a more complex story. In particular, the effects of YouthSave seem to differ based on the type of treatment arm. Consistent with theoretical and empirical evidence, in-school banking youth had a higher endline orientation toward success scores than marketing youth. In addition, in-school banking youth reported the biggest gain (i.e., the largest positive change score on orientation toward success) from baseline to endline among all groups. However, in-school banking youth experienced the largest increase on the uncertainty-of-the-future scale from baseline to endline among all groups. Mean uncertainty of the future score for in-school banking increased from baseline to endline (+0.81), whereas marketing youth's mean uncertainty-of-the-future score decreased from baseline to endline (-0.53). Lower scores on the uncertainty-of-the-future scale indicate higher levels of future orientation. One explanation for the unexpected finding is that in-school banking youth, who were more likely to have *Enidaso* accounts than marketing youth, worried more about where they might get the money to save in their accounts. Worrying about money to save, in turn, might have increased their uncertainty levels. Also, HFC staff reminded and encouraged in-school banking youth to think about their future more frequently, which could have led to the uncertainty of their future to occupy their minds.



These findings also contribute to a growing body of evidence (Chowa & Masa, 2015) that demonstrates how household economic resources (e.g., assets) are potential channels to increase future orientation of youth. Given that most studies on the determinants of future orientation have focused mostly on psychological or personality traits, our findings support the prospect of enhancing positive future orientation through programs that promote household economic security. The emphasis on future orientation is warranted because future orientation influences a range of desirable behaviors, including positive financial behaviors such as saving and retirement planning (Jacobs-Lawson & Hershey, 2005).

### **Educational Outcomes**

Findings from the Ghana experiment showed nuanced positive trends for educational outcomes. It measured the student traits of academic self-efficacy, aspirations and expectations for higher education, and commitment to school, most of which showed positive but not statistically significant trends. Though not statistically significant, the treatment group showed higher positive trends among these traits than the control group. The qualitative data of the experiment established a similar pattern in which the treatment students largely demonstrated a higher sense of security of educational aspirations compared to the control students. In effect, financial security greatly determines how far the youth believe they can go in life in terms of education. For example, one student in the treatment group indicated, “with savings and financial security even if you are not intellectually excellent, with money available, one can climb to the highest peak in education.” This was a common sentiment among the treatment group. In contrast, a student from the control group in the Greater Accra region reported,

I want to get to the university level but going far in school will depend on the availability of funds and also on my family. I do not work but may be by the time it gets to the university somebody may be of help to me. I don't have that brighter chance as compared to my friends.

Another control youth participant from an economically challenged family in the Ashanti Region noted,

I really will love to go to the university but I don't know if that is possible. I don't know because of financial constraint. I am aware my family is poor so I don't raise my hopes too high. Even my recent registration fee [for junior high school] was a problem for my parent to pay and so one of the teachers ended up paying for me.

Dosage analysis revealed stronger effects on the treatment group on expectations for high education. From baseline to endline across all groups, the marketing youth experienced a greater increase in expectations for higher education (+16.03%), followed by the in-school banking youth with above-average treatment exposure (+15.33%) and the control youth (+12.86%). These findings show that the lack of effects for the overall treatment group may be from insufficient and inconsistent exposure to intervention activities. In addition, enough time for the treatment to take effect may have not been allotted. It is possible that more time was necessary to allow for the maturation of effects to influence behaviors.

Similarly, results for commitment to school showed that the treatment youth did better than control youth, but the differences were not statistically significant ( $p > .05$ ). The most interesting finding in

the dosage analysis revealed that youth with above-average exposure reported an increase of 17 minutes in their study time from baseline to endline, whereas those with below-average treatment dosage decreased their study time by the same margin. This is very significant and illustrates again that adequate and consistent exposure is key in these experiments. Further segmenting of the sample might yield even more robust results of the impacts of savings on student traits as further analysis also revealed that among the in-school banking youth, those who received above-average exposure reported the steepest decline in their level of concern (-0.23).

Academic performance impacts were not significant ( $p > .05$ ). The results favored the control group rather than the treatment group. A plausible explanation for these results is that the intervention did not directly affect the aptitude of the youth. For example, the treatment does not offer tutoring in math and English; therefore, it does not change the academic abilities of the youth.

Parents of treatment youth performed better on home involvement. Results based on dosage of in-school banking visits indicated that parents of youth in in-school banking with above-average treatment exposure had the highest involvement.

### Health Outcomes

The process of changing health behaviors is complex, no matter how simple the behavior. Numerous factors influence youth's decision to engage in a positive behavior and avoid risky activities. One of these factors is youth's attitudes or beliefs. Theoretical and empirical evidence (e.g., health belief model, theory of reasoned action/planned behavior, information-motivation-behavioral skills model) suggests that attitudes are the driving forces behind youth's intentions to perform behaviors as well as their actual performance. Attitudes, in turn, are shaped by factors at the individual, family, and community levels. Given the importance of attitudes in predicting behaviors, we focused on examining the effects of YouthSave on key attitudes related to sex and HIV prevention. The findings in this report represent one of the first large-scale sets of evidence on the potential impacts of an economic strengthening program on health-related attitudes of youth in resource-limited settings.

Results indicate the mixed and modest effects of YouthSave on health-related attitudes. Overall, treatment youth did not perform better on attitudes and subjective norms about sex contrasted with control youth. Treatment youth reported higher scores on all three outcomes (i.e., attitudes toward sex, motivations to engage in sex, sense of belonging with peers) related to subjective norms about sex. For instance, treatment youth were more likely to believe that it is acceptable for youth to engage in sex than control youth. In addition, the change scores on the same three outcomes did not favor treatment youth. For instance, treatment youth experienced lower change scores in the "motivation to engage in sex" and "sense of belong with peers" than control youth. These findings indicate that treatment youth were more likely to believe that engaging sex would make them feel good, loved, and popular and that youth are happier if they are part of the crowd and not considered an outsider. Although the effects on attitudes toward sex are not statistically significant ( $p > .05$ ), these results are not consistent with our initial hypotheses that participation in YouthSave would positively influence young people's attitudes toward sex. Nonetheless, these findings highlight at least two important issues. First, economic strengthening programs for youth (such as YouthSave) might have long-term unintended consequences on young people's beliefs about sex and peer influence. These unintended consequences underscore the importance of including program components that might mitigate formation of less desirable attitudes toward sex. Second, our impact

findings represent the longer term effects of YouthSave on attitudes toward sex (i.e., three years after initial exposure to treatment). If we were able to measure health attitudes immediately after exposure to treatment (e.g., follow-up after 10–12 months instead of 24–36 months), results might have been different. Though the treatment did not deal directly with health attitudes and behaviors, prior savings-focused studies that measured health attitudes immediately after treatment exposure found positive significant effects (e.g., Ssewamala & Ismayilova, 2009).

YouthSave has modest but positive effects on attitudes toward condom use and HIV prevention. In general, treatment youth performed better on all dimensions of attitudes toward condom use and HIV prevention (except perceived benefits to condom use) contrasted with control youth. Treatment youth reported higher (and positive) scores on perceived susceptibility to HIV/AIDS and perceived severity of HIV/AIDS, and lower (and positive) scores on perceived barriers to condom use contrasted with control youth. The differences in change scores also favored treatment youth. Furthermore, treatment effects on attitudes toward condom use and HIV prevention differ by the type of treatment. Marketing youth performed better on perceived benefits of condom use and perceived barriers to condom use contrasted with in-school banking youth. In contrast, in-school banking youth performed better on perceived susceptibility to HIV/AIDS than marketing youth. With perceived severity of HIV/AIDS, in-school banking youth had higher endline scores, but marketing youth reported a lower decline in change scores. These findings are consistent with previous studies (Ssewamala et al., 2008, 2009; Ssewamala & Ismayilova, 2009) that have found positive effects of participation in savings programs on attitudes toward HIV prevention. Although not statistically significant, these findings highlight the potential role of financial inclusion or savings programs in maintaining or extending youth's positive attitudes toward condom use and HIV prevention. Savings programs like YouthSave might enable youth to maintain or sustain their positive attitudes toward HIV prevention, which is a topic taught in Ghanaian schools. Consistent with theoretical models on health behavior change, tangible economic strategies—such as savings—might facilitate formation or maintenance of desirable attitudes toward HIV prevention. In other words, knowledge or information alone might not be sufficient to promote or maintain stable positive attitudes, particularly when youth become sexually active.

In addition to attitudes, we examined effects of YouthSave on sexual risk-taking behaviors among sexually active youth. We found that treatment youth were less likely to engage in risky sexual activities. For instance, treatment youth were more likely to use condoms at last sexual intercourse and less likely to engage in paid sex and unwilling sex. Our findings are consistent with prior research (Baird et al., 2012) that has shown positive effects of youth-focused economic programs on sexual behaviors. However, unlike the prior studies that focus on the role of cash transfers, YouthSave provides early evidence on the role of savings to incentivize safer sexual practices and reduce risky sexual behaviors among youth. Access to financial resources such as savings might provide incentives that encourage and enable young people to change or maintain positive health behaviors (e.g., condom use). These findings also contradict concerns that treatment youth might engage in risky activities to earn money that the youth will put in their savings accounts. As shown in the results, treatment youth were less likely to engage in paid and unwilling sex. Furthermore, in-school banking youth were less likely to engage in paid and unwilling sex.

Based on Sherraden's (1991) theory of asset effects, we hypothesized positive effects of YouthSave on parent–youth relationships because savings provide financial resources that buffer economic shocks and decrease family stress. Similarly, parent–youth interactions are more likely to increase

because the *Enidaso* account requires parental authorization. However, the effects of YouthSave on parent–youth relationships were mixed. We found treatment youth were more likely to report higher parental connection (or closer emotional/psychological relationship between parents and youth) than control youth. The positive effect on parental connection, albeit not significant, is consistent with Sherraden’s proposition. However, treatment youth were less likely to report higher parental monitoring (i.e., more frequent monitoring of youth’s activities by their parents) than control youth. The lower parental monitoring scores of treatment youth might not necessarily be an adverse outcome. Less frequent monitoring of youth’s activities by their parents might indicate higher level of trust and confidence on youth from their parents. Higher level of trust and confidence might result from the closer relationship between youth and their parents.

Overall, YouthSave participation had modest effects on health of Ghanaian youth. Some treatment effects were consistent with our hypothesis (i.e., YouthSave has positive impacts on health). For example, treatment youth performed better on parental connection, perceived barriers to condom use, perceived susceptibility to HIV, and perceived severity of HIV contrasted with control youth. On the other hand, some treatment effects contradicted our hypothesis. For instance, treatment youth performed worse on attitudes toward sex, motivations to engage in sex, and sense of belonging with peers contrasted with control youth. In addition, the impacts of YouthSave on health appeared to differ based on type of health outcomes. YouthSave has mixed effects on health attitudes; however, treatment effects on health behaviors (e.g., actual condom use, engagement in paid or unwilling sex) were consistently positive. Future research will investigate whether these patterns of treatment effects hold across different segments of the YouthSave population. Also, further theorizing is needed to better understand why savings accounts may have consistent positive effects on health behaviors compared with health attitudes.

This chapter discusses the key findings of the impact analysis of Ghana experiment. These findings were augmented with youth voices to provide direct experiences of youth participants in the experiment. The next chapter concludes the report by discussing successes, challenges, and implications in the experiment and suggesting next steps.

## Chapter 6: Conclusions: Successes, Challenges, Implications, and Next Steps

### **A Large, Nationwide Project**

The Ghana YouthSave experiment is the largest experiment on youth savings in resource-limited countries. It is a cluster randomized controlled trial—the gold standard of scientific inquiry. This is important to note because many prior studies have not used experimental designs; therefore, their evidence of causality is weak. The evidence produced in this study has the potential to inform policy and provide strategies that could begin to address youth well-being. The sample size in this experiment is notable: 6,267 youth and 5,035 parents and guardians. In addition to the number, the diversity in terms of location (i.e., urban/rural), the social and economic context in the eight different regions of Ghana, and the different ethnic groups represented in the experiment is crucial. All these add to this sample's being representative of the youth in Ghana.

### **Rigorous Research Design**

The Ghana experiment's research design is cluster randomization because we paid particular attention to the clustering of students in schools. Cluster randomized studies are expensive, and consequently, researchers tend to forgo employing accurate methods to address the clustering of cases at the expense of staying true to the methodology required. In this experiment, we were able to stay true to how the treatment was offered, which required schools to compose the first level of the randomization process. The research design in this experiment provides a blue print for researchers who would like to replicate such a study in resource-limited countries. This is important because often “design trumps analysis” for objective causal inference (Rubin, 2008). When researchers use an experimental design, results are objective and have the best chance of uncovering scientific truths because the design addresses confounding issues (e.g., unbalanced sample characteristics, spurious relationships) that compromise any claim of causality. Implementing such rigorous and accurate designs increases the validity and reliability of findings.

### **Mixed-Methods Evaluation**

The Ghana experiment also used mixed methods that allowed for that triangulation of data collection methods to accurately measure the findings of impacts. In addition to the quantitative surveys that we describe in this report, we employed qualitative methods to provide a holistic picture of the financial inclusion experiences of youth in both the treatment and control groups. These interviews probe for facilitators and barriers of financial inclusion from the youth perspective and also the experience youth have with banks, the financial socialization of youth within their families, and what changes they would like implemented for better access to financial institutions or mechanism.

### **Strong Partnership**

The research team for the Ghana experiment included researchers from Ghana and the United States. The strong partnership with the Institute of Statistical, Social and Economic Research (ISSER) hugely contributed to the success of this experiment. The collaboration and equal contribution of both teams produced a strong research design, robust multimethod data collection instruments, an efficient data collection strategy, and a rigorous analysis plan for the experiment.

Such partnerships are rare, particularly between scholars in the global north and south. In this experiment, instead of the partnership being a challenge, it was a great advantage, the cornerstone for the smooth operations in the experiment.

In addition, HFC Bank as the partner financial institution complemented this partnership from the treatment delivery side. HFC Bank was flexible to incorporate the requirements of the research in their operations, which is highly commendable considering that these requirements at times were contrary to the bank's day-to-day operations. HFC Bank efficiently navigated these challenges with the research team and emerged with a robust treatment delivery mechanism.

### Survey Questionnaire

The survey questionnaire in the experiment was a result of a year-long process of research and consultation to address gaps in knowledge in financial inclusion. This research process produced a questionnaire with unique constructs. Researcher could use this process in other resource-limited countries because the indicators and scales were context-specific to cater to the challenges youth face in such settings. For example, the Ghana experiment is one of the first studies in resource-limited settings to evaluate the impact of youth savings on money management behaviors, student schooling traits (e.g., academic self-efficacy, commitment to school), parent–youth relationships (e.g., parental connection), and sexual risk taking (e.g., condom use, engagement in paid and unwilling sex). In addition, the development of the YouthSave survey represents considerable progress in financial inclusion because, to date, most of the survey questionnaires are based on western concepts and environments that are not relevant to resource-limited countries. Furthermore, validation of these instruments before their use in cross-cultural and different geographic setting is rare and often overlooked. The research team paid close attention to construct validation and the validity of measures in the Ghanaian context to make sure survey scales and indicators are relevant and appropriate. This extra “measurement” step can improve the rigor and quality of research findings. The questionnaire will be available to other researchers in resource-limited countries to further tailor the items in the questionnaires to fit their specific needs.

### Limitations/Challenges

#### Intervention fidelity

Intervention delivery is central to achieving accurate measures of the treatment's impact. Fidelity hinges on whether the intervention was delivered in its intended manner. When the delivery of treatment is not uniform in some aspects, disparities in impacts can occur because participants receive treatment differently or are exposed to treatment variably. In some cases, treatment effects cannot be detected perhaps because of inadequacy of treatment dosage.

In the Ghana experiment, exposure to treatment was not uniform. Because of the challenges of the regulatory environment in Ghana, HFC Bank had to negotiate with the Central Bank to acquire the mandate to operate *Enidaso* as a custodial account. The challenge to operate *Enidaso* was a consequence of the law of minority, which is youth aged 18 years and younger in Ghana; therefore, any child aged younger than 18 years cannot enter into a contract of any nature. Because *Enidaso* was targeted to youth aged between 12 and 18 years, these youth could not open an account independently. Because of age restrictions on savings account holding in Ghana, HFC Bank had to first acquire permission to operate *Enidaso* as a custodial account, which meant that youth could

open an *Enidaso* account with a custodial adult. This process took over a year to complete; therefore, the treatment rollout did not take place according to the planned timeline. Consequently, treatment exposure was unbalanced across treatment cohorts and schools as the HFC rolled out *Enidaso* in stages. As a result of the year-long delay in acquiring permission from the Central Bank, the first cohort in the baseline survey graduated from junior high school (JHS) without having been exposed to the treatment at all. Fortunately, this “untreated” cohort was replaced with a new cohort recruited two years into the experiment. The new cohort was recruited from class 6 of feeder primary schools. “Feeder schools”<sup>24</sup> are primary schools whose students transition from to JHS. Therefore, it is easy to know which final grade classes will populate the JHS schools the following year. In the experiment, we recruited these sixth graders at primary school and collected baseline data just before they transitioned to JHS to avoid exposure to the treatment at the JHS where the treatment was already in progress.

Another challenge that HFC Bank faced was getting permission from school administrators to operate in schools. Although HFC acquired permission to operate in schools from the Ministry of Education, the decision to participate in the research study was left to the individual administrators. Obtaining permission from school administrators was another prolonged process that contributed to delayed engagement in some schools. HFC Bank did not operate in two treatment schools at all because the school administrators did not grant permission. The delay in obtaining permission introduced another variation in the bank's engagement with schools as some schools opened their doors earlier and others did not. As a result, the bank engaged longer and more often with these schools compared to schools that granted permission later in the process.

One factor that contributed to disparities in engagement was the location of some treatment schools. Because the experiment design involved random selection of the schools in HFC's catchment area, some selected schools were very far from the bank. This posed challenges to the bank as more resources, both time and staff, had to be spent to reach these schools. These schools generally received lower treatment as a result of distance. Coupled with all the limitations of distance to schools and permission to operate in schools, there were challenges from the bank's operation side. Management designated a number of staff to operate on the *Enidaso* account and visit schools. However, most of these staff were not exclusively designated to *Enidaso*, which meant that they had competing responsibilities and tasks. Therefore, HFC staff completed *Enidaso* operations as they found the time.

Given the differences in distance to and permission from schools, the standardization of treatment across schools was compromised. It became partly dependent on staff's dedication to *Enidaso*, eloquence, banking knowledge, and ability to engage youth. This consequently introduced variation in content and delivery style. These factors could have influenced the frequency of staff visits to the schools as bank staff visited some schools more times than others.

## Research procedures

We administered the survey questionnaire to 6,267 youth and their parents and guardians, at baseline and endline. Tracking participants to administer the baseline questionnaire was challenging;

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<sup>24</sup> Feeder schools are primary schools whose most senior class is designated to transition to a known Junior High School. This provision facilitated recruiting class 6 of primary schools who would transition to JHSs in the experiment and avoided exposure of to the treatment of recruited participants before collecting baseline.

however, it was even more so at endline. At baseline, most of the youth were in school, and interviewers administered the questionnaire in school. At endline, the only cohort that was still in school was the additional cohort. Some youth had transitioned to senior high school, whereas others had dropped out and were either within the community or had relocated to other parts of the country. It was very challenging for ISSER to follow these youth, but, to their credit, they developed a strategy of communicating with other interviewing teams that were scattered across the country. This strategy allowed for efficiency in locating youth and using resources close to the location of the youth to conduct endline interviews. The parents were even harder to locate at endline because the common, central locating resources, such as schools for youth, were not available for parents. To locate parents that had relocated, ISSER used several leads, a challenge compared to locating youth.

The survey questionnaire is self-reported; therefore, it could have biases from the youth that might influence findings. In this study, we made an effort to triangulate data collection and measurement wherever possible. We used data from the Savings Demand Assessment, the qualitative study, and the survey questionnaire. In the education construct, we obtained and used English and math scores from actual test that the youth took at school. We also used information from teachers on student behavior on school engagement. Therefore, we used different sources of data to increase reliability and validity of data as much as possible. However, the challenge that the questionnaire was self-reported remained, and we recognize that self-reported data might be more susceptible to recall and social desirability of response. In an effort to address some consequences of self-report mechanisms of data collection, we paired respondents and interviewers on some of the factors that contribute to some of the biases (e.g., gender, similar native speaker, age) whenever possible. In addition, the interviewers were well trained and had a long history of interviewing respondents across Ghana.

This report uses bivariate analysis, which might be a challenge. For the purposes of this report, we employed simple, straightforward analysis to stay true to the nature of the design of the study. This is an experiment that followed all the procedures and employed rigorous methodology on the research design side. We checked how randomization worked and whether attrition affected the sample representation. In other words, we conducted procedures to eliminate biases. However, some biases and missing information could remain. We will conduct further analysis in follow-up publications in which we will conduct multivariate analysis and appropriate statistical treatment for missing data and attrition bias.

## **Research, Practice, and Policy Implications**

### **Research implications**

Although the experiment employed rigorous design and methodology, there are still some recommendations that could be made to improve the outcomes. As explained above, the experiment's sampling frame followed the catchment area of the bank; therefore, schools were only selected in eight of the 10 regions in Ghana. Because there were two regions that were excluded in the experiment, the study cannot be generalized to all of Ghana. Nationwide experiments that include schools from the whole country will be representative of the youth population in the country.

Financial inclusion has to work in conjunction with financial institutions whose corporate mission and vision hinges on profit-making. Experiments that must have counterfactuals require that banks forgo or delay doing business with a section of their target population that does not make business



sense for profit-making corporations. Future experiments in financial inclusion might consider using natural experiments that use counterfactuals from locations where a bank could have been operating but is not. That way, the bank does not forgo business opportunities; instead, the bank would carry on the business side with one hand, while ensuring that the experiment has the counterfactuals needed for the experiment without disrupting its business with the other.

The Ghana experiment only had pre- and post-treatment data points, with almost three years between baseline and endline for some cases. This means that if the experiment yielded short-term impacts, they were not captured by this data collection design. However, if mid-term data were collected, the short-term impacts could have been captured. Because the experiment only had endline data after three years for the oldest cohort in the experiment, though, this timeline was not long enough to test long-term effects and whether the short-term effects were sustainable over the life of the experiment. Both shorter periods between data collection points to capture short-term impacts and a longer experiment to capture long-term impacts would be ideal for an experiment that investigates developmental outcomes—particularly an experiment with youth whose development is extremely dynamic during the age range of 12 to 18 years.

### **Practice implications**

Operations of the implementation of financial inclusion are crucial to the success of the experiment. It is important for researchers to ensure that adequate time is allotted at the beginning of the experiment to test operational systems to prepare for rollout. This could have provided an opportunity for the researchers and the financial institution to flag problematic situations in implementing treatment to realign operations with research. This was particularly important to ensure fidelity of both content and delivery of the treatment so that all youth in the treatment received the same amount and content of the treatment. However, even with some disparity, the design of the experiment allows for advanced statistical analysis that will isolate impacts of the treatment on different segments of the youth in future analysis.

Treatment fidelity is important for an experiment; therefore, uniformity of incentives to staff for recruiting new clients was also important. This might have reduced differential motivation of staff to engage youth in the schools. Conversely, lack of incentives to staff might have dampened their motivation to engage youth because there was no compensation to do so. Therefore, as much as incentives are important for staff to recruit youth, being consistent across all participating branches with incentives could address the issues of fidelity and also ensure that youth are recruited. Furthermore, providing training and manuals for staff to follow intervention procedures ensure that all youth are receiving the same amount and information in the treatment.

Monitoring on-the-ground activities to inform implementation before, during, and after operation is also critical to ensure an efficient rolling out of the intervention. However, this should be well planned to avoid the “tyranny of tools.” Flexibility to change implementation as progress is made is important so that aligning what pertains on the ground and adherence to implementation procedures is an on-going balancing act. However, attention needs to be paid to the bank’s business development agenda so it does not lose business in the quest to adhere to research requirements. This is a challenge as experiments need strict adherence to fidelity to ensure optimal treatment for participants. In other words, program demonstration and rigorous evaluation should proceed simultaneously, and in ways that make it possible for evaluation to continuously inform program models over time.

In addition to the implications for research relationships with practitioners, findings of this study could also have important implications for financial inclusion efforts. The finding that in-school banking services make a difference in deposits is consistent with evidence of other positive impacts of school-based savings programs (Corporation for Enterprise Development [CFED], 2014). This further strengthens emerging evidence available to practitioners interested in school-based banking. The finding that trust is still a big barrier to overcome is a challenge to financial inclusion efforts and indicates that financial institutions may need to do more to cultivate trust particularly among youth. In addition, the finding that youth improved in the knowledge or perception of distance to the bank, may be attributed to the information that banks provided to youth in their communities about their (banks) presence in the community. This is an avenue that financial institutions could use to teach youth about banks in the area and encourage account openings and transactions.

### **Policy implications**

The findings from the Ghana experiment demonstrate the value of early savings and its impact on youth development outcomes. They indicate positive trends in youth well-being when youth engage in savings. Integration of financial capability programs in youth development policies could be a way to employ cost-effective interventions that have multidimensional impacts on youth. This is attractive to governments in resource-limited countries.

It is important for policymakers to pay attention to regulatory frameworks to incorporate allowances for youth to operate savings accounts independently. Research indicates that higher impacts on youth development stem from youth-operated accounts rather than adult-operated accounts on youth's behalf (Elliott & Beverly, 2011; Friedline, 2014). Therefore, this requires a shift in the way that laws govern account ownership. Allowance should be made for youth to engage in transacting with banks within reasonable parameters that will protect the youth, but at the same time optimize youth agency.

Financial capability programs that focus on the inclusion of youth who are neither in school nor employed could also be promoted. Though the Ghana experiment focused on in-school youth at baseline, a considerable number of youth in the experiment exited the school system over the years. Therefore, the experiment also included youth who were neither in school nor employed, without having measures on outcomes that directly affect this segment of the youth population. These youth also need policies and interventions that will promote their well-being.

### **Next Steps**

Because of its rigorous design, the Ghana experiment is positioned to track long- and short-term impacts into the future. Additional follow-up surveys to track these impacts and the stability of short-term impacts are a logical next step. A longitudinal study into the next five years could assess impacts and investigate differential impacts of savings on developmental outcomes and on different segments of the youth, including gender, age, location, socioeconomic status, and schools. In addition, tracking youth who are neither in school nor employed to investigate impacts on labor outcomes might be the next frontier in understanding early savings on youth employment. This is important because research has shown that early savings is crucial for capital for small business and creates an opportunity for youth to build the business acumen they need to be successful entrepreneurs. Therefore, longitudinal studies could also track whether early access to savings translates into usage of other financial products or services later in the youth's lives. Investigating

these impacts could be the gateway to making policy recommendations to one of the most challenging issues that most resource-limited countries are facing: youth unemployment.

Continuing stakeholder engagement to disseminate information for policymaking is important to address unanswered questions in financial inclusion for youth. Stakeholders (e.g., governments, youth development organizations, legislators, financial institutions work) first-hand with regulations, interventions and policies, marketing to the youth, and building the business case for small savers. All these stakeholders individually understand the importance of financial inclusion for youth; however, working together will create a forum wherein youth issues can be addressed in a more integrated and cross-sectoral way, leading to higher impacts.

It is important to continue the discussion of how researchers can achieve fidelity in experiments (to obtain helpful evidence to affect policies) with financial institutions whose mission is to maximize their “bottom line.” This “crossroads” discussion can resolve or find creative means to bridge the gap and achieve both. Without fidelity, experiments cannot obtain valid and reliable findings to offer evidence for interventions. However, financial institutions can only engage in experiments if their mission is not jeopardized. Finding the balance between the two is critical for the future of financial inclusion.

Lessons from the YouthSave Ghana experiment also highlight other important next steps. First, interventions with more comprehensive services to encourage savings (e.g., financial literacy, incentives such as matching deposits) should be assessed to maximize impacts. Second, rigorous evaluation should accompany replication or demonstration of expanded interventions, particularly in areas where evidence remains limited (e.g., financial inclusion strategies for out-of-school youth and other hard-to-reach youth populations). Third, researchers should evaluate the cost-effectiveness of savings programs vis-à-vis their impacts to inform policymakers and practitioners of both evidence-based and cost-effective strategies to promote youth development.

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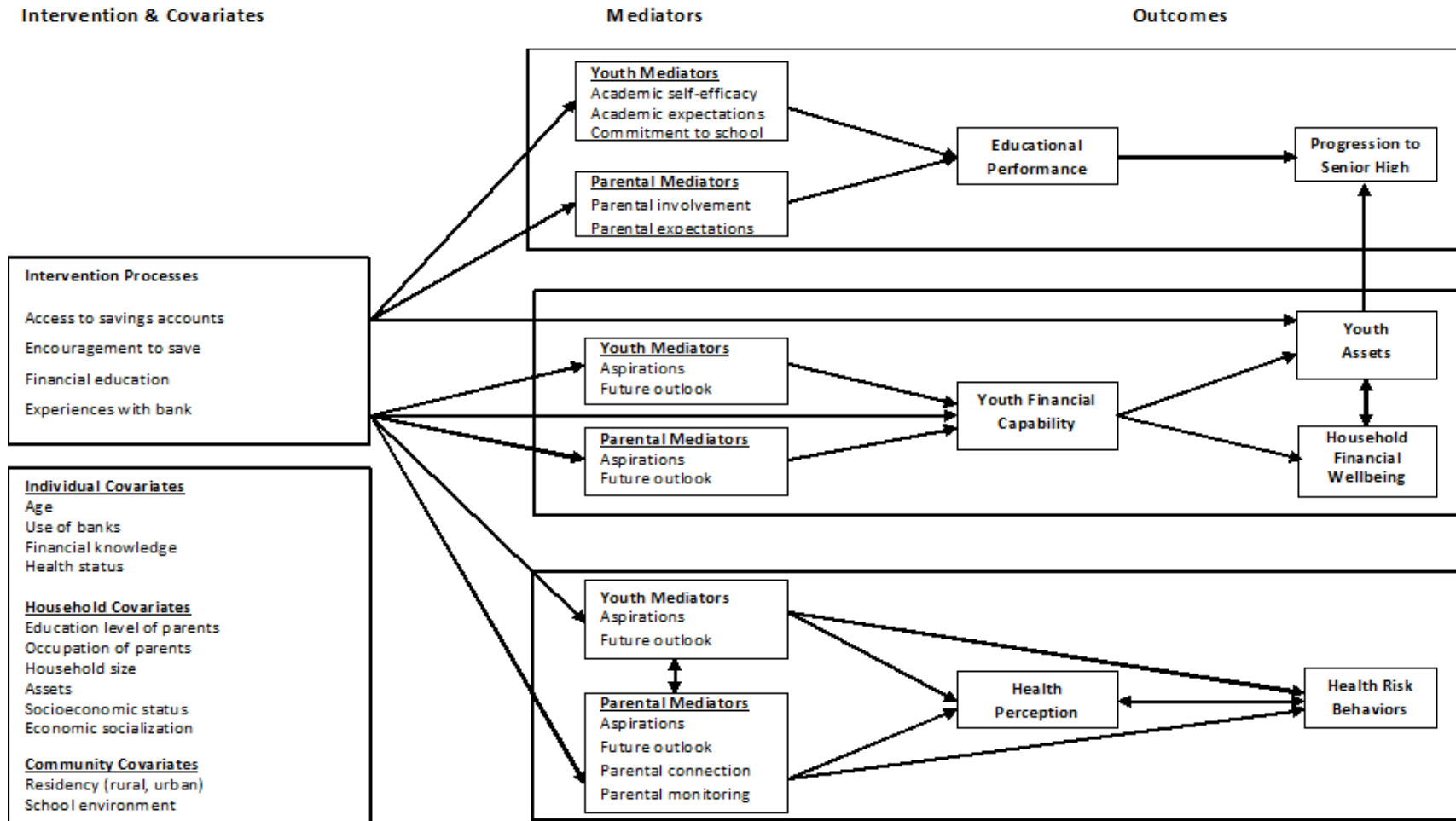
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## Appendix A: YouthSave Ghana Experiment In-depth Interview Protocol



**Note:** Financial capability is inclusive of financial knowledge, financial attitudes, access to and use of financial institutions, social education, and money management behaviors.

## Appendix B: Definition of Constructs and Measures

Construct	Definition and Measures
<b>Financial Capability Outcomes</b>	
A. Financial Characteristics and Experiences	
1. Amount of money in possession	<b>Continuous</b> Amount of money (in Ghanaian Cedis [GHS] <sup>25</sup> ) youth said they had in their possession
2. Sources of money	<b>Categorical, nominal</b> From what sources youth said they received money
3. Sources of financial information	<b>Categorical, nominal</b> From what sources youth said they received financial information
4. Ever received financial education	<b>Categorical, dichotomous</b> Whether or not youth said they had ever ad a class about money
B. Saving Characteristics and Behaviors	
1. Amount of money saved	<b>Continuous</b> Of the amount of money (in GHS) youth said they had in their possession, the amount they considered to be set aside for future use
2. Amount saved monthly	<b>Continuous</b> The amount of money (in GHS) youth said they set aside in a typical month
3. Frequency of saving	<b>Categorical, ordinal</b> How often youth said they set aside money: every day, 2–3 times/week, 2–3 times/month, 1 time/month, once every few months, once a year, never
4. Frequent saving	<b>Categorical, binary</b> Frequency of saving recoded as 1 = save every day or 2–3 times/week; 0 = other
5. Saving duration	<b>Categorical, ordinal</b> How soon youth said they usually plan to use the money they have set aside: within the next week, within the next month, in 1–2 months, in 3 months or longer
6. Long-term saving	<b>Categorical, binary</b> Saving duration recoded as 1 = plan to use set aside money in 3 months or longer; 0 = other
7. Methods of saving	<b>Categorical, nominal</b>

<sup>25</sup> GHS is the currency code for the Ghanaian Cedi

Construct	Definition and Measures
	Youth indicated whether they used the following methods: secret hiding place, deposits with a bank, <i>Susu</i> box or <i>Susu</i> collector, and safekeepers. For each choice, youth indicated yes, no, or N/A.
8. Goals for saving	<b>Categorical, nominal</b> Youth indicated whether or not they had any goals for the money they have set aside, meant as an indicator of whether their saving behavior was goal-directed.
9. Saving purposes	<b>Categorical, nominal</b> Youth indicated the purposes for which they had set aside money, selecting all that applied from the following: to pay for basic needs, to pay for things to help me work, to pay for things to help people in my household, to pay for things to have fun, to pay for school, to pay for college, to start a business one day, and other.
10. Saving for education and/or business	<b>Categorical, binary</b> Saving purposes recoded as 1 = to pay for college <i>or</i> to start a business one day; 0 = other. Of all of the Saving Purposes choices, saving for college or to start a business one day were conceptualized as long-term in nature.
C. Money Management Behaviors	
1. Money Management Scale <sup>26</sup>	<b>Continuous</b> Sum of responses to the following 4 items: “I pay close attention to how much money I spend,” “Before I buy something for myself, I compare prices on similar items,” “I have a plan for how to use my money,” and “I follow the plan I have for how to use my money,” each measured on a 5-point Likert scale with the following response choices: never, once in a long time, sometimes, most of the time, and always. Higher scores indicated greater levels of money management (i.e., the ability to manage resources effectively).
2. Hyperbolic discounting <sup>27</sup>	<b>Categorical, nominal</b> Youth were asked “Would you want a prize of 100 Ghana Cedis now or a prize of 150 GHS in one month” as a measure of preference for smaller-sooner or larger-later rewards.
D. Access to and Use of Financial Services	
1. Visiting a bank with a parent or other family member	<b>Categorical, nominal</b>

<sup>26</sup> MMS validated by Despard & Chowa (2013). Development of the MMS was guided by Sherraden’s (2013) model of financial capability and by measures used in prior studies of the National Endowment for Financial Education’s High School Financial Planning Program (Danes & Brewton, n.d.; Danes et al., 1999; Danes & Haberman, 2007).

<sup>27</sup> See Lusardi, Michaud, & Mitchell (2013).

Construct	Definition and Measures
2. Physical access to financial services—distance	<p>Youth indicated whether or not they had ever visited a bank or other financial institution with a parent or other family member, as an indicator of family financial socialization.<sup>28</sup></p> <p><b>Categorical, nominal</b></p> <p>Youth indicated how close the nearest bank or other financial institution was to their home: 1 km or less, 2–4 km, 5–9 km, 10–19 km, 20 km or more, and don’t know, to measure physical access to financial services.</p>
3. Physical access to financial services—modes of transportation	<p><b>Categorical, nominal</b></p> <p>Youth indicated what transportation method they would use to get to the nearest bank or other financial institution: walking, bicycle, personal/family car, public transportation, or other.</p>
4. Financial services awareness scale <sup>29</sup>	<p><b>Continuous</b></p> <p>Sum of responses to the following 4 items: “Banks are a safe place for kids like me to keep money,” “Having a savings account with a bank can help kids like me save for education,” “Having a savings account with a bank can help kids like me save to start a business,” and “If I go to a bank, the people that work there will be friendly and helpful, each measured on an 11-point scale (0–strongly disagree to 10–strongly agree).</p>
5. Financial services actions scale <sup>4</sup>	<p><b>Continuous</b></p> <p>Sum of responses to the following 3 items: “I know what is required to open a savings account at a bank,” “I know how to make a deposit into an account at a bank,” and “I know how to make a withdrawal from a bank account,” each measured on an 11-point scale (0–strongly disagree to 10–strongly agree).</p>
6. Exposure to HFC Marketing and <i>Enidaso</i> Accounts	<p><b>Categorical, nominal</b></p> <p>Youth indicated whether they had heard of <i>Enidaso</i> accounts.</p> <p><b>Categorical, nominal</b></p> <p>Youth indicated whether they had opened an <i>Enidaso</i> account.</p> <p><b>Categorical, nominal</b></p> <p>Youth indicated whether they had made any deposits into an <i>Enidaso</i> account.</p> <p><b>Categorical, nominal</b></p>
a. Heard of <i>Enidaso</i> accounts	
b. Opened an <i>Enidaso</i> account	
c. Deposited into an <i>Enidaso</i> account	
d. <i>Enidaso</i> account perceptions	

<sup>28</sup> See Gudmunson & Danes (2011).

<sup>29</sup> Validated by Despard & Chowa (2014) and influenced by Sherraden’s (2013) conceptual model of financial capability.

Construct	Definition and Measures
E. Parent and Guardian Awareness, Behavior, and Attitudes Regarding Child Savings 1. Parent and Guardian Financial-Related Interactions with Children	<p>Youth indicated whether they had achieved their goals as a result of saving in an <i>Enidaso</i> account and whether they have experienced any difficulty making deposits in their <i>Enidaso</i> account.</p> <p><b>Categorical, nominal</b>            Parents and guardians were asked whether they were aware if their child had a savings account, and how often they (a) talk to their child about earning money; (b) talk to their child about saving money; (c) talk to their child about managing money; and (d) take their child to the bank. The purpose of these questions was to measure various indicators of family financial socialization (Gudmunson &amp; Danes, 2011).</p>
<b>Psychosocial Outcomes</b>	
A. Future Orientation <sup>30</sup> 1. Orientation toward Success  2. Uncertainty of the Future	<p><b>Continuous</b>            This construct refers to youth's awareness of their likelihood of having a positive or successful future; and was measured using a 6-item, 11-point Likert type scale ranging from 0 (<i>strongly disagree</i>) to 10 (<i>strongly agree</i>). Higher scores on orientation toward success indicate positive future orientation or higher levels of future orientation.</p> <p><b>Continuous</b>            This construct refers to youth's doubts on whether they will have a positive or successful future, including challenges that will prevent them from having a positive future; and was measured using a 5-item, 11-point Likert type scale ranging from 0 (<i>strongly disagree</i>) to 10 (<i>strongly agree</i>). Lower scores on uncertainty of the future subscale indicate positive future orientation.</p>
<b>Education Outcomes</b>	
A. Academic self-efficacy <sup>31</sup>	<p><b>Continuous</b>            This construct refers to youth's beliefs about their abilities to complete schoolwork successfully, and was measured using an 8-item, 11-point response</p>

<sup>30</sup> Further details about this construct, including their validation using the Ghana experiment sample is discussed in Chowa and Masa (2015). The future orientation scale in the experiment was adapted from Bowen, Rose, and Bowen (2005).

<sup>31</sup> Questions about academic self-efficacy were adapted from Muris, P. (2001). A brief questionnaire for measuring self-efficacy in youths. *Journal of Psychopathology and Behavioral Assessment*, 23(3): 145-149.

Construct	Definition and Measures
B. Academic aspirations 1. Youth academic aspirations for higher education	<p>scale ranging from 0 (<i>cannot do at all</i>) to 10 (<i>highly certain can do</i>). Higher scores on the scale indicate greater sense of academic self-efficacy.</p> <p><b>Categorical, binary</b>            This outcome refers to whether youth would like to progress to higher levels of education beyond senior high school. The variable was originally measured with the following response options—Junior High School (JHS), Senior High School (SHS), Training college/Post-Secondary, Higher National Diploma, and University—but was rescaled as a binary response for this report (i.e., aspirations for education beyond senior high school vs. senior high school and below).</p>
2. Parental aspirations for youth’s higher education	<p><b>Categorical, binary</b>            This outcome refers to whether parents would like their youth to progress to higher levels of education beyond senior high school. The variable was originally measured with the following response options—JHS, SHS, Training college/Post-Secondary, Higher National Diploma, and University—but was rescaled as a binary response for this report (i.e., aspirations for education beyond SHS vs. SHS and below).</p>
C. Academic Expectations 1. Youth expectations for higher education	<p><b>Categorical, binary</b>            This outcome refers to whether youth expect to progress to higher levels of education beyond SHS. The variable was originally measured with the following response options—JHS, SHS, Training college/Post-Secondary, Higher National Diploma, and University—but was rescaled as a binary response for this report (i.e., expectations to pursue education beyond SHS vs. SHS or below).</p>
2. Parental expectations for youth’s higher education	<p><b>Categorical, binary</b>            This outcome refers to whether parents expect their youth to progress to higher levels of education beyond senior high school. The variable was originally measured with the following response options—JHS, SHS, Training college/Post-Secondary, Higher National Diploma, and University—but was rescaled as a binary response for this report (i.e., expectations to pursue education beyond SHS vs. SHS or below).</p>
D. Commitment to school <sup>32</sup>	<p><b>Continuous</b></p>

<sup>32</sup> The scale was adapted from the Rochester Youth Development Study (<http://www.ojjdp.ncjrs.gov/ccd/rochester.html>).

Construct	Definition and Measures
E. Concern about school <sup>33</sup> <ol style="list-style-type: none"> <li data-bbox="247 427 779 451">1. Concern about reading and understanding</li> <li data-bbox="247 626 632 651">2. Concern about writing essays</li> </ol>	<p data-bbox="932 232 1818 386">This construct refers to youth's sense of belonging to their school, acceptance of school values and engagement in schoolwork. The construct was measured using a 9-item, 11-point response scale ranging from 0 (<i>strongly disagree</i>) to 10 (<i>strongly agree</i>). Higher scores on the scale indicate greater commitment to school.</p> <p data-bbox="932 427 1188 451"><b>Categorical, ordered</b></p> <p data-bbox="932 459 1835 618">This outcome refers to the extent to which youth feel worried when they have to read and understand something for a class assignment. The original response scale ranged from 1 (<i>worried all the time</i>) to 5 (<i>never worried</i>) but was reverse coded for intuitive interpretation in this report. Thus, a higher score indicates more worry.</p> <p data-bbox="932 626 1188 651"><b>Categorical, ordered</b></p> <p data-bbox="932 659 1818 781">This outcome refers to the extent to which youth feel worried when they have to write an essay. The original response scale ranged from 1 (<i>worried all the time</i>) to 5 (<i>never worried</i>) but was reverse coded for intuitive interpretation in this report. Thus, a higher score indicates more worry.</p>
F. Planned effort <sup>34</sup>	<p data-bbox="932 789 1079 813"><b>Continuous</b></p> <p data-bbox="932 821 1818 878">This outcome refers to the average number of hours per week youth spend on school work after normal school hours.</p>
G. Parental involvement <sup>35</sup> <ol style="list-style-type: none"> <li data-bbox="247 919 621 943">1. Parental school involvement</li> <li data-bbox="247 1146 621 1170">2. Parental home involvement</li> </ol>	<p data-bbox="932 919 1079 943"><b>Continuous</b></p> <p data-bbox="932 951 1818 1138">This construct measures parents' level of involvement in their children's education in the school environment through participation in school meetings, and events, and engagement with school teachers. The scale consists of 4 items measured on 5-point Likert type scale ranging from 1 (<i>never</i>) to 5 (<i>very often</i>). Higher scores on the scale indicate greater involvement in youth's education within the school environment.</p> <p data-bbox="932 1146 1079 1170"><b>Continuous</b></p>

<sup>33</sup> The questions were adapted from Oyserman, D., Terry, K., & Bybee, D. (2002). A possible selves intervention to enhance school involvement. *Journal of Adolescence*, 24, 313–326.

<sup>34</sup> The question was adapted from Destin, M., & Oyserman, D. (2009). From assets to school outcomes: How finances shape children's perceived possibilities and intentions. *Psychological Science*, 20(4): 414-418

<sup>35</sup> Further details about this construct, including their validation using the Ghana experiment sample is discussed in Chowa, Masa, & Tucker (2013). Individual items were adapted from Ames, C., Tanaka, J., Khoju, M., & Watkins, T. (1993), and Zhan, M. (2006)



Construct	Definition and Measures
H. School Attendance	<p>This construct measures parents' level of involvement in their children's education within the home environment through activities such as assisting with homework, ensuring completion of homework, and communicating expectations. The scale consists of 4 items measured on a 5-point Likert type scale ranging from 1 (<i>never</i>) to 5 (<i>very often</i>). Higher scores on the scale indicate greater involvement in youth's education within the home environment.</p> <p><b>Continuous</b> This outcome refers to the total number of days youth attended school during the academic term prior to YouthSave data collection. The length of the academic terms was 68 days at baseline and at 72 days at endline.</p>
I. Academic Performance 1. Continuous assessment scores (math & English)  2. Exam scores (Math & English)	<p><b>Continuous</b> This outcome measures youth's performance on in-class and take-home (math and English subject) assignments throughout the academic term prior to YouthSave data collection. Scores range from 0 to 30 points.</p> <p><b>Continuous</b> This outcome measures youth's performance on their (math and English subject) final exam for the academic term prior to YouthSave data collection. Scores range from 0 to 70 points.</p>

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### Health Outcomes

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A. Parent-Youth Relationship <sup>36</sup> 1. Parental Connection  2. Parental Monitoring	<p><b>Continuous</b> This construct refers to the frequency of parent-youth interaction that focuses on emotional and psychological support and was measured using a 4-item, 5-point Likert type scale ranging from 1 (<i>never</i>) to 5 (<i>always</i>). Higher scores on the parental connection scale indicate closer relationship between parents and their children.</p> <p><b>Continuous</b> This construct refers to how often parents check youth's activities and was measured using a 3-item, 5-point Likert type scale ranging from 1 (<i>never</i>) to 5 (<i>always</i>). Higher scores on the parental monitoring scale indicate more frequent monitoring of youth's activities.</p>
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<sup>36</sup> The parent–youth relationship questions were adapted from the 2009 Global Student Health Survey.

Construct	Definition and Measures
B. Attitudes and Subjective Norms About Sex <sup>37</sup>	
1. Attitudes towards Sex	<p><b>Continuous</b></p> <p>This construct refers to youth’s beliefs about sex and its acceptability for young people and was measured using a 6-item, 5-point Likert type scale ranging from 1 (<i>disagree a lot</i>) to 5 (<i>agree a lot</i>). Higher scores on the “attitudes towards sex” scale indicate greater agreement that it is OK for young people to have sex with people they love, they just met, or before marriage.</p>
2. Motivations to Engage in Sex	<p><b>Continuous</b></p> <p>This construct refers to youth’ beliefs about the incentives for having sex and was measured using a 3-item, 5-point Likert type scale ranging from 1 (<i>disagree a lot</i>) to 5 (<i>agree a lot</i>). Higher scores on the “motivations to engage in sex” scale indicate greater agreement that having sex will make a person feel good, loved and popular.</p>
3. Sense of Belonging with Peers	<p><b>Continuous</b></p> <p>This construct refers to youth’s beliefs about peer influence or the pressure to conform with young people like them and was measured using a 3-item, 5-point Likert type scale ranging from 1 (<i>disagree a lot</i>) to 5 (<i>agree a lot</i>). Higher scores on the “sense of belonging with peers” scale indicate greater agreement that youth are happier if they are part of the crowd and not considered an outsider.</p>
C. Attitudes towards HIV/AIDS and Condom Use <sup>38</sup>	
1. Perceived Benefits of Condom Use	<p><b>Continuous</b></p> <p>This construct refers to youth’s belief of the usefulness or value of condoms and was measured using a 3-item, 5-point Likert-type scale ranging from 1 (<i>disagree a lot</i>) to 5 (<i>agree a lot</i>). Higher scores on the perceived benefits of condom use indicate greater agreement that condom use is beneficial.</p>
2. Perceived Barriers to Condom Use	<p><b>Continuous</b></p> <p>This construct refers to youth’s belief of the obstacles that will stop them from using condoms and was measured using a 4-item, 5-point Likert-type scale ranging from 1 (<i>disagree a lot</i>) to 5 (<i>agree a lot</i>). Higher scores on the perceived barriers to condom use indicate greater agreement that there are many barriers to condom use.</p>

<sup>37</sup> Questions about attitudes and subjective norms about sex were adapted from prior studies on youth sexual attitudes and behaviors (e.g., Carvajal et al., 1999; Gillmore et al., 2002; and Jorgensen & Sonstegard, 1984).

<sup>38</sup> Further details about this construct, including their validation using the Ghana experiment sample is discussed in Masa and Chowa (2014). Questions about attitudes towards HIV/AIDS and condom use were adapted from prior studies (including in Ghana) on youth attitudes towards condom use and HIV (e.g., Adih & Alexander, 1999; Asante & Doku, 2010).

Construct	Definition and Measures
3. Perceived Severity of HIV/AIDS	<p><b>Continuous</b>  This construct refers to youth's belief of the seriousness of HIV/AIDS and was measured using a 4-item, 5-point Likert-type scale ranging from 1 (<i>disagree a lot</i>) to 5 (<i>agree a lot</i>). Higher scores on the perceived severity of HIV/AIDS subscale indicate greater agreement that HIV/AIDS is a deadly, incurable disease.</p>
4. Perceived Susceptibility to HIV/AIDS	<p><b>Continuous</b>  This construct refers to youth's belief of their likelihood of acquiring HIV/AIDS; and was measured using a 4-item, 5-point Likert-type scale ranging from 1 (<i>disagree a lot</i>) to 5 (<i>agree a lot</i>). Higher scores on the perceived susceptibility to HIV/AIDS subscale indicate greater agreement that youth can acquire HIV/AIDS.</p>
D. Sexual Risk-Taking Behaviors	
1. Condom Use at Last Sexual Intercourse	<p><b>Categorical, binary</b>  This outcome refers to whether youth or their partners used or did not use condom at last sexual intercourse and was measured with a <i>yes</i> or <i>no</i> response option.</p>
2. Paid Sex	<p><b>Categorical, binary</b>  This outcome refers to whether youth have had sex in exchange for cash or in-kind payments or gifts and was measured with a <i>yes</i> or <i>no</i> response option.</p>
3. Unwilling Sex	<p><b>Categorical, binary</b>  This outcome refers to whether youth have had sex against their will and was measured with a <i>yes</i> or <i>no</i> response option.</p>

## Appendix C: Qualitative Study Protocol

### A. Purpose

This research protocol offers a framework to investigate the perspectives, motivations, and experiences of youth in the Ghana YouthSave experiment. The protocol outlines the overall research goal, the aims and objectives of the research, research design, including the sampling design, sample size, data collection methods, data entry, data analysis, and results dissemination plan.

### B. Background

The research goal for the Ghana YouthSave experiment is to investigate the impacts of savings on a range of youth development outcomes. The research has a multifaceted, multimethod research agenda namely an impact study (Ghana experiment), savings demand assessment (SDA), and integrative case studies (ICS).

The current protocol focuses on capturing the experiences of youth in the Ghana experiment using qualitative methods. This method will allow researchers to understand the savings experiences of youth in treatment and control schools, including efforts to save, savings mechanisms, and outcomes of saving. We will document how these saving experiences are affecting their behaviors, including relationships at home and school, their cognitions, attitudes and aspirations, how having savings or not, is affecting how they think about their future. This will provide rich narratives and understanding of the effects of savings on the lives of youth in treatment and control conditions.

### C. Research Objectives

The main research objective is to understand how the lives of youth are affected when opportunities to save are available or when these opportunities are absent. The underlying premise of this inquiry is to allow the youth to narrate how the opportunity to save affects them, without restricting them to hypothesized outcomes.

### D. Research Design and Methodology

The study will employ an approach that allows researchers to examine participants' experiences through their descriptions of how they have or have not interacted with *Enidaso*, the youth savings product. With this design, the researcher will be able to use in-depth interviews to engage participants in ways that would allow them to open up and describe their experiences from their own perspectives.

The researcher will aim for one interview in order to limit the number of contacts with participants and disruption to their school work. However, the researcher will make room for *limited* follow-ups should there be the need for interviewers to seek clarification on participants' responses.

## **E. Sampling and Sample Size**

Using the research design of the Ghana experiment, researchers will select a representative sample from the treatment and control schools.

The sampling frame is all youth participants in the Ghana experiment, which is youth in treatment and control schools. A multistage sampling approach with a combination of cluster, stratified, random, and purposive sampling techniques will be used to select 48 youth and parents/guardians for the study. The breakdown of the subgroups is as follows:

- 16 youth from treatment schools
- 16 parents of youth in treatment schools
- 8 youth from control schools
- 8 parents of youth in control schools

### **Mode of Data Collection: In-Depth Interviews**

Data will be collected through semistructured interviews. The interviews will enable researchers to understand nuances of the saving intervention and its effects. All interviews shall be audio-recorded. The interviewer will ensure that consent and assent are secured before the recording. CSD will work with ISSER to design the consent and assent forms.

## **F. Location and Time Allocated for Interviews**

Researchers shall arrange with youth and their parents to choose locations for in-depth interviews. Youth and parents will choose venues where they are most comfortable. Researchers will conduct youth and parent interviews separately. If the youth interviews are conducted on school premises and particularly during school hours, researchers should plan carefully to avoid disruption to respondents' school work. Interviewers will use their judgment to determine the duration for each interview. However, we estimate the typical interview to last between one and two hours.

## **G. Conclusion**

This qualitative study provides the first attempt to qualitatively answer the research questions posed regarding the effects of asset building on the well-being youth in the Ghana YouthSave experiment. As indicated earlier, the findings from this study will provide a platform to triangulate findings, enabling us to address existing knowledge gaps with greater rigor and detail. The study design will enable us to examine intervention effects, including product take up, savings performance, and developmental outcomes. This robust study will yield critical insight into whether similar approaches can be successful in reducing the material and emotional hardships of youth and provide a pathway to a better future.

## Appendix D: Implementation Monitoring Tool

The purpose of this quarterly tracking questionnaire is to help document variations in YouthSave (*Enidaso*) related activities across branches participating in the YouthSave project. The questionnaire should be completed every quarter by the branch manager or designated staff. Completed questionnaires and all inquiries should be forwarded to at the HFC Head office.

Branch Name/ Location																									
District																									
Region																									
Date Completed																									
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### Staff

- How many bank staff have worked on YS related school banking and marketing activities (including visiting schools, assisting in opening accounts, attending PTAs, conducting school banking, etc.)? \_\_\_\_\_

### Operating hours

- What time does the bank open on weekdays? \_\_\_\_\_

### Time of operating hours

- What time does the bank close on weekdays? \_\_\_\_\_

### Weekend hours

- Is the bank open during the weekend?  Yes  No

### In-school banking

- Does the bank branch conduct in-school banking?  Yes  No **If NO skip to 11**

IMPACTS OF FINANCAL INCLUSION ON YOUTH DEVELOPMENT:  
FINDINGS FROM THE GHANA YOUTHSAVE EXPERIMENT

6. Are youth allowed to **open** an account during school banking? Yes No
7. Are youth allowed to **deposit** money during school banking? Yes No
8. Are youth allowed to **withdraw** money during school banking? Yes No
9. Aside from the activities mentioned above (i.e., opening accounts, depositing, and withdrawing), what other activities are conducted during school banking?
- i. \_\_\_\_\_
- ii. \_\_\_\_\_
- iii. \_\_\_\_\_
10. During the past 4 months, how many times have the bank conducted school banking?  
\_\_\_\_\_

***School visit (both for in-school banking and marketing schools)***

11. During the past 4 months, **how many times did bank staff visit each school** in its catchment area? Include all visits that were conducted as part of in-school banking.

School Name	# of visits

***PTA attendance***

12. Did bank staff ever attend PTA meetings in each school within its catchment area?

School Name	Response
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No

***Ease of opening accounts***

13. On average, how many minutes does it take for youth (or their parents and relatives) to:

- a. open an Enidaso account in your branch? \_\_\_\_\_ (*minutes*)
- b. open an Enidaso account at the school? \_\_\_\_\_ (*minutes*)

***Ease of depositing***

14. On average, how many minutes does it take for youth (or their parents and relatives) to:

- a. deposit money in youth’s Enidaso account in your branch? \_\_\_\_\_ (*minutes*)
- b. deposit money in youth’s Enidaso account at the school? \_\_\_\_\_ (*minutes*)

***Ease of withdrawal***

15. On average, how many minutes does it take for youth (or their parents and relatives) to:

- a. withdraw money from youth’s Enidaso account in your branch? \_\_\_\_\_ (*minutes*)
- b. withdraw money from youth’s Enidaso account at the school? \_\_\_\_\_ (*minutes*)

***Communication/ Marketing Materials***

16. Are there marketing materials (e.g., posters, brochures) that are visible to customers when they visit the bank?

- Yes   No

17. What marketing materials are present in the branch?

- i. \_\_\_\_\_



- ii. \_\_\_\_\_
- iii. \_\_\_\_\_

18. What marketing materials are presented or given to youth or their parents in schools?

- i. \_\_\_\_\_
- ii. \_\_\_\_\_
- iii. \_\_\_\_\_
- iv. \_\_\_\_\_

***Incentives***

19. Is/are there **incentive/s given to youth** when they open an Enidaso account?

- Yes   No

20. If yes, what is/are the incentive/s?

- i. \_\_\_\_\_
- ii. \_\_\_\_\_
- iii. \_\_\_\_\_
- iv. \_\_\_\_\_

21. Is/are there **incentive/s given to staff** to promote or increase the number of opened Enidaso accounts?

- Yes   No

22. Is/are there **incentive/s given to schools or teachers** to facilitate their cooperation with bank staff?

- Yes   No

***History of Youth Engagement***

23. Does the branch manager have previous experience with youth-related financial products or services, including marketing, outreach to youth, etc.?

- Yes   No

24. Does the primary staff in charge of Enidaso account have previous experience with youth-related financial products or services, including marketing, outreach to youth, etc.?

- Yes   No

Thank you for taking the time to fill out the tracking questionnaire.