Contractual Children Savings Accounts in Low Resource Communities: Who Saves?

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ABSTRACT

This study examines variation in saving behavior of poor families enrolled in a children savings accounts program for orphaned and vulnerable school-going children in Uganda.

We employ multilevel analyses using longitudinal data from a cluster-randomized experimental design. Our analyses locate the following significant results: (1) financial institutions' characteristics affect average monthly savings and deposit frequency; (2) reported high levels of family cohesion are associated with higher deposit frequency; (3) children in the care of female guardians report higher average monthly saving and deposit frequency.

The study has the following key implications: institutions and family relations matter in children savings mobilization.

1. INTRODUCTION

Poor communities are less attractive to mainstream financial institutions. As a result, people residing in these communities are less connected to formal financial institutions. Lack of access to formal financial institutions makes poor communities and the people who reside in them to be, in large part, financially excluded from key financial services including access to safe savings products. Yet, just like their non-poor counterparts, poor people, and those who reside in poor communities, too have financial emergencies and unforeseen needs that may necessitate them, over time, to tap into accumulated savings. In addition, on an on-going basis poor people need lump sum amounts of money to cover family-related needs including the human basic needs of food, health, shelter (housing), education, and any unforeseen emergencies. Savings do not merely help individuals meet their future consumption needs—they strengthen one's ability and capacity to mitigate risks and break the cycle of intergenerational poverty.

Of recent, given the documented psychosocial and developmental impacts of saving and asset accumulation (McKernan, Ratcliffe, & Nam, 2010; Moore et al., 2001; Schreiner & Sherraden, 2007; Ssewamala, Han, & Neilands, 2009; Ssewamala, Neilands, Waldfogel, & Ismayilova, 2011; Ssewamala, Sperber, Zimmerman, & Karimli, 2010), there are several programs being implemented to connect poor people to financial institutions that would help them save and accumulate assets. Indeed, examples of these initiatives exist both in the developed countries (Sherraden, 2002; Sherraden et al., 2005; Sherraden, Schreiner, & Beverly, 2003) and in the developing countries (Chowa, Despard, & Osei-Akoto, 2012; L. Johnson, Lee, Osei-Akoto, Njenga, & Sharma, 2012; Kagotho & Ssewamala, 2012; Ssewamala, Karimli, Chang-Keun, & Ismayilova, 2010; Ssewamala, Wang, Karimli, & Nabunya, 2011).

Studies on these initiatives provide documented evidence that poor people save—if provided with institutional structures, including incentives in the form of matched savings (Grinstein-Weiss, Wagner, & Ssewamala, 2006; Han, Grinstein-Weiss, & Sherraden, 2009; Ssewamala & Sherraden, 2004), financial education and knowledge (Ssewamala, 2012), and easy access to a financial institution (Grinstein-Weiss et al., 2006; Ssewamala, 2003; Ssewamala & Sherraden, 2004). Moreover, although there are several studies that specifically examine the impact of Child Development Accounts in poor communities of Sub-Saharan Africa (Ssewamala & Ismayilova, 2009; Ssewamala, Ismayilova, et al., 2010; Ssewamala, Neilands, et al., 2011), there are no studies (by this writing) of contractural savings in Sub-Saharan Africa that examine variation in saving behavior of poor African children. Indeed, very little is known about why of poor children in Sub-Saharan Africa, when faciliated with similar institutional structures, some save in larger ammounts and deposit more frequently and others simply do not behave the same way. The question therefore is: can the existing theories of saving behavior—tested mainly in the context of western socieities—explain variation in saving behavior of poor children living in poor communities in Sub-Saharan Africa?

One of the initiatives that connect poor families to financial institutions are the child development accounts being implemented in Uganda under an experimental intervention study called "Suubi-Maka" (which means "Hope for Families" in Luganda). The Suubi-Maka initiative (described in detail below) is the focus of the current paper. Specifically, using data from the Suubi-Maka initiative, this paper addresses two questions: (1) If poor children and their families in a poor community are given the opportunity of being connected to a financial institution, who among them saves and who does not? (2) How do the children and their families that save (the savers) differ from those who do not save (the non-savers)?

The answers to these two questions are important because they would inform policy and programming, especially as governments and organizations in Sub-Saharan are increasing moving towards financial inclusion for young people—the fastest growing population segment in the region. Further, findings may also contribute to an understanding of what affects savings of poor families in the context of Sub-Saharan Africa, and may inform development of poverty reduction policies specifically targeted to vulnerable children in poor resource settings.

2. BACKGROUND

2.1. Factors accounting for savings behavior: theory

There are several theories that explain individual saving behaviors. For example, neoclassical economic theories—including the life-cycle theory and the permanent income theory of savings—posit that resources allocated to individuals' consumptions depend on their life resources and savings serve the purpose of maximizing individual's consumption utility (Ando & Modigliani, 1963; Feldstein, 1976; Sherraden et al., 2003). Individuals save to smooth their consumption when facing income fluctuations. Savings increase when individual's current income rises above the expected lifetime resources and decrease when individual's current income falls below the expected lifetime resources (Modigliani, 1986). According to the life-cycle theory, variation in savings among households is an inverted U-shaped function of age: young and elderly individuals having fewer saving than middle-age individuals. On the other hand, the permanent income theory posits that savings increase when an individual has an increase in temporary income. Increase in permanent income, however, decreases the savings (Beverly & Sherraden, 1999).

Unlike neoclassical economic theories, behavioral-related theories on saving do not assume that individuals are rational decision makers. Instead, they posit that individuals have "myopic" sides, placing too much weight on current consumption relative to future consumption. This leads to irrational choices - despite individual's initial desire to optimize utility. According to this perspective, an individual's saving behavior is improved by imposing the self-constraint on spending (Maital & Maital, 1994).

Psychological and sociological theorists point to personality characteristics, motives, expectations, as well as family influence as main determinants of saving and asset accumulation (Beverly et al., 2008). Historical inequalities resulting in wealth stratification are also considered important determinants of asset accumulation (Spilerman, 2000), suggesting that poor saving behaviors and low asset accumulation among poor populations may be attributed to institutional discriminations.

Within the sociological explanations of saving behavior is the argument of poor people's restricted access to formal institutions of social assistance. Specifically, the argument is that poor rely heavily on support from the community and extended family. The heavy reliance on community, however, comes with a price: e.g. claims from extended family members, relatives and neighbors on cash available at home (Banerjee & Duflo, 2007). Indeed, in line with the sociological theories of saving, demands from extended family members for material assistance can undermine individual's saving and asset accumulation efforts. Other arguments put across by sociological theorists point to demographic variables such as age, gender and household characteristics (e.g. number of people in the household) as key determinants for household saving behavior and asset accumulation (Browning & Lusardi, 1996). For example, presence of young children, particularly in single parent households, may have negative effect on

household's saving behavior (Fry, Mihajilo, Russell, & Brooks, 2008), while a family structure of two working adults with no children may have a positive effect on household's saving behavior.

This paper focuses on savings among school-going orphaned children—average age of 13—taken care by a living parent (children who have lost one parent) or by an adult caregiver within extended family (children who have lost both parents). Children's saving-related beliefs, consumption patterns and expectations for saving can be heavily influenced by parents and caregivers (Gudmunson & Danes, 2011). Children learn financial management behavior through purposive instruction from their parents and caregivers (Jorgensen & Savla, 2010). Children also learn financial behaviors by observing and modeling those of their parents and caregivers (Shim, Barber, Card, Xiao, & Serido, 2010). Parents with higher socioeconomic status serve as role models for children. Indeed, findings from studies of Individual Development Accounts (IDAs) seem to support these propositions (Grinstein-Weiss et al., 2012; Schreiner, Clancy, & Sherraden, 2002). Specifically, participants who recall their parents saving while they were young have more financial assets, compared to participants with no recollection of their parents ever saving as they were growing up (Han et al., 2009; Williams Shanks, Kim, Loke, & Destin, 2010).

The child savings accounts examined in this paper present a special form of savings accounts and rest in the realm of institutional theory of savings which posits that variation in savings behavior is explained by differentiated access to institutional structures, such as (i) access (proximity of savings programs—including access to electronic and direct deposits), (ii) incentives (matching deposits, earnings on savings including interests earned), (iii) information (educational programs to increase financial literacy), (iv) facilitation (assistance from program

staff, nudging saving behavior), (v) expectations (participants' clear saving goals), (vi) restrictions (limiting the use of savings for specific designated/only authorized purposes), and (vii) security of investments (Beverly et al., 2008; Schreiner & Sherraden, 2007). The other element may be (viii) trust in the financial systems—which may be attributed to financial literacy, and an overall feeling of security.

2.2. Child Development Accounts

Individual Development Accounts (IDAs) are contractual subsidized bank accounts with a match on the deposits of account holders. The accounts have both an element of incentivizing and nudging the poor to save, and also addressing the challenge of the poor people's restricted access to financial institutions. Programs that promote IDAs are grounded in two mutually reinforcing theories on saving behavior: asset theory (Sherraden, 1990, 1991); and institutional theory (Sherraden, 2005). Specifically, in line with the asset-theory on saving, IDAs premise that the ownership of financial assets—including monetary savings, homeownership, education and income generating activities–changes people's capacities, behavior and attitudes. With ownership of assets, individuals are likely to have better ability to make choices to pursue the kind of life they value (Robeyns, 2005; Sen, 1999; Sherraden, 1991; Ssewamala, Sperber, et al., 2010). In line with the institutional theory of saving, and similar to 401K retirement plans, IDAs provide opportunities for subsidized asset building by matching participants' savings. Just like the 401K matched saving plans, the matched amounts in the IDAs are restricted to the approved specific asset-building purposes, such as home purchase, investment in education, microenterprise, or purchase of a car to commute to work. Participants of IDA programs are also provided with financial education and financial counseling and support (Han et al., 2009; Mills et al., 2008; Schreiner & Sherraden, 2007).

This paper focuses on a special form of IDA—which is intended for children and young adolescents—called Child Development Accounts (CDAs). With CDAs a bank account is opened in a child's name. This may be as early as at birth (Bennett, Quezada, Lawton, & Perun, 2008; Nam, Kim, Clancy, Zager, & Sherraden, 2012; Prabhakar, 2010; Zager, Kim, Nam, Clancy, & Sherraden, 2010) or when children are already enrolled in primary school (Ssewamala & Curley, 2006; Ssewamala et al., 2009; Ssewamala, Han, Neilands, Ismayilova, & Sperber, 2010; Ssewamala, Neilands, et al., 2011). The argument behind CDAs is that if savings are good for old people, they are even more essential for the young ones. Starting asset accumulation at an early age—specifically having savings accounts—may have a long-term impact on children's savings behaviour, and, consequently, their economic well-being, as adults (Peng, Bartholomae, Fox, & Cravener, 2007). Additionally, CDAs contribute to overall child development and to children's psychosocial behavior (Ssewamala et al., 2009)

In developing countries, Child Development Accounts offering matching incentives are a new initiative. Such accounts are currently set up in South Africa (Fundisa accounts), Uganda (SEED, the Suubi/Bridges-related accounts in Centenary Bank, Diamond Trust Bank and Kakuuto Microfinance) and Sri-Lanka (SingithiKirikatiyo accounts).

As detailed in the theory section above, saving participation and saving amounts—including contractual savings like IDAs and CDAs—can be attributed to a variety of factors. However, most of the studies on contractual savings, on which these theoretical frameworks have been tested (and the resulting outcomes) are within the context of developed countries (Han & Sherraden, 2009; McKernan et al., 2010; Mills et al., 2008; Schreiner & Sherraden, 2007; Sherraden, Johnson, Elliott III, Porterfield, & Rainford, 2007; Ssewamala & Sherraden, 2004; Zhan & Sherraden, 2011). If contractual savings are good for welfare states like the United

States, they are even more essential for poor countries with no public welfare system—where having some money saved (however modest the savings may be) may make the difference between starvation and being able to feed one's family. Indeed, although, studies exist on the impact of contractual savings, including Child Development Accounts in poor communities, specifically those in Sub-Saharan Africa (Ssewamala et al., 2009; Ssewamala & Ismayilova, 2009; Ssewamala, Ismayilova, et al., 2010; Ssewamala, Neilands, et al., 2011), we know very little about the drivers of the saving behavior of participants—especially children—in contractual savings being implemented in poor countries. In other words, what factors account for variation in saving behavior among poor children participating in these programs? Can we use the existing western focused theory to explain the observable variations? To address this gap, we use data from an NIH funded study on CDAs, called Suubi-Maka, implemented in Southwestern Uganda between 2008 and 2012. We specifically address the following question: What accounts for saving variations among poor participants in a contractual Child Development Accounts Program? Saving variation will be measured using three outcome variables: (1) whether, when invited and given an opportunity, participants opened a CDA; (2) For those participants who opened a CDA, what is their average monthly savings in CDA; and (3) For those who opened a CDA, what is their deposit frequency in CDA.

3. METHODS

3.1. Data

The paper uses data from a 4-year (2008-2012) NIH-funded experimental study called "Suubi-Maka" (meaning 'Hope for Families" in the local Ugandan language). The Suubi-Maka study utilized cluster-randomized control trial. Ten rural public primary schools in Rakai district

of Uganda were randomly assigned to treatment group (n=5 schools) and control group (n=5 groups). All the children included in the study had to meet the following inclusion criteria: (1) be an orphan—defined as a child who had lost one or both parents; (2) enrolled in a public primary school located within Rakai or Masaka district in Southern Uganda—two districts heavily affected by HIV/AIDS; (3) attending the last two years of primary school (an equivalent of grades 6th and 7th in the U.S. system); (4) live within a family setting. For a caregiver to be included in the study, he/she had to be identified as the primary caregiver for the participating child. Identification for the primary caregiver of a specific child was done by the child, and was verified by a letter from the local council/village leaders. The study did not enroll any children living in institutions –for example group homes or orphanages.

The Suubi-Maka study collected data from both children and their guardians (N=346 dyads) in three waves over a period of 24 months. Wave 1 – baseline data – was collected prior to random assignment.

Each child in the treatment group (n=179) had a Child Development Account opened in his/her name. A deposit of up to 20,000 Uganda shillings (an equivalent of US$10 at the time) was subject to being matched on a monthly basis at a rate of 2:1. This means that if a child or family deposited an equivalent of $10 a month, they would receive $20 in their savings accounts, giving them a total of $30 in the account in one month. The withdrawals from the matched accounts were restricted to covering educational expenses and/or starting a family small business initiative—hence the name "contractual savings". In other words, the participants and the Suubi-Maka Project entered into a contract specifying the following: (1) savings, up-to an equivalent of USD10 per month in a Suubi-Maka account for the child, would be matched at a rate of 2:1; and (2) the matched amounts must be spent on one of the following goals: education financing,

and/or family small business development. To illustrate, the participants' personal savings were kept in a separate account from the actual matching amounts coming from the intervention. If a participant wanted to pay for education, the participant was expected to use one-third (1/3) of the required amount out of their Suubi-Maka personal savings accounts; and the Suubi-Maka project would then pay directly to the school the remaining two-thirds of the required amount out of the participant 's matching account. This process was intended to avoid misuse of the matching funds. In addition to the match, each participant with a CDA also received financial management/literacy training session. The CDA accounts were opened in three banks: Kakuuto Microfinance, Centenary Bank and DFCU. A participant was free to open an account in a bank of his/her choice. Each of the three financial institutions required a minimum opening amount to set up a Child Development Account. The minimum opening amount varied across the three banks and was fully covered by the Suubi-Maka project—as a part of financial incentive to participants. The matching intervention period ran for a period of 20 months.

Participants in the control group (n=167) received usual care for orphaned children that included the following: counseling, food, school uniforms, and scholastic materials.

Given the focus of this paper—which is about understanding the saving behavior of participants in a contractual savings program, we use data only from the treatment group (n=179). The data (savings data) on account opening, deposits, and withdrawals—come directly from the financial institutions holding the children's savings accounts; hence the data is pretty accurate. Data on predictor variables was collected through a 90-minute individual interview with children and guardians separately.

3.2.Measures

(a) Outcome variables

To ascertain whether a participant is a saver or non-saver, we use the following measures:

(1) Whether families opened up a bank account in the Suubi-Maka project or not. It is a dichotomous (Yes/No) variable.

(2) Deposit frequency: calculated as a ratio of times of making deposits to the total number of months the account was opened. We use ratio, because the total number of months during which the CDA was opened differs across the project participants.

(3) Average monthly savings per participants. This measure is obtained by subtracting total unmatched withdrawals from total deposits and dividing this amount by the number of months in which the participant made deposits.

(b) Predictor variables

Based on the multiple theoretical frames detailed above, we examine several factors to understand how savers differ from non-savers in Suubi-Maka project. More specifically, the following predictor variables are used in the analyses:

Financial attitudes: child's propensity to save and guardian's propensity to save. Child's propensity to save is measured by asking the question "*If you had Uganda shillings 10,000, what would you do?*" This measure ranges from 1 "spend all of it" to 6 "buy a cow, goat, pig, chicken, rabbit or other animal that would eventually bring in money". The higher the score, the higher is the propensity to save. Guardian's propensity to save is measured by asking the guardian an identical question to the one asked above (to the children): *If you had Uganda shillings 10,000, what would you do?*"

Financial behaviors: child's previous experience with saving (i.e., experience with saving prior to the treatment), and guardian's previous experience with saving. Child's previous experience with saving is measured through a baseline dichotomous question with a "Yes" or

"No" response: "*Do you currently have any money saved anywhere*". Guardian's previous experience with saving is measured through the following identical baseline question addressed to the guardians: "*Do you currently have any money saved anywhere*". (Yes/No).

Family cohesion reported by a child. To measure family cohesion, we use average score of 26 items. Sample items on the family cohesion scale reported by the child include: "*Do your family members ask each other for help before asking non-family members for a help*", "*Are you available when others in the family want to talk to you*", "*If you have a problem, how often do your parents offer to help*", "*Can you count on your current parent/guardian to help you out if you have some kind of problem?*". Each item is measured on a 5-point scale from 1 "Never" to 5 "Always". The average score ranges from 0 (low level of family cohesion) to 5 (high level of family cohesion). The measure has high level of internal consistency (Chronbach's alpha = 0.8).

Household assets: is a composite score consisting of 16 dichotomous items. Each item indicates household's ownership of a specific asset, e.g. house, land, means of transportation (car, motorcycle, and bicycle), garden, and livestock. The score ranges from 0 (household has no assets) to 16 (household has all 16 types of assets). Questions used to compute household assets come from the guardians' instrument. The measure has high internal consistency (Cronbach's alpha = 0.7).

Financial institution where CDA was opened: This measure has three response categories—representing the three financial institutions holding the CDAs: 1) Kakuuto Microfinance; 2) Centenary Bank and; 3) DFCU bank.

Demographic characteristics: child's gender and age, guardian's gender and age, number of people in the household, child's orphanhood status, type of guardian, and guardian's employment status. Child's orphanhood status is a categorical variable indicating whether the

child is double orphan (reporting both parents not alive), single paternal orphan (reporting father not alive), or single maternal orphan (reporting mother not alive). Type of guardian is a categorical variable with three response categories: *"parents", "grandparents", and "other relatives"*. Guardian's employment status is a dichotomous variable indicating whether the guardian is employed or unemployed.

3.3. Analyses

This paper is about the saving behavior of participants enrolled in a Child Development Accounts program. For that reason, we focus exclusively on participants in the treatment arm of the Suubi-Maka study (n=5 schools; 179 participants).

Data on predictor variables—a panel data on children and their guardians (179) dyads—was collected in three waves, that is at baseline, at a 12-month follow-up, and at a 24-month follow-up. Except for three predictors—namely, *child's gender*, *guardian's gender*, and *financial institution where CDA was opened*—all other predictors are treated as changing over the course of three waves. *Child's gender* and *guardian's gender* are not changing over the course of three waves; and regression models include baseline (Wave 1) values for these predictors. *Financial institution where CDA was opened* also did not change over the course of study: each of the children in the treatment group was provided with one CDA account opened at one of the three participating institutions (Kakuuto Microfinance, Centenary Bank or DFCU bank); and these accounts could not be "switched" from one institution to another. Regression models include "Kakuuto Microfinance" as reference category.

Data on outcome variables reflects savings by the end of the intervention: (1) whether—by the end of the intervention—families opened up a bank account or not; (2) how frequently money was deposited on a bank account—by the end of the intervention—given the total number

of months the account has been opened; and (3) what was average monthly saving on a bank account—by the end of the intervention—given the total number of months the account has been opened.

Data analyses are performed in Stata 12. To account for clustering of individuals within schools, we use survey commands in Stata 12 and report estimates of parameters along with confidence interval statistics. To answer the question guiding our study, we follow the following steps:

1) Before running regressions of the outcomes on the predictors, first, we apply empirical Bayes prediction procedures on predictors. We fit multilevel models to predictor measures changing over the course of three waves—to obtain empirical Bayes predictions of random intercepts and random slopes. With this procedure, random intercepts show estimates of starting points for each individual and random slopes represent estimated change (over the course of 3 years) for each individual. Given the small number of schools (n=5), the multilevel models we fit to obtain empirical Bayes predictions have two levels, i.e., individual and time.

2) After obtaining the empirical Bayes predictions on predictors, we fit regression models of three outcome measures onto estimates of random intercepts (model 1) and slopes (model 2) separately.

It is important to note that for two predictors—namely (i) child's previous experience with saving (*do you have any money saved anywhere?* – reported by a child); and (iii) guardian's previous experience with saving (*do you have any money saved anywhere?* – reported by a guardian)—only the baseline values are included in regression models, because our interest is in

experience with saving prior to the treatment. Furthermore, both measures are endogenous at Wave 2 and Wave 3, their values being affected by the treatment.

3) Third regression model is run on mean scores of predictors for each person over the three waves. Results are compared with previous two models.

4. RESULTS

4.1. Description of measures

Table 1 describes both predictor and outcome measures. Due to attrition, number of treatment group participants at Wave 3 reduced from 179 to166 (an attrition rate of 7.3%). This is considered a good attrition rate over a 3-year study period.

At study initiation/baseline: on average, participants—with mean age of 13 for children and 44 for guardians—lived in households with 7 people. Girls represented 65% of the sample; 23% of children in the sample were double orphans (both parents not alive), 58% were single paternal orphans (father not alive), and 19%—single maternal orphans (mother not alive). Families reported an average 6 items on the household assets measure—signifying relatively poor families (the range on this measure is 0 to 16 items). Further, both children and guardians report above average scores on propensity to save. Specifically, children scored an average of 4.8 out of a possible score of 6; and guardians scored an average of 4 out of a possible score of 6. Further, children reported high scores on the family cohesion measure (average score=3.8 out of 5).

At baseline, 25.5% of children reported their guardians saving money for them. The percentages were 71.5% and 55.3% at Waves 2 and 3, respectively.

At baseline, 20.1% of children participants reported having money saved somewhere. There was a 29-percentage point increase to 49% at Wave 2, and a 43-percentage point increase to 63.3% by Wave 3. Among guardians, at baseline, 39.7% of participants reported having money saved somewhere. At Wave 2, it was 56.9% and at Wave 3 – 67.9% of guardians reported having money saved somewhere.

[INSERT TABLE 1 HERE]

Out of 179 families enrolled in treatment group, 81.6% (n=146) had Child Development Accounts opened up as a result of participation in the study. Out of the 146 accounts opened, 8.2% (95% CI=0.3, 72) were opened in Kakuuto Microfinance Institution; 35% (95% CI=4.2, 87) were opened in Centenary Bank and 57% (95% CI=8.8, 95) were opened in DFCU bank. Financial institutions were unevenly distributed across the schools, which may explain significant variation in 95% confidence interval estimates. Out of 146 accounts opened, 11 accounts were never activated and17 accounts had no deposit made during the project implementation period—beyond the opening amount provided by the project. In 118 CDA, each participant saved an average of UGX 5,477 per month (an equivalent of USD 3.04. Average exchange rate was 1USD for 1,800 UGX at the time of the study). The bottom 10% saved an average of UGX 171 while the top 10% saved an average of UGX 19,090. Average deposit frequency equaled to 0.29, that is, participants deposited 29% of time when the account was opened.

4.2. Regression analyses

For each outcome measure (i.e., *whether families opened up a bank account in the Suubi-Maka project or not*; *deposit frequency*; and *average monthly savings per participants*) we fit three distinct regression models. Models 1 and 2 are regressions of outcome measures onto

random intercepts and random slopes of predictors. Model 3 is a regression of outcome measures onto mean scores of predictors over the three waves.

(a) Whether Participants Opened CDA Account

Table 2 presents results of binomial regressions on whether participants opened CDA accounts or not. It reports odds ratios and 95% confidence interval statistics.

Model 1 (see Table 2) illustrates that the fraction of families opening a CDA is higher among children who reported higher baseline scores on *propensity to save* (odds ratio=1.8, 95% CI=1.3, 2.4). Furthermore, proportion of families that opened a CDA was greater among households where guardian reported having baseline experience with saving (odds ratio=2.2, 95% CI=1.1, 4.2).

Results also indicate (Model 3) that, on average over the course of project implementation period, fraction of participants opening a CDA was greater among single orphans compared to double orphans (odds ratio=0.99, 95% CI=0.99, 0.997).

[INSERT TABLE 2 HERE]

(b) Average Monthly Saving Per Participant

In Table 3, we present results of linear regressions on average monthly saving per participants. We find significant results—confirmed by all three models—for having CDA opened in Centenary Bank: participants who opened up CDA in Centenary Bank had less average monthly savings, compared to participants who opened up CDA in Kakuuto Microfinance. Model 1 shows similar results for another financial institution, DFCU: participants who opened up CDA in DFCU had less average monthly savings, compared to participants who opened up CDA in Kakuuto Microfinance (B= -3,969, 95% CI=   -6,510; -1,429).

Model 1 also illustrates that single orphans had higher average monthly saving compared to double orphans (B= 48, 95% CI= 12; 84). Model 2 demonstrates that children taken care by female guardians had higher average monthly saving compared to children taken care by male guardians (B= 3,309, 95% CI=300; 6,318).

[INSERT TABLE 3 HERE]

Additionally, Table 3 shows significant negative association between guardian's propensity to save and average monthly savings. This might be due to specifics of measuring the participants' propensity to save. Both children and guardians were asked a question "*If you had Uganda shillings 10,000, what would you do?*" and were given the following response options—from the lowest to the highest score—"*spend all of it*", "*spend most of it*", "*spend half, save half*", "*save most of it*", "*save all of it*", and "*buy a cow, goat, pig or other animal that would eventually bring money*". It is, therefore, possible that score "6"—although indicating the highest propensity to save—is associated with lower monetary saving and higher investment into non-monetary assets.

(c) Deposit Frequency

Table 4 describes results of regression analyses on deposit frequency in CDA. All three models show significant effect of *guardian's propensity to save* and *guardian's gender* on deposit frequency.

At baseline (Model 1), higher *guardian's propensity to save* is associated with lower deposit frequency (B= -0.22, 95% CI= -0.4; -0.05). Similarly, on average over the project implementation period (Model 3), higher *guardian's propensity to save* is associated with lower deposit frequency (B= -0.05, 95% CI= -0.08; -0.02). As explained above, this might be due to specifics of measuring the participants' propensity to save. Meanwhile, as would be expected,

increase in *guardian's propensity to save* (Model 2) is associated with increased deposit frequency (B= 2.5, 95% CI= 0.5; 4.6).

On average over the project implementation period (Model 3), higher *family cohesion reported by child* is associated with higher deposit frequency (B= 0.16, 95% CI= 0.03; 0.3).

[INSERT TABLE 4 HERE]

In addition, all three models demonstrate that children taken care by female guardians deposit more frequently than children taken care by male guardians.

Participants who had CDA opened in Centenary Bank (B= -0.08, 95% CI= -0.1; -0.02) and in DFCU (B= -0.15, 95% CI= -0.3; -0.04) deposited less frequently, compared to participants who had CDA opened in Kakuuto Microfinance (Model 1).

5. DISCUSSION

The results point to two main findings. First, in this study, we find that financial institution characteristics influence saving performance of children. In our analyses, participants saving in a community-based microfinance institution (Kakuuto Microfinance) saved more and deposited more frequently, compared to those saving in more urban-based financial institutions located further away from the community. We do not know whether these differences in saving performance are due to variation in operational procedures utilized by financial institutions (e.g., frequency of communicating with clients, physical proximity to clients, availability of staff in case if clients need support and advice, etc.). The strong association between financial institutions and saving behavior (in children's accounts offered in these institutions) urges for further research to better understand what specific operational procedures and policies of financial institutions account for the variation in saving behavior of their clients.

Second, family does matter in regards to individual saving behavior. Higher family cohesion, as reported by child, is associated with higher frequency of depositing money into child's savings account. Having even one biological parent (the case of single orphans)—as compared to having no biological parents survived (the case of double orphans)—increases the likelihood of a savings account being opened for a child as well as the amount of average monthly savings. In addition, guardian's propensity to save is an important factor affecting the average monthly saving in children's savings accounts as well as frequency of depositing money into these accounts. This finding is important in light of previously established strong association between caregiver's financial behavior, specifically asset accumulation, and child's wellbeing (Conley, 2001; Mayer, 1997; Williams Shanks et al., 2010). Additionally, the findings of this study augment earlier studies that point to the importance of matrilineal support (Karimli, Ssewamala, & Ismayilova, 2012; Oleke, Blystad, & Rekdal, 2005) in care and support of orphaned and vulnerable children. In this case, children under the care of female guardians saved more and deposited more frequently. Significant effect of specific caregiver characteristics (i.e. gender and propensity to save) provides further insight into the family-level decision making with regard to saving for children.

Having savings accounts help children better understand concepts related to savings and investment (E. Johnson & Sherraden, 2007), and this may have a long-term impact on children's savings behavior as adults (Peng et al., 2007), thus, break the circle of intergenerational poverty. Identifying factors that account for saving behavior—specifically among children and their families in poor communities in Sub-Saharan Africa—can help improving saving performance and, therefore, contribute to successful asset-building in the long-run. Furthermore, it may add to

the knowledge on feasibility of social welfare policies focused on asset-building (in this case savings)—rather than meeting immediate consumption needs—for the poor.

6. LIMITATIONS

One of the limitations of this study is that the dataset does not contain information on household consumption and expenditure patterns, and, therefore, we cannot look closely into households' financial management mechanisms. In the Suubi-Maka dataset, when children are saving, we do not know who is making the decision to save: children themselves or families? It is important to understand who, within the family, made decisions on savings and how these decisions were communicated among the family members; how the structure of power within the household, social constructions of gender behavior and orphanhood status affect family's decision to save for a child, especially for an orphan child taken care by a family. Also, it would be informative to examine how saving in children accounts affected families' consumption patterns, particularly given significant budget constrains experienced by poor families in our sample.

Secondly, Suubi-Maka study focuses specifically on school-going children who are taken care by a living parent (when the child is a single orphan) or by an adult caregiver within an extended family (when the child is a double orphan). The study does not cover orphans living in child-headed households or orphans living in streets. Therefore, in this paper, we refrain from drawing conclusions about saving behavior of all orphans. As illustrated by the study results, families have significant effect on individuals' saving behaviors. It is also stated elsewhere (Gudmunson & Danes, 2011; Shim et al., 2010) that children's saving behavior is influenced by their family members, specifically parents. Consequently, we refrain from concluding how

orphans would save in the absence of family structure (in case of street orphans) or in the absence of adult caregiver (in case of child-headed households)

7. POLICY IMPLICATIONS

The study has the following key implications: financial institutions and family relations matter in children savings mobilization.

In line with institutional theory of saving and previous findings on importance of institutions in affecting savings outcomes (Curley, Ssewamala, & Sherraden, 2009; Han & Sherraden, 2009; Schreiner & Sherraden, 2007; Ssewamala & Sherraden, 2004), our findings show that financial institutions significantly affect savings in Child Development Accounts. Further research may be needed to understand what specific operational procedures within financial institutions affect saving behavior of their clients. This being said, however, our findings suggest that institutional structures of asset-building initiatives affect savings among poor children and their families in poor communities of Sub-Saharan Africa. Specific institutional features, therefore, shall be focus of policy initiatives encouraging asset building among poor communities in Sub-Saharan Africa.

In agreement with previous studies (Danes, 1994; Gudmunson & Danes, 2011; Kim, LaTaillade, & Kim, 2011), families play an important role in children saving mobilization. This finding suggests that families—both biological and extended families—shall be seen as a vital component in building assets for poor children in Sub-Saharan Africa.

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Table 1. Description of measures

PREDICTOR MEASURES	Wave 1 (n=179)	Wave 2 (n=171)	Wave 3 (n=166)
	Mean [95% Confidence Interval]		
Child's age (range: 10-17)	13 [13; 14]	14 [14; 15]	15 [15; 16]
Guardian's age (range: 18-87)	44 [37; 51]	44 [38; 51]	45 [37; 53]
Number of people in the household (range: 1-13)	7 [6; 7]	7 [6; 7]	6 [6; 7]
Household assets (range: 0-16)	6 [4.6; 7.8]	6 [4.6; 7.8]	6 [5.3; 7.5]
Family Cohesion reported by child (range: 0-5)	3.8 [3.7; 3.9]	3.9 [3.8; 3.9]	3.9 [3.8; 4]
Child's propensity to save (range: 1-6)	4.8 [4; 5.6]	4.7 [3.9; 5.5]	5 [4.8; 5.5]
Guardian's propensity to save (range: 1-6)	4 [3.9; 4.6]	3.7 [3; 4]	4 [3.6; 4]
	Percent [95% Confidence Interval]		
Female child	65.4 [49.1; 78.6]	65.5 [48.7; 79.2]	63.9 [46.6; 78.2]
Child's orphanhood status			
Double orphan	23 [17.6; 29.5]	24.3 [18.5; 31.2]	21.5 [14.1; 31.3]
Single paternal orphan	57.9 [48.7; 66.5]	57 .4 [50; 64.5]	59 [48.2; 68.8]
Single maternal orphan	19 [13; 27]	18 .3[13.4; 24.7]	19.6 [16.4; 23.3]
Type of guardian			
Parents	40.2 [28; 53.8]	41.3 [31.4; 52]	43.2 [31.3; 55.9]
Grandparents	21.2 [10; 40.6]	21.6 [9.9; 40.8]	20.4 [8.4; 41.6]
Other	38.5 [28.9; 49.2]	37.1 [28.9; 46.2]	36.4 [29; 44.5]
Female guardian	77.7 [59.9; 89]	78.4 [61.4; 89.3]	77.2 [61.7; 87.7]
Guardian's employment status			
Unemployed	11 .2 [5; 22.8]	6.6 [2.6; 15.6]	5.6 [1.4; 19.6]
Employed	88.8 [77.2; 94.9]	93.4 [84.4; 97.4]	94.4 [80.4; 98.6]
Child's experience with saving. Do you have money saved (reported by child)? (%, YES)	20.1 [12.6; 30.5]	49 [34.5; 63.9]	63.3 [57.9; 68.4]
Guardian's experience with saving. Do you have money saved (reported by guardian)? (%, YES)	39.7 [19.8; 63.7]	56.9 [44.5; 68.4]	67.9 [54.7; 78.8]
Financial Institution where CDA was opened (%), n=146			
Kakuuto Microfinance			8.2 [0.3; 72]
Centenary Bank			35 [4.2; 87]
DFCU			57 [8.8; 95]
OUTCOME MEASURES	*Percent and Mean [95% Confidence Interval]*		
Opened CDA (%, YES)			81.6 [53.9; 94.4]
Average monthly saving (range: 100-38,158), n=118			5,477 [2,437; 8,516]
Deposit frequency, n=118			0.29 [0.18; 0.4]

Table 2: Whether Participants Opened CDA Accounts.

VARIABLES	Random intercept (Model 1)	Random slope (Model 2)	Mean predictor over three waves (Model 3)
	Odds Ratio [95% Confidence Interval]		
Household assets	1.1	242.8	1.1
	[0.8 - 1.7]	[8.83e-05 - 6.673e+08]	[0.9 - 1.4]
Family Cohesion reported by child	1.4	0.02	0.7
	[0.1 - 28.2]	[4.34e-07 - 921.3]	[0.1 - 6.7]
Child's propensity to save	1.8**	0.04***	1.3
	[1.3 - 2.4]	[0.02 - 0.08]	[0.9 - 1.6]
Guardian's propensity to save	0.5	67,830	0.9
	[0.08 - 3.3]	[2.88e-06 - 1.595e+15]	[0.6 - 1.5]
Child's age	0.99	Omitted	1.1
	[0.9 - 1.2]		[0.9 - 1.4]
Guardian's age	1.01	1.1	1.003
	[0.9 - 1.1]	[0.7 - 1.6]	[0.95 - 1.06]
Number of people in the household	1.1	2.1	1.01
	[0.8 - 1.5]	[0.12 - 35.7]	[0.7 - 1.5]
Child's gender (female)	1.1	0.9	0.8
	[0.5 - 2.5]	[0.4 - 2.4]	[0.4 - 1.7]
Child's orphanhood status	0.99	0.99	0.99**
	[0.95 - 1.02]	[0.99 - 1]	[0.99 - 0.997]
Type of guardian	0.7	0.02	0.6
	[0.24 - 1.8]	[1.39e-06 - 225.9]	[0.3 - 1.4]
Guardian's gender	0.94	1.11	1.4
	[0.22 - 3.97]	[0.34 - 3.7]	[0.5 - 3.7]
Guardian's employment status	1.2	1.4	6.6
	[0.95 - 1.4]	[0.9 - 2.4]	[0.8 - 51.6]
Child's experience with saving. Do you have money saved (reported by child)? (%, YES, baseline value)	1.7	1.99	1.6
	[0.2 - 12.5]	[0.3 - 11.6]	[0.2 - 15.4]
Guardian's experience with saving. Do you have money saved (reported by guardian)? (%, YES, baseline value)	2.2*	2.2	2.6*
	[1.1 - 4.2]	[0.8 - 5.8]	[1.3 - 4.9]
Constant	4.2	4.05*	0.15
	[0.9 - 19.7]	[1.2 - 13.9]	[6.89e-05 - 304.7]
Observations	176	176	176

*p≤0.05, **p≤0.01, ***p≤0.001

Table 3: Average Monthly Saving per Participant.

VARIABLES	Random intercept (Model 1)	Random slope (Model 2)	Mean predictor over three waves (Model 3)
	Beta-coefficient [95% Confidence Interval]		
Household assets	-76	-5,209	-10
	[-773 - 621]	[-30,773 - 20,355]	[-415 - 394]
Family Cohesion reported by child	3,428	-3,870	3,054
	[-1,710 - 8,567]	[-16,707 - 8,967]	[-1,497 - 7,605]
Child's propensity to save	455	3,426	120
	[-1,830 - 2,741]	[-8,237 - 15,088]	[-1,246 - 1,485]
Guardian's propensity to save	-3,662*	44,958	-855*
	[-6,908 - -416]	[-2,260 - 92,176]	[-1,499 - -210]
Child's age	-1,127*	Omitted	-902
	[-2,097 - -157]		[-1,831 - 28]
Guardian's age	-95	538	-84
	[-248 - 57]	[-106 - 1,183]	[-248 - 81]
Number of people in the household	209	2,514	197
	[-194- 612]	[-2,057 - 7,085]	[-322 - 715]
Child's gender	2,229	2,142	2,454
	[-1,254 - 5,712]	[-47 - 4,331]	[-1,184 - 6,092]
Child's orphanhood status	48*	9	-17
	[12 - 84]	[-7 - 25]	[-39 - 6]
Type of guardian	1	601	-201
	[-1,949 - 1,950]	[-5,734 - 6,936]	[-1,647 - 1,244]
Guardian's gender	2,431	3,309*	2,590
	[-571 - 5,433]	[300 - 6,318]	[-350 - 5,531]
Guardian's employment status	302	408	3,713
	[-87- 691]	[-302 - 1,118]	[-249 - 7,674]
Child's experience with saving. Do you have money saved (reported by child)? (%, YES, baseline value)	-907	-200	-487
	[-5,737 - 3,924]	[-5,121 - 4,721]	[-4,659 - 3,685]
Guardian's experience with saving. Do you have money saved (reported by guardian)? (%, YES, baseline value)	2,151	3,081	2,569
	[-2,162 - 6,464]	[-723 - 6,885]	[-2,315 - 7,454]
Financial Institution where CDA was opened: Centenary Bank	-4,197**	-3,284**	-3,488*
	[-6,327 - -2,068]	[-4,879 - -1,689]	[-5,609 - -1,367]
Financial Institution where CDA was opened: DFCU	-3,969*	-3,126	-2,806
	[-6,510 - -1,429]	[-7,512 - 1,260]	[-5,896 - 284]
Constant	5,118**	3,222	7,209
	[3,146 - 7,089]	[-255 - 6,699]	[-30,145 - 44,563]
Observations	116	116	116
R-squared	0.229	0.153	0.226

*p≤0.05, **p≤0.01, ***p≤0.001

Table 4: Deposit Frequency.

VARIABLES	Random intercept (Model 1)	Random slope (Model 2)	Mean predictor over three waves (Model 3)
	Beta-coefficient [95% Confidence Interval]		
Household assets	-0.01	-0.4	-0.01
	[-0.03 - 0.01]	[-1.4 - 0.6]	[-0.01 - 0.004]
Family Cohesion reported by child	0.18	-0.4	0.16*
	[-0.03 - 0.4]	[-1.13 - 0.3]	[0.03 - 0.3]
Child's propensity to save	0.05	-0.06	0.03
	[-0.06 - 0.2]	[-0.6 - 0.5]	[-0.03 - 0.09]
Guardian's propensity to save	-0.22*	2.5*	-0.05*
	[-0.4 - -0.05]	[0.5 - 4.6]	[-0.08 - -0.02]
Child's age	-0.04*	Omitted	-0.03
	[-0.1 - -0.01]		[-0.1 - 0.002]
Guardian's age	-0.003	0.02	-0.002
	[-0.01 - 0.001]	[-0.03 - 0.1]	[-0.01 - 0.003]
Number of people in the household	0.01**	0.05	0.01
	[0.01 - 0.02]	[-0.2 - 0.3]	[-0.003 - 0.02]
Child's gender	0.03	0.02	0.03
	[-0.07 - 0.1]	[-0.1 - 0.1]	[-0.06- 0.1]
Child's orphanhood status	0.001	0.0002	-0.001
	[-0.001 - 0.003]	[-0.001 - 0.001]	[-0.002 - 0.001]
Type of guardian	-0.01	0.17*	-0.01
	[-0.07 - 0.04]	[0.01 - 0.3]	[-0.08 - 0.05]
Guardian's gender	0.13*	0.17*	0.15*
	[0.02 - 0.2]	[0.03 - 0.3]	[0.04 - 0.3]
Guardian's employment status	0.02	0.03	0.23
	[-0.01 - 0.05]	[-0.02 - 0.1]	[-0.01 - 0.5]
Child's experience with saving. Do you have money saved (reported by child)? (%, YES, baseline value)	-0.05	-0.03	-0.04
	[-0.2 - 0.1]	[-0.2 - 0.1]	[-0.2 - 0.1]
Guardian's experience with saving. Do you have money saved (reported by guardian)? (%, YES, baseline value)	0.06	0.08	0.1
	[-0.1 - 0.2]	[-0.09 - 0.3]	[-0.1 - 0.3]
Financial Institution where CDA was opened: Centenary Bank	-0.08*	-0.04	-0.05
	[-0.1 - -0.02]	[-0.12 - 0.03]	[-0.1 - 0.01]
Financial Institution where CDA was opened: DFCU	-0.15*	-0.115	-0.12
	[-0.3 - -0.04]	[-0.3 - 0.05]	[-0.3 - 0.01]
Constant	0.3**	0.2*	0.04
	[0.2 - 0.4]	[0.02 - 0.4]	[-0.9 - 0.9]
Observations	116	116	116
R-squared	0.279	0.187	0.296

*p≤0.05, **p≤0.01, ***p≤0.001