The Allocation of Capital in Rural Credit Markets

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Abstract

Understanding how capital flows within rural communities in sub-Saharan Africa can provide important insights on the nature of poverty and the effectiveness of financial intermediation. We use unique individual level savings and borrowing data to study the flow of funds within a sample of 104 Ugandan savings groups. We show that poor households borrow from wealthier households, which implies that the marginal benefit of money is decreasing in wealth. Other individual characteristics do not predict the flow of funds within the group. We also fail to detect evidence that members are using savings groups to smooth out occupation-specific income shocks.

JEL classification: G21; O16.

Keywords: rural financial markets; savings groups; poverty.

1 Introduction

Financial intermediation is useful when members of a community are heterogeneous in the returns on the investment opportunities available, in the types of income shocks faced, or in their attitude toward risk. Furthermore, several important theories claim that the efficiency of this intermediation is an important determinant of the persistence of poverty.[1] In the presence of severe credit-market frictions, only sufficiently wealthy households borrow and engage in high-return projects requiring large upfront investments. Poor households self-insure against income shocks by saving, or are not active in the credit market preferring to deploy their own resources in activities requiring

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[1] See the literature on poverty traps, in particular Banerjee and Newman (1993), Galor and Zeira (1993), Mookherjee and Ray (2003), among others.

little or no initial investment. As a consequence, they remain poor if these shocks are large or these activities yield low returns. On the other hand, when the credit market functions sufficiently well or high-return projects do not require large upfront investments, poor households can smooth out income shocks, invest in high-return projects and catch up with richer households over time. In this case, in a closed economy we should observe poorer households borrowing from wealthier households who already exploited high-return projects or are less risk averse.[2]

In light of these theories, the flow of funds generated within a village economy has important implications for our understanding of poverty. In this paper, we study the flow of funds generated within a specific local financial institution: savings groups (SGs). Members of an SG pool savings within the group, borrow from the group at an interest, and receive a return on their savings. SGs facilitate financial flows within local communities, and have received a lot of attention from policy makers in the past decade. For instance, the Gates Foundation has provided significant resources to Catholic Relief Services, CARE International, and Oxfam to develop such groups in sub-Saharan Africa[3]. Consequently, membership in SGs reached 10.5 millions people worldwide in 2014, a tenfold increase relative to 2008, and continues to climb. There is evidence from randomized trials that participation in savings groups is beneficial (see Beaman, Karlan, and Thuysbaert, 2014, Ksoll and Forskningsenhed, 2013, Bundervoet, 2012), but financial flows within savings groups have not yet been studied.

This paper aims at filling this gap. We use detailed individual level information among members of 104 SGs in Uganda to study how their initial characteristics correlates with their borrowing and saving choices. We find that, within groups, wealthier members save more than poorer members but that they do not borrow more. This means that, on average, the relatively rich lend to the relatively poor. Furthermore, we show that initial wealth is negatively correlated (weakly) with the net borrowing position at every wealth level, so that poorer households borrow weakly more than slightly less poor households. Controlling for wealth, we find that farmers are more likely to be net lenders, but gender, income and other individual characteristics are uncorrelated with the net borrowing position. We also seek evidence that financial flows provide risk sharing across different occupations present in the group. Our estimates are inconclusive, suggesting either that occupation-specific income shocks are not very large relative to idiosyncratic income shocks, or that frictions at the group

[2] Under additive shocks and standard CRRA utility functions, when faced with a similarly sized income shock, standard theory predicts that the rich will let their consumption vary by more relative to the poor.

[3] See https://docs.gatesfoundation.org/Documents/one-early-success-story.pdf.

level prevent risk sharing across occupations.[4]

To our knowledge, we are the first to use individual savings group member data to study the flows of credit within rural credit markets. The existing literature on informal transfers in rural villages has mostly studied inter-personal, non-intermediated transfers. That literature has argued that poor households are part of a complex web of financial transactions involving both borrowing and lending (Udry, 1994, Collins et al., 2009), where they are often net recipients of transfers from the rich (e.g., Fafchamps and Gubert, 2007). Such informal transfers can be explained by altruism (e.g., Foster and Rosenzweig, 2001, Alger and Weibull, 2010), social pressure to help poorer community members (e.g., Jakiela and Ozier, 2016), or as a way to extend and strengthen a person's social sphere (Guérin et al., 2011, Shipton, 2007). While financial transactions within savings groups do not operate completely outside a moral economy subject to "interpersonal bonds of dependence and domination" (Guérin et al., 2011), we think that these elements are not of primary importance in our context: loans from SGs have to be repaid with interest (between 3% and 20% per month), and borrowers in the savings group are borrowing from the group and not from any specific individual.

Our paper also contributes to the literature on poverty traps, as well as a more specific literature on savings groups. Our result that the rich lend to the poor is consistent with papers questioning the existence of technology-based poverty traps (e.g., Kraay and McKenzie, 2014), and with theories of poverty based on behavioral biases (Banerjee and Mullainathan, 2010, Bernheim et al., 2015, Canidio, 2015). Our evidence is also consistent with Beaman et al. (2014), who show that the marginal return of capital for Malian farmers is negatively correlated with baseline farm revenue.[5]

Our paper belong to a nascent literature studying the ability of SGs to intermediate financial flows. It complements work by Cassidy and Fafchamps (2015) showing that sorting patterns within Malawian SGs are consistent with models where present-biased commitment savers supply funds to time consistent borrowers. A relevant finding in that paper is that people belonging to the same profession tend to join the same savings group. They interpret this result as "suggesting unrealized intermediation possibilities," as members of the same occupation category will have similar demands for loans. While we lack measures of present bias, we find no difference in the patterns of borrowing within and across occupations. One interpretation of this result is that

[4] Of course, another possibility is that we fail to detect risk sharing across profession due to data limitations.

[5] Interestingly, the recent literature on microfinance finds that baseline characteristics of potential borrowers such as wealth do not predict microfinance's take-up (Banerjee, Karlan, and Zinman, 2015). This is consistent with the model in Beaman et al. (2014) where microfinance institutions are screening out low-wealth but high marginal-return borrowers. The fact that we see these correlations in SGs suggests that SGs are not screening low wealth participants to the same degree.

SGs are unable to smooth profession-specific income shocks, which may explain the sorting pattern observed by Cassidy and Fafchamps (2015).

2 Background on SGs

SGs are community-based financial institutions, composed of around 30 members, who meet weekly, save with and borrow from the group. During the first meeting, members agree on the interest rate charged on loans, the maximum weekly savings level allowed, the length of the group's operating cycle, and the possible loan uses. Each week, members contribute funds to the group, repay previous loans, and request new loans. Loan amounts are capped at 3 times the amount saved by the borrower within the group. Hence, a member who wishes to borrow must first save. Funds that are not lent out are stored in a safe and can be lent out in the future. Finally, at the end of the operating cycle of the group, all loans are repaid and each member receives back the amount saved with the group, plus a return on her savings that depends on the total interest payment collected by the group. After the share out, the composition of the group may change, and a new cycle may start. SGs are, in general, effective at ensuring that borrowers repay—in our study groups, only 3% of members were in arrears—and at generating positive return on savings—around 12% in our data.

Our study SGs were created in 2013 in the context of the expansion of a large anti-poverty program to 90 rural villages in Uganda. The aim of this program was to identify ultra-poor, vulnerable households and invite them to join newly created SGs, together with other members invited from the community at large. Hence, our groups are inclusive of the most vulnerable households of the community.[6]

3 Data

Our data consist of individual savings and borrowing decisions over one operating cycle of all members of our study SGs (approximately 3000 people). These data were collected during a financial review of the groups carried out by experienced auditors at the end of the groups' first operating cycle. We consider only members who contributed a positive amount and who did not drop out.[7] For each participant, we first calculate the total amount saved, the total amount borrowed, and the number of loans taken over the cycle. We then construct two measures of net borrowing: the total amount

[6] See Burlando and Canidio (2015) for more a detailed description of the functioning of SGs, of the protocol followed for the formation of the study SGs, and of the data collected.

[7] Less than 1% of the sample (112 observations) were recorded as dropouts. Note that financial records also include gender as the sole characteristic of the participant.

borrowed as a fraction of accumulated savings (i.e., the loans-to-savings ratio), and whether the loans-to-savings ratio is smaller than 1 (i.e., the member is a net lender to the group).

In addition to the collection of financial records, we also have household survey information from a sample of 1,500 participants (out of the 3,000 members) collected shortly after groups were formed.[8] The data contain information on household income, various measures of asset ownership, gender of the respondent, main occupation—also called Income Generating Activity (IGA)—and other household characteristics. We summarized the measures of asset ownership with an index using principal component analysis; additional measures of wealth are land owned (measured in acres) and an housing-structure index.[9]

Summary statistics and loan usage Table 1 reports the summary statistics of the SG participants. The table reports all data from the sample interviewed at baseline (first two columns) as well as financial outcomes from the universe of savings groups participants (last two columns).[10] Outcome variables and gender composition are nearly identical across the two samples. Two thirds of the account holders in the group are women. On average, members saved almost 100,000 UGX over the cycle, which is approximately $40, and borrowed an average of 150,000 UGX ($56). Most participants (90%) borrow at least once from the group. This indicates an important fact of lending patterns in SGs: most members participate in both sides of the market (i.e., they are both borrowers and lenders)[11] Finally, the loan to savings ratio is 1.67, meaning that on average group members were able to borrow US$1.6 for each $1 they saved, which is possible because repaid loans can be lent out again.

Summary statistics of the participants at baseline indicate that most members do not participate in formal financial markets and are generally excluded from most financial services. 7% report having a savings account, 14% a mobile money account, and 37% belong to some other type of informal financial group (including ROSCAs, savings groups, or insurance groups). These are low levels of financial integration by local standards: for instance, surveys carried out by FINSCOPE in Uganda in

[8] With perhaps a slight abuse of the term, we refer to these data as *baseline*, even though they were collected after groups formed. For a subset of participants we had some information prior to group formation (Burlando and Canidio, 2015).

[9] Unfortunately, we do not have information on the variability of income or the presence of income shocks.

[10] The interview sample reported here is restricted to observations for which all characteristics are available (i.e., not missing).

[11] In this regard, SG operations resemble patterns observed in inter-personal exchanges, in which households are often both lenders and borrowers. See Udry (1994), Collins et al. (2009), Guérin et al. (2011).

2013 (around the same time as our study) found that 17% of rural populations had access to formal bank accounts, 52% had access to formal non-bank accounts (including mobile accounts), and 74% participated in informal finance. More generally, our group participants are very vulnerable: 61% report being food insecure, and 35% report some type of disability or chronic disease at home. On the employment end, two thirds of household report being engaged in some farming, and a quarter are casual workers or informally employed. 6% of households report having no sources of income, and presumably rely on transfers or savings for survival.

An important issue is how loans generated in the savings groups are used, and how this use vary by wealth levels. We have data on the use of loans for approximately 16% of the sample (500 participants) who were interviewed at endline in 2014, after the cycle ended. Unfortunately, the interviewed sample includes only the most vulnerable participants in the savings groups, and as such it is not a representative of the overall membership. Nonetheless, for illustrative purposes only, we show how loans are utilized (Table 2). We divide this group into a "relative rich" group (asset index above 1 standard deviation) and a "relative poor" group (asset index below 1 standard deviation) and report how these two groups used loans. For simplicity, responses are aggregated into 17 categories, which are further grouped into five supra-categories (productive investments, consumption of durable/non-durable goods, ex-ante risk sharing, ex-post shock smoothing, and other uses). On average, 34% of respondents report using loans for productive investments, 45% for school fees, and 22% report using loans to absorb other shocks. The two subsamples are very similar, but the poorest are more likely to devoting a portion of their loan for consumption of durables and non-durables (18.5% vs. 6.8%). The qualitative evidence thus suggests that loans are predominantly used for investments and to smooth shocks (including paying school fees).

4 Analysis

4.1 Financial flows within savings groups

Using our baseline sample, we regress our measures of savings, borrowing, and net borrowing position on the baseline characteristics of the participants in our study groups, including our wealth index. Because we are interested in the flow of capital within each savings group, we provide within-group estimates by using SG fixed effects throughout. The estimated coefficients will indicate how initial wealth correlates with financial outcomes.

Table 3 regresses cumulative savings amounts, cumulative loan amounts, and the

number of loans taken using OLS.[12] We find that wealth is strongly associated with savings: one standard deviation in wealth increases savings by 8,600 UGX, which is 8.7% of average amount saved. On the other hand, the asset index is not associated with amount borrowed or the number of loans taken. Interestingly, once we control for wealth, income per capita does not predict savings and borrowing. Some of the other variables are associated with savings and borrowing in expected ways. For instance, higher values in the scale of need ("assessor scale") are associated with less savings, and unemployed members are able to borrow significantly less than the otherwise employed. Finally, members that are active in financial markets (i.e., they have a bank account) borrow more often and have 40,000 UGX more in loans. We fail to detect an association with other variables. Controlling for wealth, we find that measures of vulnerability (like disability or food insecurity), income, or household size do not affect savings and borrowing amounts.

We now turn to our measures of net lending in Table 4. Neither wealth, nor any other preexisting characteristic other than being unemployed, predicts the likelihood of borrowing (column 1). On the intensive margin instead, initial wealth does matter: two standard deviation increase in asset ownership reduces the loans-to-savings ratio by 0.23 points—14% of the average loans-to-savings ratio—and increases the likelihood of being a net lender by 6.6 percentage points—14.7% of the average. This result supports the idea that capital flows from asset-rich to asset-poor participants. Most of the other explanatory variables are not statistically significant, although it is noteworthy that women borrow less on average and farmers are more likely to be net lenders.[13] The fact that employment sector does not predict financial behavior will be the subject of further discussion in the next subsection.

While table 4 indicates that there is a negative relationship between wealth and borrowing, the relationship could be highly non-monotonic. For instance, members who are extremely poor may be net lender. The top panel of figure 1 presents the nonlinear relationship between wealth and the loan-to-savings ratio, and shows that the relationship is flat for wealth levels below 2 standard deviations, and then strongly decreasing for higher wealth levels. The bottom panel provides that same nonlinear relationship after controlling for all covariates and group fixed effects. It can be seen that the relationship between wealth and net borrowing position is weakly monotonic.

[12] We also estimated column 3 using Poisson estimation and find effects similar in size and statistical significance.

[13] Results are robust to several alternative specifications, such as the exclusion of covariates. The results also do not change if we use alternative wealth indices that include only animals, durable assets, or productive assets, or if the index is measured as a deviation from the group average.

4.2 Risk sharing across occupations

So far we presented evidence that funds flow from rich to poor, and that farming households are more likely to be net lenders. A related point is whether, within savings groups, financial behavior vary systematically within occupations. For instance, it may be that participants who work in the same sector are buffeted by correlated shocks or correlated income, such that their borrowing and savings needs are also correlated. Table 1 does not address this issue, as certain occupation may face a positive shock in some groups while facing a negative shock in another.

We provide some insights on the flow of funds within occupations by using a dyadic regression framework. The idea behind our dyadic regressions is as follows: Consider two members of the same savings groups who are engaged in the same occupation.[14] If their income is correlated (for instance, their harvests depend on the level of rainfall at a specific location), then they will have a similar net demand for loans. As such, they will tend to be in the same borrowing side, and have more similar loan to savings ratios, than two members who are engaged in separate occupations. With this idea in mind, within each savings group g, we compare lending positions for pairs of members (i, j) who share the same occupation against those pairs who have different occupations:

$$y_{ijg} = \beta_0 + \beta_1 Same\ Occupation_{ij} + W_{ij} + \delta_g + \epsilon_{ij} \tag{1}$$

We restrict the sample to those participants with baseline information. The data consist of member pairs in a savings group with outcome variable y_{ij} being the absolute difference in loan to savings ratio, $|lsr_i - lsr_j|$, or an indicator variable for whether i and j are both net lenders or net borrowers. The main explanatory variable of interest is whether i and j share the same occupation; as a robustness check, we also create dummy variables for each occupation separately. If groups allocate funds to smooth correlated shocks, then we would expect $Same\ Occupation_{ij}$ to be negatively related to the loan to savings ratio (β_1 negative) and positively related with being both net borrowers or net lenders (β_1 positive). We also control for whether the pair is unemployed.

Note that our pair (dyad) data are undirectional: $y_{ij} = y_{ji}$. Thus, following standard dyadic regression literature (i.e., Fafchamps and Gubert, 2007, Cassidy and Fafchamps, 2015), we control for a set of matrix of covariates W_{ij} which includes both the absolute difference and the sum of two variables X (i.e., $|X_i - X_j|$ and $X_i + X_j$). In our regression we control for the wealth index, land holdings, housing index and income. In addition, the covariate matrix is block diagonal: we consider all possible

[14] We do not consider the unemployed to be employed in any sector.

$N_g(N_g - 1)$ combinations within each saving group, and do not consider pairs (i, j) across groups. Following common practice when using dyadic data, we cluster our standard errors by using a dyadic-robust variance estimator developed by Fafchamps and Gubert, 2007 (see also Cameron and Miller, 2014). Our results are robust when clustering at the group level.

We report summary statistics from the 11,350 dyads in table 5. The likelihood that two randomly selected members of a group share the same occupation is 67.5%; this is mostly driven by the fact that 53% of pairs are made of farmers. Only 10% and 8% of pairs are composed of casual workers and petty traders respectively. Looking at outcome variables, the average absolute difference in loan to savings ratio is 1.7, and the likelihood that a pair are either both net borrowers or both net lenders is 56%.

In table 6, we report estimates from equation (1), with and without dyad controls. In columns 1-2 we report loan to savings ratio differentials when the explanatory variable is having the same occupation, in columns 3 and 4 we split this by occupation category. Coefficient estimates are quite stable, but in no case they are significant. Moreover, the estimates on being both farming have the wrong sign–they are positive– although again the standard errors are very large. We run the same analysis for being in the same lending position; again, we find no large or significant estimates.

While our failure to observe a correlation between borrowing positions within occupations may be due to data limitations,[15] it is suggestive that whatever existing correlation is low. This could be driven by a number of factors. First, savings groups may be unable to provide funds to everyone at a time of high demand (say, before harvest among farmers). Lending is restricted to the cash available in the safe box, and this may be insufficient to cover all needs; in that case, rationing can occur, with some would-be borrowers unable to borrow. A second possibility is that loan demand within occupations is not more correlated than loan demand across occupations. Note that the latter possibility would be consistent with Cassidy and Fafchamps (2015), who find that people belonging to the same occupation tend to join the same savings group. This finding is more easily explainable if occupation does not predict loan demand, and matching on occupation has some other positive benefit (for instance, allows members within the same occupation to monitor each other more effectively).

[15] Specifically, our measurement of financial outcomes is at the end of the cycle, and it may be that financial needs vary across time within occupation, but over the course of the cycle any difference in the borrowing needs across occupations average to the same level. In addition, it is possible that our employment measures may be too broad. Although we do find surprising that results are insignificant for the more narrowly defined "farming" category.

5 Conclusion

Interpersonal borrowing and lending play an important role in village economies in developing countries, from financing investments and income generating activities, to smoothing both expected and unexpected shocks, to establishing and reinforcing social bonds within the community. Economists have long been studying how capital flows through interpersonal transfers, but less is known about intermediated flows. This paper aims at filling this gap by studying the allocation of financial resources within savings groups in rural Uganda. Using detailed data on savings and borrowing choices of members of 104 savings groups, we find that loanable funds move from the (relative) rich to the (relative) poor. This result has two implications. First, SGs appear effective at financial intermediation, because they redistribute loanable funds. Second, it lends further support to the idea that the poor have better use of funds than the rich, which is consistent with the idea that technology poverty traps are not present in the context we study.

We also seek evidence that flows are used to smooth occupation specific shocks. The fact that we are unable to find any raises the possibility that savings groups are not able to smooth out these kinds of shocks, which may explain why groups are not very diversified in terms of occupations. We caution that the lack of evidence may be due to limitations with our data; future work with more detailed data is needed to fully address this matter.

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	Baseline interview subsample		All SG members	
Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Financial outcomes (from audits) --end of first operating cycle				
Cumulative savings (UGX)	99,320	57,665	98,590	60,118
Cumulative loans (UGX)	153,605	169,041	151,089	167,986
Likelihood of borrowing	0.90	0.31	0.88	0.32
Loan to savings ratio	1.67	1.65	1.63	1.62
Net lender	0.44	0.50	0.45	0.50
Female member	0.67	0.47	0.64	0.48
Missing gender	0.10	0.31	0.13	0.34
Member characteristics (from baseline)				
Asset index	-0.07	0.93		
Housing structure index	-0.11	1.35		
Land owned (acres)	2.13	4.67		
Income per capita ('000 UGX)	8.31	11.68		
Has bank account	0.07	0.25		
Has mobile account	0.14	0.34		
Other savings groups	0.37	0.84		
Disability in household	0.35	0.48		
Food insecure	0.61	0.49		
Assessor scale	1.61	0.78		
Access to latrines	0.84	0.36		
HHMembers	6.63	3.08		
IGA==Casual Labor	0.25	0.43		
IGA==Farming	0.66	0.47		
IGA==Formal employment	0.03	0.16		
IGA==Informal Employment/Petty	0.22	0.42		
IGA==Others	0.03	0.18		
Unemployed	0.06	0.23		
N	1457		2926	

Tab. 1: Summary statistics

Data on financial outcomes comes from detailed audit records collected by SCORE field officers at the end of the first lending cycle. Information on gender of the account holder was obtained from group registries. Information on other member characteristics comes from interviews carried out after groups were formed. The sample is restricted to observations with nonmissing values in the covariates.

Assessor scale: interviewer's general impression of the interviewee. Scale goes from 0 (in good situation) to 3 (critical situation). IGA: Income generating activities. Housing structure index: index composed of materials for walls, floor and roofs, as well as type of lighting in the house. Asset index: index composed of 25 separate household assets.

Loan uses mentioned by respondent at endline	**Wealth>1 st. dev (N=59)** Number	Fraction of respondents	**Wealth<1 st. dev (N=427)** Number	Fraction of respondents
Start a new business	0	0.0%	33	7.7%
Buy livestock	5	8.5%	11	2.6%
Buy farm input	7	11.9%	29	6.8%
Restock	2	3.4%	9	2.1%
Buy or rent land	0	0.0%	2	0.5%
Invest in existing business	7	11.9%	59	13.8%
Productive investments	**21**	**35.6%**	**143**	**33.5%**
Consumption	3	5.1%	54	12.6%
Buy hhld durable	1	1.7%	20	4.7%
Buy other durables	0	0.0%	5	1.2%
Durable and nondurable goods consumption	**4**	**6.8%**	**79**	**18.5%**
Cerimony	2	3.4%	8	1.9%
Gifts to others	0	0.0%	1	0.2%
Risk sharing	**2**	**3.4%**	**9**	**2.1%**
Health problem	10	16.9%	63	14.8%
Unemployment	0	0.0%	2	0.5%
Temporary difficulties	3	5.1%	32	7.5%
Shocks	**13**	**22.0%**	**97**	**22.7%**
School fees	29	49.2%	194	45.4%
Repay a loan	1	1.7%	19	4.4%
Home improvements	1	1.7%	12	2.8%
Other uses	**31**	**52.5%**	**225**	**52.7%**

Tab. 2: Use of loans among a subsample of participants

Data from endline interviews of vulnerable group participants. See Burlando and Canidio (2016) for in depth description of the endline interview process. Wealth index is from baseline. Because people can report multiple uses for the same loan, the sum of the reported uses can exceed 100%

	(1) Cumulative savings	(2) Cumulative loan amounts	(3) Number of loans
Asset index	8,632***	1,089	0.012
	(2,002)	(6,161)	(0.048)
Housing structure index	1,581	-3,155	-0.019
	(1,136)	(4,653)	(0.032)
Land owned	27	759	-0.008
	(305)	(1,299)	(0.006)
Income per capita ('000 UGX)	71	174	-0.001
	(147)	(539)	(0.003)
Has bank account	6,080	40,464*	0.500**
	(7,638)	(20,640)	(0.249)
Has mobile account	2,644	17,421	-0.054
	(4,694)	(15,990)	(0.123)
Other savings groups	912	-241	0.021
	(1,927)	(5,248)	(0.074)
Female member	2,564	-5,883	0.110
	(3,499)	(11,357)	(0.085)
Missing gender	-3,201	19,566	-0.312
	(7,747)	(23,751)	(0.193)
Disability in household	-545	-5,559	0.031
	(3,189)	(9,696)	(0.092)
Food insecure	1,596	5,803	0.076
	(3,277)	(10,572)	(0.086)
Assessor scale	-3,355*	5,953	0.071
	(1,829)	(6,435)	(0.050)
Access to latrines	3,089	20,150**	0.054
	(3,331)	(8,569)	(0.124)
HHMembers	46	2,252	0.018
	(462)	(1,526)	(0.014)
IGA==Casual Labor	-4,368	-10,276	0.050
	(3,484)	(12,517)	(0.135)
IGA==Farming	3,171	-7,861	-0.002
	(4,412)	(11,099)	(0.121)
IGA==Formal employment	-12,254	9,171	-0.147
	(8,981)	(27,038)	(0.259)
IGA==Informal Employment/Petty	-214	3,827	0.055
Business	(4,133)	(14,263)	(0.092)
IGA==Others	-17,794**	-16,264	0.135
	(7,964)	(21,203)	(0.150)
Unemployed	-6,627	-27,776*	-0.081
	(6,399)	(15,661)	(0.189)
Savings group fixed effect	YES	YES	YES
Observations	1,457	1,457	1,380
R-squared	0.471	0.337	0.544

Standard errors clustered at the group level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Tab. 3: Savings and borrowing amounts within savings groups

	(1) Borrowed any amount	(2) loan to savings ratio	(3) Net lender
Asset index	-0.003	-0.112**	0.033*
	(0.010)	(0.052)	(0.018)
Housing structure index	-0.007	-0.064	0.001
	(0.009)	(0.044)	(0.014)
Land owned	-0.000	0.010	0.003
	(0.002)	(0.024)	(0.002)
Income per capita ('000 UGX)	-0.000	-0.000	-0.000
	(0.001)	(0.005)	(0.001)
Has bank account	0.049	0.102	-0.008
	(0.033)	(0.178)	(0.058)
Has mobile account	0.015	0.081	-0.017
	(0.027)	(0.167)	(0.053)
Other savings groups	0.022	0.036	-0.021
	(0.015)	(0.054)	(0.018)
Female member	0.002	-0.266**	0.055
	(0.021)	(0.130)	(0.033)
Missing gender	-0.007	0.406	0.001
	(0.073)	(0.250)	(0.090)
Disability in household	0.001	0.043	-0.010
	(0.019)	(0.109)	(0.035)
Food insecure	0.016	0.031	-0.004
	(0.018)	(0.112)	(0.029)
Assessor scale	0.007	0.101	-0.025
	(0.012)	(0.066)	(0.019)
Access to latrines	-0.004	0.029	-0.018
	(0.028)	(0.120)	(0.038)
HHMembers	0.004	0.014	-0.005
	(0.003)	(0.015)	(0.005)
IGA==Casual Labor	-0.015	0.004	0.036
	(0.024)	(0.121)	(0.042)
IGA==Farming	-0.004	-0.149	0.068*
	(0.025)	(0.096)	(0.039)
IGA==Formal employment	-0.008	0.109	0.054
	(0.054)	(0.205)	(0.103)
IGA==Informal Employment/Petty	0.005	-0.009	0.030
Business	(0.025)	(0.124)	(0.038)
IGA==Others	0.014	0.106	-0.049
	(0.040)	(0.209)	(0.066)
Unemployed	-0.114*	-0.184	0.072
	(0.060)	(0.300)	(0.062)
Savings group fixed effects	YES	YES	YES
Observations	1,457	1,456	1,457
R-squared	0.266	0.242	0.201

Standard errors clustered at the group level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Tab. 4: Net financial position within savings groups

Variable	Mean	Std. Dev.
Occupation		
Same occupation	0.68	0.47
Both in casual work	0.10	0.29
Both in farming	0.54	0.50
Both in formal emplyment	0.00	0.04
Both in informal employment/petty business	0.08	0.27
Both in other (unspecified)	0.00	0.06
Not employed (control variable)	0.01	0.10
Outcome variables		
Absolute difference in loan to savings ratio	1.51	1.58
Both net borrower/net lender	0.56	0.50
Controls: Absolute value of difference:		
Asset index	0.84	0.81
Housing structure index	0.88	1.10
Income per capita	8.09	13.39
Land owned	2.21	5.81
Controls: Sum		
Asset index	16.39	17.53
Housing structure index	-0.17	1.45
Income per capita	-0.28	2.33
Land owned	4.44	7.28
N (dyads)	11,350	

Tab. 5: Summary statistics: dyadic observations

Dyads created from the 1,457 observations with baseline information (see table 1). Only observations (i, j) reported; observations (j, i) ommitted.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	| Loan to savings_i - Loan to savings_j |				Both I and j are net borrowers or net lenders			
VARIABLES	Same occupation		Split by occupation		Same occupation		Split by occupation	
Same occupation	0.0377	0.0467			-0.0117	-0.00736		
	(0.0842)	(0.0810)			(0.0149)	(0.0150)		
Both in casual work			-0.149	-0.168			0.0381	0.0337
			(0.125)	(0.129)			(0.0282)	(0.0282)
Both in farming			0.0662	0.0955			-0.0163	-0.0154
			(0.0915)	(0.0892)			(0.0157)	(0.0164)
Both formal			-0.351	-0.292			0.0788	0.0962
employment			(0.305)	(0.293)			(0.130)	(0.135)
Both in			-0.0890	-0.0670			-0.0177	-0.0159
informal/petty			(0.108)	(0.106)			(0.0241)	(0.0238)
Both unspecified			-0.0915	-0.100			-0.00801	-0.0134
			(0.253)	(0.256)			(0.105)	(0.105)
Constant	1.482***	1.543***	1.497***	1.555***	0.573***	0.599***	0.570***	0.598***
	(0.0840)	(0.121)	(0.0822)	(0.120)	(0.0147)	(0.0223)	(0.0144)	(0.0220)
Dyad Controls	NO	YES	NO	YES	NO	YES	NO	YES
Observations	22,660	22,660	22,660	22,660	22,700	22,700	22,700	22,700

Tab. 6: Summary statistics: dyadic observations

OLS regressions on all dyadic (symmetric) observations. Errors are clustered at the dyad level.

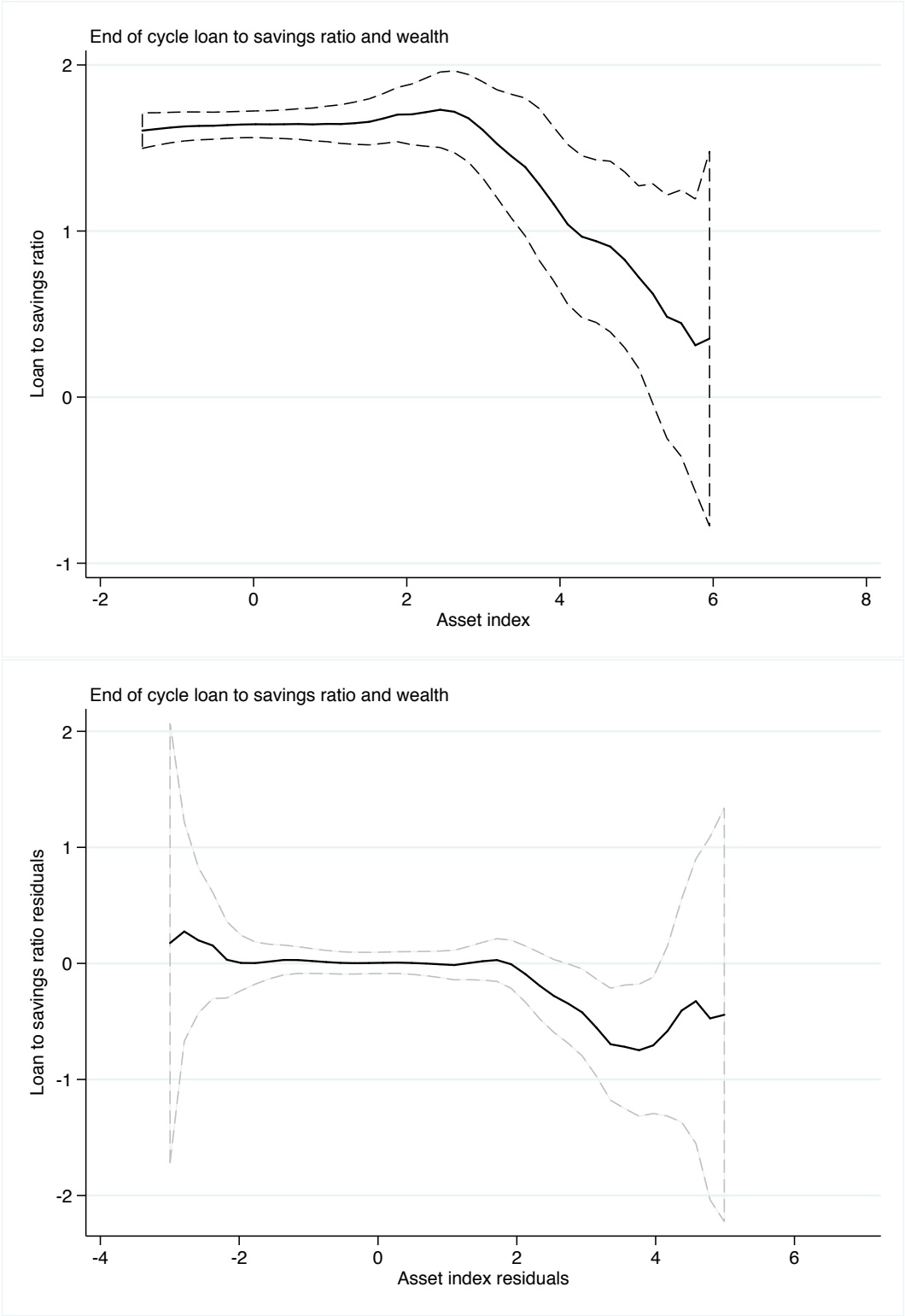

Fig. 1: Loans-to-savings ratio and asset index; raw relationship (top panel) and controlling for covariates and group fixed effects (bottom panel)