

## Financial Inclusion in Rural Uganda: Testing Interaction Effect of Financial Literacy and Networks

George Okello Candiya Bongomin, Joseph Mpeera Ntayi, John C. Munene & Isaac Nkote Nabeta

To cite this article: George Okello Candiya Bongomin, Joseph Mpeera Ntayi, John C. Munene & Isaac Nkote Nabeta (2016) Financial Inclusion in Rural Uganda: Testing Interaction Effect of Financial Literacy and Networks, Journal of African Business, 17:1, 106-128, DOI: [10.1080/15228916.2016.1117382](https://doi.org/10.1080/15228916.2016.1117382)

To link to this article: <http://dx.doi.org/10.1080/15228916.2016.1117382>



Published online: 15 Dec 2015.



Submit your article to this journal [↗](#)



Article views: 47



View related articles [↗](#)



View Crossmark data [↗](#)

## Financial Inclusion in Rural Uganda: Testing Interaction Effect of Financial Literacy and Networks

George Okello Candiya Bongomin<sup>a</sup>, Joseph Mpeera Ntayi<sup>b</sup>, John C. Munene<sup>a</sup> and Isaac Nkote Nabeta<sup>a</sup>

<sup>a</sup>Makerere University Business School, Kampala, Uganda; <sup>b</sup>Makerere University Business School, Kampala, Uganda

### ABSTRACT

Based on the premise that financial literacy take place in networks to influence the level of financial inclusion, the study examined whether networks moderate in the relationship between financial literacy and financial inclusion among poor households in rural Uganda. Studies have revealed that financial literacy affects the level of financial inclusion. However, these studies have failed to incorporate the moderating role of networks in the relationship between financial literacy and financial inclusion. The results showed that networks positively and significantly moderates in the relationship between financial literacy and financial inclusion with both financial literacy and networks having direct and significant effects.

### ARTICLE HISTORY

Received 7 March 2015  
Accepted 3 November 2015

### KEYWORDS

Financial inclusion; financial literacy; microfinance; social networks; social ties

## Background

Previous studies such as Jamison, Karlan, and Zinman (2014) and FinScope (2013) have revealed that financial literacy affects the level of financial inclusion in rural Uganda. However, these studies have failed to incorporate the moderating role of networks in the relationship between financial literacy and financial inclusion among poor households in rural Uganda. Scholars such as Balatti (2007), Balatti, Black, and Falk (2006) have argued that financial literacy takes place within social networks of actors. Thus, this seems to be lacking in literature. The current study examined the moderating role of networks in the relationship between financial literacy and financial inclusion among poor households in rural Uganda with a major focus on Mukono district.

It's evident that in Uganda and particularly in Mukono, poor households rely more on their community social networks/connections (e.g., burials groups, religious groups, and VSLAs) than formal networks to gain access to useful information and ideas about existing opportunities and scarce resources such as credit (see, e.g., Heikkilä, Kalmi, & Ruuskanen, 2009).

There is strong evidence that networks embedded in social capital can improve socioeconomic well-being of communities, and thus, spur economic development. Eagle, Macy, and Claxton (2010) found that the structure of networks and related

diversity of individuals' relationships is strongly correlated with economic development of communities. This is supported by Coleman (1994) who argued that social capital referred to as 'a set of resources that inhere in relations and community social organizations' are useful for development.

Granovetter (1973) observed that nodes and ties, which are parts of networks among economic actors, promotes access to better information and ideas about existing opportunities and scarce resources. This is consistent with Balatti (2007) who argued that networks facilitate access to knowledge and skills among the poor who are presumed illiterate. Cohen and Nelson (2011) also observed that poor households can improve on their financial knowledge and skills that enable them to make wise financial decision and choices through associational networks. Indeed, networks (weak and strong ties) act as a conduit through which information about scarce resources such as knowledge and skills can flow (Reagans & McEvily, 2004).

Findings by Fafchamps and Minten (1998) revealed that ties among poor individuals in networks increase information flow and create opportunity for access to scarce resources such as credit/loans. Networks help by reducing the problems of adverse selection and moral hazard that are common in financial markets and thus, increases access to and use of credit by poor households. Networks increases poor households' capacity in accessing market information thereby reducing information search cost (van Bastelaer, 2000b).

Studies by Porteous and Helms (2005), Lusardi (2008b), Cole, Sampson, and Zia (2011) revealed that financial literacy as a demand side factor affects the level of financial inclusion. In addition, Kempson (2009) also observed that financial literacy initiatives are complementary to increase in access and use of basic financial services. However, these studies have only concentrated in examining the direct impact of financial literacy on financial inclusion. The studies have failed to test the moderating role of networks in the relationship between financial literacy and financial inclusion among poor households in rural Uganda.

Therefore, the main purpose of this study is to examine the moderating effect of networks in the relationship between financial literacy and financial inclusion among poor households in rural Uganda with a main focus on Mukono district. Mukono district was selected for this study because it has a poverty rate of 49% above the national poverty rate of 19% in Uganda (National Planning Authority-Mukono District Plan, 2010–2015).

The remainder of the paper is structured as follows: The first section presents a review of related literature and theoretical perspective of the study, the second section describes the methodology adopted under this study, section three provides results and discussions, section four focuses on conclusion drawn from the study, while section five points out policy recommendations, and lastly section six highlights the limitations to the study and areas for future research.

## Literature review

### *Financial inclusion: Social Learning Theory perspective*

The social learning theory (Bandura, 1986) postulates that people learn from one another through observation, imitation and modelling in social interaction. It further

emphasizes that people learn by observing other people (models) whom they believe are credible and knowledgeable within their social settings. Therefore, through this, they are able to acquire the expected knowledge and skills, which change their behavior and understanding to solve problems in daily life (Ramsden, 1992). Drawing from this theory, the poor learn through social interaction by which they acquire knowledge and skills in order to make wise and better financial decisions and choices. This is supported by Stack (2008) who argued that most financial literacy programs entail interactive learning within social networks.

Furthermore, Putnam (2000) also observed that social capital positively influences educational outcome and economic development. Indeed, networks embedded in social capital relationship, facilitates access to scarce resources such as knowledge and ideas by the poor for specific purposes (Balatti, 2007). Thus, interactions among poor households in networks act as a conduit for knowledge and information transfer, therefore resulting in knowledge and skills acquisition (Reagans & McEvily, 2003).

Drawing from the social learning theory, we can argue that financial literacy that entails knowledge and skills acquisition by poor households is enhanced by existing community social networks, which act as conduits for information flow and sharing. The poor acquire knowledge and skills through interactive learning from their existing social networks that they use to make wise financial decisions and choices in their daily life (see, e.g., Ramsden, 1992).

### ***Financial literacy and financial inclusion***

Anthes and Most (2000) have argued that there is a growing need in societies for people to be financially literate due to the alarming increases in bankruptcy rates, high consumer debt levels, and low saving rates. OECD (2009a) also observed that in a drive to scale up the scope of financial inclusion, it is befitting to empower poor households with financial knowledge and skills to enable them to make informed financial decisions and strategic financial choices.

This is supported by Cohen and Nelson (2011) who argued that financial literacy helps the poor to become more informed financial decision-makers with a high sense of awareness on financial issues and choices coupled with basic financial skills. Financial literacy can offer a better understanding of mainstream financial services by encouraging the unbanked to avoid non-standard financial services (Braunstein & Welch, 2002). Ardic et al. (2011) have also suggested that financial literacy as a contextual factor can reduce information asymmetry because most customers may be well informed about the different financial products in the financial market.

Previous empirical studies have revealed that financial literacy can educate and empower the poor to derive maximum utility from different financial products and services (Lusardi, 2009; Greenspan, 2002). A study by Cole, Sampson, and Zia (2009) found that a financial literacy program tailored to teach unbanked households in Indonesia about savings accounts had a modest increase in the demand for savings accounts among those with low initial levels of financial literacy. Carpena, Cole, Shapiro, and Zia (2011) in their study on the impact of financial literacy on distinct dimensions of financial knowledge also observed that financial literacy significantly improved on basic awareness among individuals about financial choices and attitudes

toward financial decisions. Besides, Calderone, Mulaj, Sadhu, and Sarr (2013) also revealed that financial education had a positive and significant impact on savings in India. The study revealed that savings in the treatment group increased by 29% within a period of one year compared to the control group.

Contextually, a study by Jamison, Karlan, and Zinman (2014), which examined effectiveness of financial education and access to formal savings accounts, also found that financial literacy increased bank savings among youth clubs in Uganda. Furthermore, Supanantarok (2013) also revealed that financial literacy had a positive and significant impact on savings and spending behavior among primary school pupils in Uganda. Besides, USAID RURAL SPEED (2007) also observed that financial literacy drive among poor households resulted into massive increase in access and use of basic financial services in rural Uganda (See also FinScope, 2013).

Thus, it can be deduced that financial literacy, which enhances better financial decision making and choices by the poor, can socially and economically empower them to come out of poverty (see, e.g., World Bank, 2009; OECD, 2009a). Thus, here we hypothesize that:

*H1: Financial literacy will be positively related to financial inclusion.*

### **Networks and financial inclusion**

Van Bastelaer (2000a) observed that networks are important structures through which most financial services' providers extend basic financial services to the poor. Indeed, networks generate information channels, facilitate transactions, and reduce costs in accessing financial services such as credit (Woolcock, 1999). Biggs, Raturi, and Srivastava (2002) argued that in accessing financial services, networks help the poor by supplying information about their colleagues and act as a mechanism for enforcement (see also Narayan & Prittchet, 1997).

Van Bastelaer (2000a) further contends that networks increases poor households' capacity to have better access to market information thereby reducing information search cost through creating ties among members in groups (see also Yokoyama & Ali, 2006). This is supported by Grootaert (2001) who revealed that networks acts as a conduit for transfer of information about existing sources of financial services among poor households. Floro and Yotopolous (1991) also observed that social ties and their resulting potential for sanction help mitigate the problems of adverse selection and moral hazard rampant in joint liability lending contracts among the poor.

Scholars such as Karlan (2007) and Ahlin and Townsend (2007) have found that networks among poor households are essential tool for recommending members and ensuring that repayment contract is enforced. This is supported by Okten and Osili (2004) who revealed that networks increased availability of information about sources of financial services such as credit among poor households in Indonesia. In addition, Khanh (2011) in his study of the role of social capital in access to credit also found that social capital and networks of relationships are core issues in promoting access to financial credit among the poor in rural Vietnam. Kuada

(2009) also observed that women in Ghana tended to depend more on their social networks for financial, moral and emotional support during the initial stages of their enterprise development.

A study by Heikkilä et al. (2009) in Uganda found that social capital measured by the quantity and quality of social connections was positive and significantly associated with access to credit from financial institutions. Furthermore, Munene, Schwartz, & Kibanja (2005) also revealed that presence of weak bridges that linked different networks of rural women groups in Uganda enabled them to get information that they were lacking about loans. This resulted into access to and use of loans (credit) from FINCA by the women groups to grow their businesses. Therefore, this confirms the fact that networks embedded in social capital with strong social sanction helps the poor to have access to basic financial services. The success of BancoSol microfinance program in Bolivia is an outstanding example (see, e.g., Gomez & Santor, 2001). Therefore here we hypothesize that:

*H2: Networks will be positively related to financial inclusion.*

### **Financial literacy and financial inclusion: networks as moderator**

Scholars have argued that financial literacy, which entails empowering poor households with financial knowledge and skills, happens within a network. According to Balatti (2007), networks embedded in social capital of relationships among poor households facilitate access to scarce resources. These resources may include knowledge, skills, ideas, financial and physical resources. Furthermore, Balatti (2007) revealed that financial literacy among the poor is done within networks and it's dependent at least in part on having or attaining access to particular networks by poor households.

This is supported by Balatti, Black, and Falk (2006) who argued that knowledge, skills, values, attitudes and beliefs about money, identities constructed with respect to money, and confidence to act in particular ways with money, are all strongly influenced by networks to which individuals belong and have access to. Indeed, Cohen and Nelson (2011) observed that poor households may improve their financial knowledge and skills that enables them to make wise financial decision and choices through associational networks. In addition, Balatti (2007) further argues that the nature of co-operation within a network also shows how its members function together, depends on its common purpose, the resources it has at its disposal and the norms and values that shape the interactions. Thus, a member in a network, who is financially literate, may increase the knowledge and skills of other members if shared (see also Falk & Kilpatrick, 2000).

Furthermore, after a financial literacy program learners may change the networks with which they interact and may also change their interaction in their existing networks (Balatti et al., 2006). Hence the resources that are available within the networks are clearly a function of the resources that its members bring to it. Therefore, interactions by poor households in existing networks act as a conduit for knowledge and information transfer among the poor (Reagans & McEvily, 2003). Katungi, Edmeades, and Smale (2008) observed that social capital

inform of existing social networks and associations among farmers in rural Uganda resulted into knowledge, information diffusion and exchange about scarce resources including credit within the social circles. Scholars such as Schuller and Field (1998) and Coleman (1988) have argued that financial literacy outcomes among the poor are a function of their existing networks. From the foregoing, we hypothesize that:

*H3: Networks will moderate the relationship between financial literacy and financial inclusion.*

## Methodology

The population for the study was selected from poor households living in rural areas in Mukono district, Uganda. The poor constitutes about 80% of the population in Uganda and thus, the need to help them come out of poverty through economic empowerment (MoFPED, 2012). Thus, for the poor to come out of poverty, they should be provided with basic financial services (loans and savings) for income generating activities (ACCION, 2011). The study focused on poor households living in rural areas in Mukono district, Uganda.

## Research design

The study used a cross sectional research design. This is because it observes all the population or a representative subset at one specific point in time. Besides, it also allows large amount of data to be collected over a shorter period of time. Furthermore, since it observes a representative subset at one specific point in time, problems arising from recurrent mistakes in data collection instruments are also minimized as it does not suffer from unavailability of samples used in previous observations as in longitudinal study.

## Sampling design and sample size selection process

A total sample of 375 poor households were randomly selected for this study. The poor households were randomly selected in order to give all the households equal opportunities and chances of being included in the study. Three poverty indicators of households' utilities, housing conditions, and households' welfare were adopted in selecting the poor households (Uganda Bureau of Statistics, 2012). The selected poor households were assigned unique numbers for purposes of proper identification until the required total of 375 households was attained for the study. The unit of inquiry were poor households' heads who were perceived to have better knowledge and information about the characteristics of their households (UBOS, 2012) while the unit of analysis comprised of the selected poor households.

## Data collection tool and process

Data was collected using a semi-structured questionnaire to elicit responses from the selected respondents. The study targeted 375 poor households who were to give



responses and a total of 375 questionnaires were distributed to the selected poor households. However, after receiving the questionnaires back from the field, 200 questionnaires were valid and usable out of the 375 questionnaires that were sent out and 175 were eliminated because of poor handling and careless scoring by respondents. At the initial stage of data analysis, we discovered that 49% of the questions in the questionnaires were incomplete with 51% complete. This prompted us to go back to the field since we had the contacts of the respondents and we could trace their locations. This was done to ensure that all questions in the questionnaires were answered. Thereafter, we had to re-run the data and there were not many significant differences in the results from the original data with missing values. However, the hierarchical regression results became positive and significant since all the questions were answered. Therefore, a total of 200 cases were usable since all answers to the questions were complete. A copy of the questionnaire used to collect data from the poor households is attached in the Appendix.

The results from the sample selected for the study indicated that 56% were male while 44% were female. In addition, the results also revealed that 13.5% of the poor households' heads used in the study were in the 18–25 years age bracket and 35.5% were in the 26–33 years age bracket. Further analysis of the results showed that 31% of the poor households' heads were in the 34–41 years age bracket and 14% were in the 42–49 years age bracket. However, those in the 50+ years age bracket constituted only 6% of the poor households' heads who participated in the study. In terms of ability to read and write, the results revealed that 79.5% of the poor households' heads who participated in the study were able to read and write and only 20.5% were unable to read and write.

Furthermore, descriptive statistics for individual items used to measure the variables under study were also generated. The results are presented in [Table 1](#).

### *Measures of study variables*

The dimensions to measure the study variables were derived from previous scholarly and internationally referenced work. Therefore, the measures for financial literacy, networks, and financial inclusions were adopted from previous studies.

#### *Financial literacy*

Several studies such as Atkinson and Messy (2012), Lusardi and Mitchell (2006), Lusardi (2003) have used knowledge and skills as dimensions to measure financial literacy. Kempson (2009) used a combination of both knowledge and skills together with the functional components of attitude and behavior. Financial literacy is the ability to make informed judgements and decisions regarding the use and management of money. Drawing from theoretical and empirical grounding, dimensions used by these scholars were adopted and combined to measure financial literacy. Financial literacy is measured based on financial knowledge and skills combined with the functional components of attitude and behavior. Therefore, for the purpose of this study, financial literacy was measured using the dimensions of knowledge, skills, attitude, and behaviors of poor households. The measures were anchored onto a 5-likert scale of strongly agree, agree, not sure, disagree and strongly disagree, to suit the study context. Reliability ( $\alpha = .832$ ) and validity (total variance explained = 62.3%) tests were performed on the items.



**Table 1.** Descriptive statistics.

		<i>n</i>	Min	Max	Mean	SD
<b>Financial literacy</b>						
<i>Knowledge</i>						
KNW1	In this household members are financially capable of making good use of financial products/services	200	1	5	3.57	1.272
KNW2	Members of my household have the ability to prepare a personal budget	200	1	5	3.61	1.326
<i>Skills</i>						
SK1	In this households members have the ability to accurately determine costs and benefits from financial dealings	200	1	5	3.80	1.250
SK2	In this households members have the ability to compute interest rates	200	1	5	3.56	1.285
<i>Attitude</i>						
AT1	Members in this household are always interested in financial issues	200	1	5	3.71	1.155
AT2	In this household we compare prices before making choices on financial products/services	200	1	5	3.52	1.210
AT3	In this household members feel very interested in dealing with banks	200	1	5	3.51	1.302
<i>Behaviour</i>						
BH1	In this household we always spend by sticking to our budget	200	1	5	3.57	1.272
BH2	In this household we always save on regular basis	200	1	5	3.55	1.270
BH3	In this household we have been actively saving in the past years	200	1	5	3.55	1.270
<b>Networks</b>						
<i>Interactions</i>						
INT1	My household members have friends with whom we are very close within and outside this community	200	1	5	3.81	1.253
INT2	In this household we are always visited by friends when we get problems	200	1	5	3.58	1.287
INT3	Members of this household belong to social groups with members from diverse ethnicity	200	1	5	3.58	1.287
INT4	In this household most members participate in social organizations in this community	200	1	5	3.58	1.287
<i>Ties</i>						
TI1	Most members in this household are friends of friends who knows each other	200	1	5	3.76	1.157
TI2	In this household we belong to social groups which frequently meet with other groups	200	1	5	3.53	1.211
TI3	In this household some members are friends to prominent people in this community	200	1	5	3.53	1.211
<i>Interdependence</i>						
IND1	In this household members have many people beyond this household that they can turn to in case they have problems	200	1	5	3.55	1.270
IND2	In this household we have people we can call upon for help	200	1	5	3.55	1.270
<b>Financial inclusion</b>						
<i>Access</i>						
ACC1	The financial services provided by the bank is safe for us	200	1	5	3.82	1.254
ACC2	The initial account opening fees charged by the bank is affordable	200	1	5	3.58	1.287
ACC3	The cost of making a trip to the bank is affordable	200	1	5	3.58	1.287
<i>Usage</i>						
USG1	The loan product provided by the bank suits our needs	200	1	5	3.76	1.157
USG2	The terms and conditions on use of loans provided by the bank is favourable to us	200	1	5	3.53	1.211
<i>Quality</i>						
QTY1	The saving product provided by the bank is suitable for us	200	1	5	3.55	1.270
QTY2	The saving product offered by the bank is safe for us	200	1	5	3.55	1.270
<i>Welfare</i>						
WEL1	The financial services offered by the bank has led to improvement in our nutrition	200	1	5	3.55	1.270
WEL2	The financial services offered by the bank has led to improved access to health services in this household	200	1	5	3.55	1.270
WEL3	The financial services offered by the bank has enabled us pay school fees	200	1	5	3.55	1.270

Besides, exploratory factor analysis through principal component analysis using Varimax with Kaiser Normalization was also performed to test the components of financial literacy, which yielded four factors with Eigen values greater than 1. The results generated revealed that three items of behavior loaded on factor 1 with significant loadings between .631 and .718, which explained 24% of the variance. Further, two other items of skills loaded on factor 2, with significant loadings between .686 and .747, which explained 17% of the variance, while two more items of attitude loaded on factor 3 with significant loadings of .677 to .755, which explained 12% of the variance. Finally, three items of knowledge significantly loaded on factor 4. The loadings ranged between .502 and .736, which explained 10% of the variance. Thus, overall, the four factors of financial literacy accounted for 62% of the total variance with behavior (24%) explaining more of financial literacy, followed by skills (17%), attitude (12%), and knowledge (10%) respectively. However, 40 items with Eigen values less than 1 and absolute value below .50 were dropped and not included since they could not converge and load well with the other factors. The result of the EFA is indicated in [Table 2](#).

### Networks

Networks as a concept, has been used by various scholars under diverse disciplines to determine the level of interactions between actors and the resulting impact. Networks affect the degree of information flow and sharing among actors from both weak and strong ties (Katz, Lazer, Arrow, & Contractor, 2005; Granovetter, 2004; Heikkilä et al., 2009). Okten and Osili (2004) argued that networks increases availability of information about sources of financial services such as credit. These scholars have argued that networks among actors affect information flow through interaction, interdependence, and ties. Network was measured using the dimensions of interactions, interdependence, and ties among poor households. The measures were anchored onto a 5-point likert scale and tested for reliability ( $\alpha = .739$ ) and

**Table 2.** Factor analysis results for financial literacy.

	Financial literacy components			
	Behaviour	Skills	Attitude	Knowledge
In this household, we always save on regular basis	0.718			
In this household, we always spend by sticking to our budgets	0.673			
In this household, we have been actively saving in the past years	0.631			
In this household, members have the ability to accurately determine benefits from financial dealings		0.747		
In this household, members have the ability to accurately determine costs from financial dealings		0.686		
Members in this household are always interested in financial news			0.755	
In this household, members feel very interested in dealing with financial institutions			0.677	
Members of my household have the ability to prepare a personal budget				0.736
In this household, members are financially capable of making good use of financial products/services				0.632
In this household, we compare prices before making choices on financial products/services				0.502
<i>Eigen values</i>	2.179	1.184	1.124	1.047
<i>Percentage of variance</i>	23.791	16.844	12.240	10.473
<i>Cumulative percentage</i>	23.791	40.635	52.875	62.349

Note: Extraction method: principal component analysis: KMO is 0.732

validity (total variance explained = 60.3%). In the scale, respondents were asked to respond to statements on interaction, interdependence, and ties, within their communities.

Furthermore, exploratory Factor Analysis (EFA) was also performed to test for validity of the items in the instruments. The results indicated that three factors of interactions (29%), ties (17%), and interdependence (14%) were generated, thus, accounting for 60% of the total variance in networks. The results further revealed that four items of interactions loaded well on factor 1 with significant loadings of .535 to .711, which explained 29% of the variance, and three other items of ties loaded well on factor 2 with significant loadings of .690 to .739, which accounted for 17% of the variance. Finally, two other items of interdependence loaded well on factor 3 with significant loadings of .673 and .785, which accounted for 14% of the variance. Therefore, it was established that interactions (29%) explained more of networks, followed by ties (17%), and interdependence (14%), thus, accounting for 60% of the variance in networks as indicated in Table 3.

### Financial inclusion

Scholars such as Čihák et al. (2012), Claessens (2006), and Kempson (2006) and development institutions like World Bank, CGAP (Consultative Group to Assist the Poor), ACCION (Americans for Community Cooperation in Other Nations), and AFI (Alliance for Financial Inclusion) have revealed that financial inclusion entails full provision, access, and use of basic financial services by the poor. They further argued that for the poor to realize benefits from financial services, access should be with ease, and the services usable with quality and wider coverage (see also CGAP, 2009; Thorat, 2007; Beck, Demirguc-Kunt, & Honohan, 2008; World Bank, 2008). Thus, for the purpose of this study, financial inclusion was measured using the dimensions of access, quality, usage, and welfare. Respondents were asked based on 5-point likert scale of

**Table 3.** Factor analysis results for networks.

Item code	Networks components		
	Interactions	Ties	Interdependence
My household members have friends with whom we are very close within and outside this community	.711		
In this household, we are always visited by friends when we get problems	.671		
Members of this household belongs to social groups with members from diverse ethnicity	.627		
In this household, most members participate in social organizations in this community	.535		
Most members in this household are friends to friends who know each other		.739	
In this household, we belong to social groups, which frequently meet with other groups		.709	
In this household, some members are friends to prominent people in this community		.690	
In this household, some members have many people beyond this household that they can turn to in case they have problems			.785
In this household, we have people we can call upon for help			.673
<i>Eigen values</i>	2.447	1.261	1.001
<i>Percentage of variance</i>	29.185	17.011	14.123
<i>Cumulative percentage</i>	29.185	46.196	60.319

Note: Extraction method: principal component analysis: KMO is 0.749

strongly agree, agree, not sure, disagree, and strongly disagree. The scales were tested for reliability ( $\alpha = .844$ ) and validity (total variance explained = 60.2%).

In addition exploratory factor analysis was also performed. The results of principal component analysis using Varimax with Kaiser Normalization yielded four factors with Eigen values greater than 1. The analysis of the results indicated that three items of welfare loaded on factor 1 with significant loadings between .754 and .756, which explained 22% of the variance. Furthermore, three items of quality loaded on factor 2, with significant loadings between .692 and .801, which explained 15% of the variance, while two other items of usage loaded on factor 3 with significant loadings of .674 to .788, which explained 12% of the variance. Finally, two more items of access significantly loaded on factor 4. The loadings ranged between .747 and .785, which explained 11% of the variance. Therefore, overall, the four factors of financial inclusion accounted for 60% of the total variance with welfare (22%) explaining a larger percentage of the variation, followed by quality (15%), usage (12%), and access (11%) respectively as indicated in Table 4.

Furthermore, test for common bias methods were carried out based on recommendation by Podsakoff, Mackenzie, and Lee (2003). By performing factor analysis on outcome variable (financial inclusion) as a single factor, the variable yielded a total of 10 items with Eigen values greater than 1, accounting for 60% of the total variances. None of its constructs emerged dominant implying that common methods variance was not a problem in the study.

### Regression model specification

The main aim of the study was to test for moderation by networks between financial literacy and financial inclusion. The interaction effect was tested through running hierarchical regression of the independent variable (financial literacy) and interaction term (networks) on dependent variable (financial inclusion). Regression model was

**Table 4.** Factor analysis results for financial inclusion.

	Financial inclusion components			
	Welfare	Quality	Usage	Access
The products/services provided by the financial institution has led to improvement in our nutrition	.756			
The products/services provided by the financial institution has improved our access to utilities	.755			
The products/services provided by the financial institution has improved our access to amenities	.754			
The savings product provided by the financial institution suits our needs		.801		
The savings product provided by the financial institution is safe for us		.719		
The cost of making a trip to the financial institution is low		.692		
The loan product provided by the financial institution suits our needs			.788	
The terms of repayment of loans provided by the financial institution is favourable to us			.674	
The payment services provided by the financial institution is safe for us				.785
The initial account opening fees charged by the financial institution is affordable				.747
<i>Eigen values</i>	2.211	1.527	1.162	1.121
<i>Percentage of variance</i>	22.109	15.270	11.624	11.210
<i>Cumulative percentage</i>	22.109	37.379	49.003	60.213

Notes: Extraction method: principal component analysis: KMO is 0.750

adopted to explain the interactions between the independent, moderator and dependent variables as stated below:

$$fin = f(\beta_1fl + \beta_2ntw + \beta_3int + c)$$

Where:

*fin* = financial inclusion (dependent variable)

$\beta_1fl$  = beta coefficient of financial literacy (independent variable)

$\beta_2ntw$  = beta coefficient for networks (moderator variable)

$\beta_3int$  = beta coefficient for interaction terms

*c* = constant

According to Baron and Kenny (1986), for an interaction to exist, the effect of independent variable on the dependent variable should vary as a function of change in the moderator variable. In addition, Jose (2008) also recommends that researchers must test for interaction by centering the independent variables (i.e., subtracting the mean from the global independent variable to get marginal mean score) in order to get the product of the centered variable so as to generate the interaction term that is used to test for interaction effect through hierarchical regression of independent variable and interaction term on dependent variable. Hierarchical regression was adopted in order to determine the predictive power of independent variable on the dependent variable.

Under this study, the independent variable (financial literacy) and dependent variable (financial inclusion) were centered to obtain their marginal means. In addition, we generated interaction term by getting the product of marginal means of independent variable and dependent variable. According to the rule of interaction, scholars have recommended that if the beta coefficient of the interaction term is significant, then there is proof of existence of interaction in the model (Baron & Kenny, 1986; Jose, 2008). The result from the study indicated that beta coefficient of interaction term was positive and significant ( $p \leq 0.05$ ).

Furthermore, Jose (2008) also stipulate that the interaction effect should be graphically depicted by plotting the moderation effect on ModGraph excel program for moderation. This helps us to determine whether the lines are parallel or not in order to confirm the existence of interaction effect between the independent, moderator and dependent variables in the model. The results from the ModGraph plotting indicated that the lines were not parallel, meaning that moderation effect existed.

## Results and discussion

In this study, zero order correlation was adopted to investigate whether there were relationships between the study variables. The results are indicated in Table 5.

### Financial literacy and financial inclusion

The study sought to establish the relationship between financial literacy and financial inclusion. The results indicated a positive and significant association between financial literacy and financial inclusion ( $r = .297, p \leq .01$ ). This implies that financial literacy influences the level of financial inclusion of poor households. This finding lends

**Table 5.** Relationships between financial literacy, networks, and financial inclusion.

	Mean	S.D	1	2	3
Financial inclusion (1)	3.70	.576	-		
Networks (2)	3.66	.876	.461**	-	
Financial literacy (3)	3.65	.678	.297**	.253**	-

\*\* Correlation is significant at 0.01 level (2-tailed)

$n = 200$

support to past studies, which revealed that financial literacy provides greater control of one's financial future, choices and more effective use of financial products and services (see, e.g., World Bank, 2009).

### Networks and financial inclusion

Results from correlation Table 5 revealed that there was a positive and significant relationship between networks and financial inclusion ( $r = .461, p \leq .01$ ). This result implies that changes in networks are associated with changes in level of financial inclusion among poor households. Thus, we can deduce that the wider (denser) the networks, the higher the level of financial inclusion of the poor (see, e.g., Karlan, 2007). Indeed, networks generate information channels, facilitate transactions, and reduce costs in accessing financial services such as credit (Woolcock, 1999).

Furthermore, after performing correlation analysis on financial literacy, networks, and financial inclusion to test for existence of association, hierarchical regression was used to test for explanatory power and interaction effect between these variables. The results are shown in Table 6.

The results in Table 6 revealed that there was a positive and significant relationship between financial literacy and financial inclusion ( $\beta = .196, p < .05$ ). This finding therefore supports our hypothesis (H1) of the study which stated that: financial literacy will be positively related to financial inclusion. The results can also be stated as follows based on regression equation:

$$fin = f(\beta fl + c)$$

$$fin = 0.196fl + 1.874c$$

**Table 6.** Interaction effect of financial literacy and networks on financial inclusion.

Variables	Dependent Variable Financial Inclusion			VIF
	Model 1	Model 2	Model 3	
Constant	1.874	1.872	1.874	
Financial literacy (Main effect)	.292**	.189**	.196**	1.095
Networks (Moderator)	.425**	.413**	1.194	
Interaction term		.173*	1.123	
R <sup>2</sup>	.088	.211	.259	n/a
$\Delta R^2$		.147	.048	n/a
$\Delta F$	19.198**	41.614**	.303	n/a

\*\* $P < .01$ .

$n = 200$ .

This finding is in line with previous studies that relate financial literacy to improved customer financial decisions and choices, hence increased level of financial inclusion among poor households (see, e.g., Lusardi, 2009; Greenspan, 2002; Cole et al., 2009). Cohen and Nelson (2011) argued that financial literacy drive enables the poor to become more informed financial decision makers with high sense of awareness on financial issues and choices coupled with basic financial skills.

Braunstein and Welch (2002) also observed that financial literacy can offer a better understanding of mainstream financial services by encouraging the unbanked to avoid non-standard financial services. Indeed, financial literacy facilitates financial decision-making processes, which results in increased savings and credit worthiness of poor households by economically and socially empowering them to move out of poverty (OECD, 2009a).

Furthermore, the results also indicated that there was a positive and significant relationship between networks and financial inclusion ( $\beta = .425, p < .05$ ). The results lend support to our hypothesis (H2) of the study. The above finding can also be summarized as below based on regression equation:

$$fin = f(\beta 2ntw + c)$$

$$fin = 0.425ntw + 1.872$$

Indeed, Grootaert (2001) found that networks provide information about existing sources of financial services (credit) among poor households. Biggs et al. (2002) also observed that in accessing financial services, networks helps the poor by supplying information and it acts as a mechanism for enforcement (Narayan & Pritchett, 1997). In addition, van Bastelaer (2000a) further revealed that networks increases the capacity for accessing market information and reduces its search cost through existing ties among the poor (see also Yokoyama & Ali, 2006). Thus, social ties with strong social sanctions can improve access and use of financial services among the excluded poor households in Uganda.

Further analysis of the hierarchical regression results generated in Table 6 revealed that the interaction effect between financial literacy and networks is positive and significant ( $\beta = .173, p < .05$ ) since the magnitude of an effect has increased from one level to another as stipulated by Aiken and West (1991). They argued that two variables interact if a particular combination of these variables leads to results that would not be anticipated on the basis of the main effects of those variables. The results indicated that the interactive term boosted the main effects to explain variance in financial inclusion by 4.8% ( $\Delta R^2 = 0.048$ ). The inclusion of interactive term between financial literacy and networks increased the predictive power of financial literacy ( $\beta = .173, p < .05$ ) by 4.8% from 21.1% to 25.9%.

The above results indicated that the interactive term boosted the main effect to explain variance in financial inclusion of poor households. Therefore, since the interaction effect is positive and significant in our model 3, we can conclude that the finding lends support to hypothesis (H3) of the study. Thus, we note that there was a positive and significant effect of financial literacy and networks on financial inclusion. This indicates that the regression model used to test for interaction is non-additive since



inclusion of networks in the relationship between financial literacy and financial inclusion explained 4.8% of the variations in financial inclusion. This result can be further modeled as below:

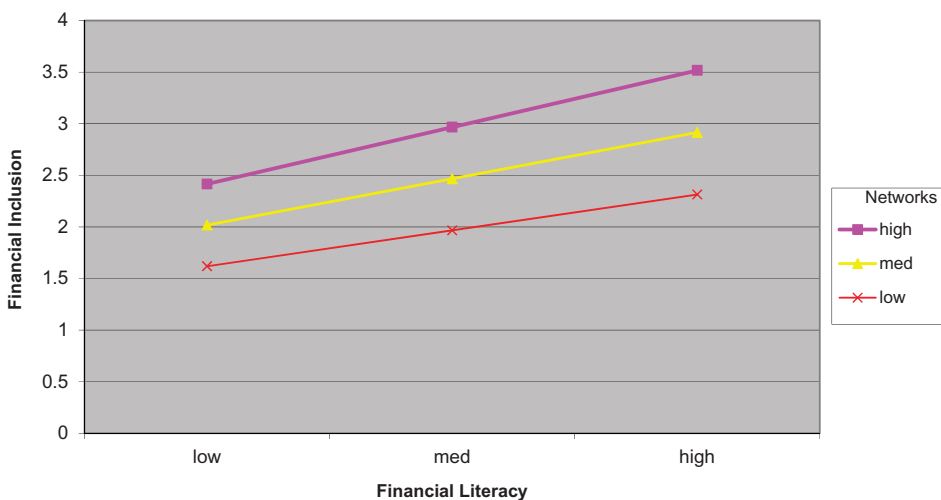
$$fin = f(\beta_1 fl + \beta_2 ntw + \beta_3 int + c)$$

$$fin = 0.194fl + 0.411ntw + 0.173int + 1.874$$

This finding lends support to the argument that networks act as a conduit for knowledge and information transfer among the poor (Reagans & McEvily, 2004). Besides, this result is supported by Balatti (2007) who argued that networks embedded in social capital of relationships among poor households facilitate access to resources such as knowledge, skills, contacts with other networks, and financial resources.

Finally, the results generated in Table 6 were plotted on a ModGraph to confirm interaction effects of the means and standard deviations with unstandardized coefficients of main effects (financial literacy), moderator (networks), and the interaction term as recommended by Jose (2008). The rule of interaction stipulates that the graphs should not be parallel or must have different gradients or slopes for interaction to be significant. Therefore, we performed the graphing and the results are indicated in Figure 1.

From Figure 1, the results revealed that there was interaction effect between financial literacy and networks on financial inclusion since the lines were not parallel. This means that changes in networks do positively and significantly affects variation in financial literacy in an attempt to influence financial inclusion. The results lend support to our hypothesis (H3) of the study. The results from Figure 1 can be further interpreted based on low, medium and high levels of main effects and the moderator (Jose, 2008). The results indicated that the rule for conditional effect was not violated since the lines were not parallel indicating interactions between financial literacy (main



**Figure 1.** ModGraph Showing Interaction Effect of Financial Literacy and Networks on Financial Inclusion.

effect), networks (moderator) and financial inclusion. This finding is in line with Balatti (2007), who argues that access to knowledge and skills and other resources including financial services are strongly influenced by networks to which poor individuals belong and can access.

The main purpose of this study was to examine the extent to which networks moderates in the relationship between financial literacy and financial inclusion among poor households in rural Uganda. In a nutshell, the study investigated the moderating effect of networks in the relationship between financial literacy and financial inclusion. The results from the findings indicated that networks do positively and significantly moderate the association between financial literacy and financial inclusion.

The justification for interactions of financial literacy with networks could be that in African context, poor households tend to stick much to their existing traditional networks to gain access to scarce information and resources as guided by normative forces of expected behavior and values since deviant behaviors are sanctioned and punished.

Besides, financial literacy programs by development agencies and institutions seem to rely more on existing social structures/settings in rural areas where norms are the order of the day. This may promote financial literacy initiatives and programs among poor households. In addition, the existing networks in rural areas, especially among the poor may be development oriented and used for economic benefits such spreading information and ideas about scarce resources like financial services (credit). This is evident in a study by Munene et al. (2005) in Uganda.

Furthermore, poor households who might have benefited from financial literacy programs may in the long run stick to or change their networks with which they interact after the programs.

The findings further supports existing scholarly work such as Balatti (2007) who observed that financial literacy is done within networks and its dependent on having or attaining access to particular kinds of networks by poor individuals. Much as Balatti's study ignored networks as a moderator between financial literacy and financial inclusion, it concluded that knowledge, skills, attitudes and beliefs about money matters are strongly influenced by networks to which poor individuals belong and can access.

Besides, Giné, Karlan, and Gatia (2011) also found that networks play an important role in farmers' decisions to purchase drought insurance. This provides suggestive evidence that financial literacy materials are efficacious in encouraging take-up of insurance policy when farmers' social contacts similarly receive access to financial literacy materials.

## Conclusion

The findings from our study revealed that there is a positive and significant effect of networks in the relationship between financial literacy and financial inclusion as indicated by the interaction term ( $\Delta$  4.8%). Network moderates the relationship between financial literacy and financial inclusion.

Furthermore, the results also indicated that financial literacy positively and significantly affected financial inclusion. Financial literacy that entails acquisition of knowledge and skills helps the poor to make wise financial decisions and choices.

Besides this, the results also showed that networks positively and significantly influenced financial inclusion of poor households in rural Uganda. Existence of wide networks among poor individuals influenced their level of financial inclusion. This is justified by the fact that when poor households are in networks, it facilitates information flow and sharing, especially about existing resources including financial services such as credit among others.

## Recommendations

From our study, we can draw a number of financial inclusion policy implications.

Financial inclusion advocates, policymakers, and managers of financial institutions should ensure that financial literacy training is conducted through existing social network structures such as burial groups/mothers' union/VSLAs within the communities, and learning should take place within the social learning environment.

Financial literacy advocates and policymakers should intensify financial literacy outreach through financial literacy training programs in order to reach all the poor households in rural areas. This can be achieved through engaging community based trainers (CBT) who will impart financial knowledge and skills to the poor. This will change their attitude and behavior towards making better and wise financial decisions and choices. Financial literacy training materials and other educative materials including notes, leaflets, and brochures should be used in disseminating financial knowledge and skills to poor households.

In addition, financial institutions/banks and financial inclusion advocates should ensure that financial services, especially credit/loan services are extended to the poor through existing social networks because this will help banks to reduce the problem of adverse selections and moral hazards by screening and monitoring loan applicants since there is constant information flow and sharing among network members.

## Limitations and areas for future research

The current study was limited by research design. The study focused mainly on cross-sectional study, thus ignoring the importance of longitudinal study which can be useful in investigating the characteristics of poor households over time. This could be an area for further study in future research.

Besides this, although the sample size was big enough, it was limited to only poor households in rural Uganda, with a main focus on Mukono district. A study involving other areas and other vulnerable groups in Uganda could be necessary in future.

## References

- ACCION. (2011). Financial inclusion: "What would it take Mexico to achieve full inclusion by the year 2020?". *Centre for Financial inclusion Bulletin*, Washington DC: ACCION International.
- Aiken, L.S. & West, S.G. (1991). *Testing and interpreting interactions*. Newbury Park, CA: Sage.

- Ahlin, C., & Townsend, R. (2007). Using repayment data to test across models of joint liability lending. *Economic Journal*, 117, F11–F51.
- Anthes, W.L. & Most, B.W. (2000). Frozen in the headlights: The dynamics of women and money. *Journal of Financial Planning*, 13(9), 130–142.
- Ardic, O.P., Heimann, M. & Mylenko, N. (2011). *Access to financial services and the financial inclusion agenda around the world*. A Cross-Country Analysis with a New Data Set. The World Bank Financial and Private Sector Development Consultative Group to Assist the Poor January 2011, WPS 5537.
- Atkinson, A. & Messy, F. (2012). *Measuring financial literacy: Results of the OECD/International Network on Financial Education (INFE) pilot study*. OECD Working Papers on Finance, Insurance and Private Pensions No. 15. OECD. <http://dx.doi.org/10.1787/5k9csfs90fr4-en>.
- Balatti, J. (2007). 'Financial literacy and social networks – what's the connection?' presentation at the ALA National Conference, Cairns, November, 2007.
- Balatti, J., Black, S. & Falk, I. (2006). *Reframing adult literacy and numeracy: A social capital perspective*. Adelaide: NCVER.
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall.
- Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Beck, T., Demirguc-Kunt, A. & Honohan, P. (2008). *Finance for all? Policies and pitfalls in expanding access*. Washington DC: World Bank.
- Biggs, T., Raturi, M. & Srivastava, P. (2002). Ethnic networks and access to credit: Evidence from the manufacturing sector in Kenya. *Journal of Economic Behaviour and Organization*, 49(4), 473–486.
- Braunstein, S. & Welch, C. (2002). Financial literacy: An overview of practice, research and policy. *Federal Reserve Bulletin*, 88, 445–457.
- Calderone, M., Mulaj, F., Sadhu, S., & Sarr, L. (2013). Does financial education affect saving behavior? Evidence from a randomized experiment among low-income clients of branchless banking in India, Working paper. Financial Literacy and Education Trust Fund, Russia.
- Carpena, F., Cole, S., Shapiro, J., & Zia, B. (2011). *Unpacking the causal chain of financial literacy*. Policy research working paper 5798/e World Bank Development Research Group.
- CGAP (Consultative Group to Assist the Poor) and World Bank. (2009). *Financial access 2009: Measuring access to financial services around the world*. Washington DC: World Bank.
- Čihák, M., Demirgüç-Kunt, A., Erik, F., and Levine, R. (2012). Benchmarking Financial Systems around the World: *The World Bank Policy Research Working Paper 6175*.
- Claessens, S. (2006). Access to financial services: A review of the issues and public policy objectives. *Oxford Journals*, 21, 207–240.
- Cohen, M. & Nelson, C. (2011). *Financial literacy: A step for clients towards financial inclusion*. Commissioned Workshop Paper presented at Global Microcredit Summit, November 14-17, 2011, Valladolid, Spain.
- Cole, S., Sampson, T., & Zia, B. (2009). "Financial Literacy, Financial Decisions, and the Demand for Financial Services: Evidence from India and Indonesia." Working Paper 09–117, Harvard Business School, Cambridge, MA.
- Cole, S., Sampson, T., & Zia, B., (2011). Price or knowledge? What drives demand for financial services in emerging markets? *The Journal of Finance*, 66(6): 1933–1967.
- Coleman, J.S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94 (Supplement), S94–S120.
- Coleman, J.S. (1994). Social capital, human capital, and investment in youth. In A.C. Petersen & J.T. Mortimer (Eds), *Youth unemployment and society* (pp. 34–50). New York: Cambridge University Press.
- Eagle, N., Macy, M. & Claxton, R. (2010). Network diversity and economic development. *The Science Journal*, 328(5981), 1029–1031.

- Fafchamps, M. & Minten, B. (1998). Returns to social capital among agricultural traders: Evidence from Madagascar. Department of Economics, Stanford University, Stanford, June 1998.
- Falk, I., & Kilpatrick, S. (2000). What is social capital? A study of rural communities. *Sociologia Ruralis*, 40(1), 87–110.
- FinScope (2013). Uganda FinScope III Survey Report Findings. <https://www.bou.or.ug/.../Finscope-Report-2013.pdf>
- Floro, S.L. & Yotopolous, P.A. (1991). *Informal credit markets and the new institutional economics: The case of Philippine agriculture*. Boulder: Westview Press.
- Giné, X., Karlan, D. & Ngatia, M. (2011). Social networks, financial literacy and index insurance, Ruiru and Ntima, Eastern Kenya. enhancing financial capability and behavior in low and middle-income countries. *Financial literacy & Education collection*. The World Bank: Washington, DC.
- Gomez, R. & Santor, E. (2003). *Do peer group members outperform individual borrowers? A test of peer lending using Canadian micro-credit data*. Bank of Canada Working Paper 33. Bank of Canada.
- Gomez, R. & Santor, E. (2001). Membership has its privileges: The effect of social capital and neighborhood characteristics on the earnings of microfinance borrowers. *Canadian Journal of Economics*, 34(4), 943–966.
- Granovetter, M.S. (1973). The strength of weak ties. *The American Journal of Sociology*, 78(6), 1360–1380.
- Granovetter, M.S. (2004). The impact of social structure on economic outcomes. *Journal of Economic Perspectives*, 19(1), 33–50.
- Greenspan, A. (2002). Financial literacy: A tool for economic progress. *The Futurist*, 36(4), 37–41.
- Grootaert, C. (2001). *Does social capital help the poor? A synthesis of findings from the local level institutions studies in Bolivia, Burkina Faso and Indonesia*. World Bank Local Level Institutions Working Paper No. 10. Washington DC: World Bank.
- Heikkilä, A., Kalmi, P. & Ruuskanen, O.P. (2009). Social capital and access to credit: Evidence from Uganda. A paper presented at Department of Economics, Helsinki School of Economics and HECER.
- Jamison, J.C., Karlan, D. & Zinman, J. (2014). Financial education and access to savings accounts. *Complements or substitutes? Evidence from Ugandan Youth Clubs*, youthsavings\_researchbrief\_ipa\_a4\_141107.pdf, May 2014.
- Jose, E.P. (2008). Welcome to the Moderation/Mediation Help Centre, Version 2.0. School of Psychology, Victoria University of Wellington, Wellington.
- Karlan, D.S. (2007). Social connections and group banking. *Economic Journal*, 117, F 52–84.
- Katungi, E., Edmeades, S. & Smale, M. (2008). Gender, social capital and information exchange in rural Uganda. *Journal of International Development*, 20(1), 35–52.
- Katz, N., Lazer, D., Arrow, H., & Contractor, N.S. (2004). Network theory and small groups. *Small Group Research*, 35(3), 307–332.
- Kempson, E. (2006). Policy level response to financial exclusion in developed economies: Lessons for developing countries. Paper presented at the conference-Access to Finance: Building Inclusive Financial Systems. World Bank, Washington, DC. May 30–31, 2006.
- Kempson, E. (2009). *Framework for the development of financial literacy baseline surveys: A first international comparative analysis*. OECD Working Papers on Finance, Insurance and Private Pensions No. 1. OECD: <http://dx.doi.org/10.1787/5kmdpz7m9zq-en>
- Khan, H.L.P. (2011). The role of social capital to access to rural credit in Vietnam. Master Thesis No. 56, Hue University of Agriculture and Forestry, Vietnam.
- Kuada, J. (2009). Gender, social networks, and entrepreneurship in Ghana. *Journal of African Business*, 10(1), 85–103.
- Lusardi, A. (2003). *Planning and saving for retirement*. Working Paper. Dartmouth College. [http://www.dartmouth.edu/~alusardi/Papers/Lusardi\\_pdf.pdf](http://www.dartmouth.edu/~alusardi/Papers/Lusardi_pdf.pdf)
- Lusardi, A. (2008a). *Household saving behavior: The role of financial literacy, information, and financial education programs*. NBER Working Paper No. 13824. NBER.

- Lusardi, A. (2008b). *Financial literacy: An essential tool for informed consumer choice?* NBER Working Paper No. 14084. NBER.
- Lusardi, A. (2008c). *Increasing the effectiveness of financial education in the workplace.* Working Paper 79/08. Centre for Research on Pensions and Welfare Policies.
- Lusardi, A. (2009). US Household savings behavior: The role of financial literacy, information and financial education programs. In C. Foote, L. Goette & S. Meier (Eds), *Policy-making insights from behavioral economics* (pp. 109–149): Federal Reserve Bank of Boston.
- Lusardi, A. & Mitchell, O. (2006). *Financial literacy and planning: Implications for retirement wellbeing.* Pension Research Council Working Paper 1. The Wharton School, University of Pennsylvania, Philadelphia, USA.
- MoFPED, (2012). Ministry of Finance, Planning & Economic Development: Uganda Government. *Ministerial Statement to the Parliament of Uganda*, June, 2012.
- Munene, J.C., Schwartz, S.H. & Kibanja, G.M. (2005). Escaping from behavioural poverty in Uganda: *The role of culture and social capital.* Kampala: Fountain.
- Narayan, D. & Pritchett, L. (1997). Cents y sociability: Household income and social capital in rural Tanzania. *Economic Development y Cultural Change*, 47(4), 871–897.
- National Planning Authority (NPA)–Mukono District (2010–2015), [www.Uganda.com/National+Planning+Authority+\(NPA\)-Mukono+District+\(2010-2015\)](http://www.Uganda.com/National+Planning+Authority+(NPA)-Mukono+District+(2010-2015)).
- OECD. (2009a). *Financial literacy and consumer protection: Overlooked aspects of the crisis.* <http://www.financial-education.org/dataoecd/32/3/43138294.pdf> accessed May, 12/2012.
- OECD. (2009b). *PIAAC literacy: A conceptual framework.* OECD Education Working Paper No. 34. [http://www.oalis.oecd.org/oalis/2009doc.nsf/LinkTo/NT00006EDA/\\$FILE/JT03274637.PDF](http://www.oalis.oecd.org/oalis/2009doc.nsf/LinkTo/NT00006EDA/$FILE/JT03274637.PDF)
- Okten, C. & Osili, U.O. (2004). Social networks and credit access in Indonesia. *World Development*, 32(7), 1225–1246.
- Podsakoff, P.M., Mackenzie, S.B. & Lee, J.Y. (2003). Common method biases in behavioural research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Porteous, D & Helms, B. (2005). Protecting microfinance borrowers. *CGAP Focus Note No. 27.* [http://www.cgap.org/docs/FocusNote\\_29.pdf](http://www.cgap.org/docs/FocusNote_29.pdf) accessed September, 20/2012.
- Putnam, R.D. (2000). *Bowling alone: The collapse and revival of American community.* New York: Simon & Schuster.
- Ramsden, P. (1992). *Learning to teach in higher education.* London: Routledge.
- Reagans, R.E. & McEvily, B. (2003). Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48, 240–267.
- Schuller, T., & Field, J. (1998). Social capital, human capital and the learning society. *International Journal of Lifelong Education*, 17(4), 226–235.
- Stack, K. (2008). *Adult learning principles and curriculum design for financial education.* Washington DC: Microfinance Opportunities.
- Supanantaroek, S. (2013). *Financial literacy and saving attitudes of children: Empirical evidence for Uganda.* Aflatoun/PEDN Uganda Randomized Controlled Trial. “[http://www.aflatoun.org/uganda\\_pedn\\_rct\\_2010-2013-\(working-paper\).pdf](http://www.aflatoun.org/uganda_pedn_rct_2010-2013-(working-paper).pdf)”
- Thorat, U. (2007, June 19). *Taking banking services to the common man: Financial inclusion.* Deputy Governor, Reserve Bank of India. Presentation at the HMT–DFID Financial Inclusion Conference 2007, Whitehall Place, London, UK.
- UBOS. (2012). *Poverty projections statistical abstract 2012.* Kampala: Uganda Bureau of Statistics.
- Yokoyama, S. & Ali, A.K. (2006). *Social capital and farmer welfare in Malaysia.* International Association of Agricultural Economists Conference–August 12–18, 2006.
- Uganda Bureau of Statistics. (2012). *National Household Survey.* UBOS National Household Statistical Forecast Brief. The Government of Uganda.
- USAID RURAL SPEED (2007). *Improving access to financial services in rural Uganda. Final Report:* USAID Uganda, Chemonics International.
- van Bastelaer, T. (2000a). *Does social capital facilitate the poor’s access to credit?* A review on the microeconomic literature. Social Capital Initiative Working Paper No. 8. World Bank, Washington, DC.



- van Bastelaer, T. (2000b). *Imperfect information, social capital and the poor's access to credit*. Social Capital Initiative Working Paper No. 234. : The World Bank, Washington, DC.
- Woolcock, M. (1999). Learning from failures in microfinance: What unsuccessful cases tell us about how group-based programs work. *American Journal of Economics and Sociology*, 58(1), 17–42.
- World Bank. (2008). *Banking the poor: Measuring banking access in 54 Economies*. Washington DC: World Bank.
- World Bank. (2009). *The case for financial literacy in developing countries. Promoting access to finance by empowering consumers*. Washington DC: The World Bank.

## Appendix: Final Survey Questionnaire

### Section 1: background information

Please kindly tick appropriately

1. Gender 1) Male 2) Female \_\_\_\_\_
2. Age Group
  - 1) 18 – 25 \_\_\_\_\_ 2) 26 – 33 \_\_\_\_\_ 3) 34 – 41 \_\_\_\_\_
  - 4) 42– 49 \_\_\_\_\_ 5) 50+ \_\_\_\_\_
3. Number of people in your household
  - 1) 5 or less \_\_\_\_\_ 2) 6 – 10 \_\_\_\_\_ 3) More than 10 \_\_\_\_\_
4. Type of dwelling unit for this household
  - 1) Temporary Building Materials \_\_\_\_\_ 2) Semi-permanent Building Materials \_\_\_\_\_
  - 3) Permanent Building Materials \_\_\_\_\_
5. Number of years lived in this community
  - 1) 5 years or less \_\_\_\_\_ 2) 6 – 10 years \_\_\_\_\_ 3) 11 – 15 years \_\_\_\_\_
  - 4) More than 15 years \_\_\_\_\_
6. What is the primary source of water for this household?
  - 1) Piped water system \_\_\_\_\_ 2) Private well \_\_\_\_\_ 3) Public well \_\_\_\_\_
  - 4) Borehole \_\_\_\_\_ 5) River or stream \_\_\_\_\_
  - 6) Other (specify) \_\_\_\_\_
7. What type of toilet facility does this household use?
  - 1) Community pit latrine \_\_\_\_\_ 2) Individual pit latrine \_\_\_\_\_ 3) Bush \_\_\_\_\_
  - 4) Other (specify) \_\_\_\_\_



8. What type of lighting does this household use?

- 1) Paraffin lantern \_\_\_\_\_ 2) Small kerosene lamp \_\_\_\_\_ 3) Firewood \_\_\_\_\_  
 4) Other (specify) \_\_\_\_\_

9. What type of cooking fuel does this household use?

- 1) Firewood \_\_\_\_\_ 2) Charcoal \_\_\_\_\_ 3) Paraffin \_\_\_\_\_  
 4) Other (specify) \_\_\_\_\_

10. Are you able to read and write?

- 1) Yes \_\_\_\_\_ 2) No \_\_\_\_\_

## Section 2: Financial literacy

Please circle the most appropriate option for each of the questions;

- KNW1 In this household, members are financially capable of making good use of financial products/services  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- KNW2 Members of my household have the ability to prepare a personal budget  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- SK1 In this household, members have the ability to accurately determine costs and benefits from financial dealings  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- SK2 In this household, members have the ability to compute interest rates  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- AT1 Members in this household are always interested in financial issues  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- AT2 In this household, we compare prices before making choices on financial products/ services  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- AT3 In this household, members feel very interested in dealing with banks  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- BH1 In this household, we always spend by sticking to our budgets  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- BH2 In this household, we always save on regular basis  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- BH3 In this household, we have been actively saving in the past years  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*

## Section 3: Networks

Please circle the most appropriate option for each of the questions:

- INT1 My household members have many friends with whom we are very close within and outside this community  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*

- INT2 In this household, we are always visited by friends when we get problems  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- INT3 Members of this household belongs to social groups with members from diverse ethnicity  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- INT4 In this household, most members participate in social organizations in this community  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- T11 Most members in this household are friends to friends who know each other  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- T12 In this household, we belong to social groups which frequently meet with other groups  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- T13 In this household, some members are friends to prominent people in this community  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- IND1 In this household, members have many people beyond this household that they can turn to in case they have problems  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- IND2 In this household, we have people we can call upon for help  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*

#### Section 4: Financial inclusion

Please circle the most appropriate option for each of the questions:

- ACC1 The financial services provided by the bank is safe for us  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- ACC2 The initial account opening fees charged by the bank is affordable  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- ACC3 The cost of making a trip to the bank is affordable  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- USG1 The loan product provided by the bank suits our needs  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- USG2 The terms and conditions on use of loans provided by the bank is favourable to us  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- QTY1 The saving product provided by the bank is suitable for us  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- QTY2 The savings product offered by the bank is safe for us  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- WEL1 The financial services offered by the bank has led to improvement in our nutrition  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- WEL2 The financial services offered by the bank has led to improved access to health services in this household  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*
- WEL3 The financial services offered by the bank has enabled us pay school fees  
*Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)*