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Nexus between financial literacy and financial inclusion

Examining the moderating role of cognition from a developing country perspective

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Abstract

Purpose – Premised on the argument that cognition structures the way how individuals think and make decisions, the purpose of this paper is to test the interaction effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda.

Design/methodology/approach – The study used cross-sectional research design and quantitative data were collected and analyzed using Statistical Package for Social Sciences. Baron and Kenny guidelines were adopted to test for existence of moderating effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda. Furthermore, ModGraph excel software was used to establish the magnitude of moderating effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda.

Findings – The results revealed that cognition significantly moderate the relationship between financial literacy and financial inclusion of the poor in rural Uganda. In addition, both cognition and financial literacy also have direct effects on financial inclusion of the poor in rural Uganda.

Research limitations/implications – The study adopted cross-sectional research design and data were collected by use of only questionnaires. Future studies through longitudinal research design may be employed. Besides, further studies using interviews may be adopted. Furthermore, this study collected data from only tier 3 financial institutions, thus, ignoring the other financial institutions. Future studies could focus on financial institutions under the other tiers.

Practical implications – The findings from the study enlightens policy-makers, managers of financial institutions, and financial inclusion advocates on the importance of cognition in enhancing financial literacy among the poor, especially in rural Uganda. Cognition combined with financial literacy helps the poor to make wise financial decisions and choices toward consuming financial services and products provided by formal financial institutions. This leads to increased scope of financial inclusion of the poor in rural Uganda. Therefore, advocates of financial literacy should assess community cultural cognition and utilize them to design and fashion effective financial literacy interventions that can promote financial inclusion.

Originality/value – The study uses Baron and Kenny and ModGraph excel software to test for the interaction effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda. While several studies exist worldwide on financial inclusion, this study is the first to test the interaction effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural areas in a developing country context.

Keywords Financial inclusion, Moderating effect, Financial literacy, Poor households, Cultural cognition, Procedural and declarative memories

Paper type Research paper

1. Background

Recently, during the "G20" summit held in Hamburg, Germany (2017), the leaders hinted that financial inclusion still remains an overarching priority that needs attention in order to move the poor out of poverty. This is justified by the fact that about 3 billion individuals, especially in developing countries, are unbanked and under-banked with limited or no access to financial services (Schlein, 2017).

According to the Bank of Uganda, financial inclusion is "a state in which all people who can use financial services have access to a full suite of quality services, provided at affordable prices, in a convenient manner, and with dignity for the client." The World Bank (2014)

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argues that access to and use of basic financial services like savings, payments, loans and insurance, helps the poor to move out of poverty by economically and socially empowering them. Financial inclusion acts as a basic tool that helps the poor to manage their day-to-day activities, navigate a crisis, and seize an opportunity. Indeed, financial inclusion facilitates asset accumulation and consumption smoothening with potentially significant effects on welfare.

Thus, in order to scale-up access and use of financial services, especially in developing countries, scholars and development agencies have advocated for financial literacy (Cole, Sampson and Zia, 2010; Lusardi and Mitchell, 2007; Lusardi and Tufano, 2009; Stango and Zinman, 2009; van Rooij *et al.*, 2007; Hogarth and O'Donnell, 1999; World Bank, 2009; OECD, 2009).

This is because individuals, especially the poor, face an increasingly complex menu of financial products offered by banks, which results into difficulties in making wise financial decisions and choices. Therefore, financial literacy helps them to make wise financial decisions and choices before consuming complex financial services and products provided by formal financial institutions.

Despite significant strides in financial literacy interventions, use of digital financial tools, and expanding the number of access points by supervised financial institutions in Uganda, financial inclusion still remains low. Both the number of bank branches per 10,000 adults and the number of ATMs per 10,000 adults are still below 1 banking access point at the national level. Besides, the number of adult population holding accounts in formal banks remains at only 4 million (33 percent) of the total 12 million who are bankable. Similarly, a survey by FinScope (2013) also reveals that formal financial institutions are less prominent in rural areas and serve only 14 percent of the rural population. Furthermore, the survey also indicates that only 4 percent and 12 percent of the adult population have access to credit from formal and non-formal banking institutions, respectively.

Holden (2010) observes that financial decisions are compelled and constrained by non-financial factors. These include personality characteristics of individuals as well as their social environment in which decisions are made. Advocates of financial literacy and practitioners have always tended to develop financial literacy materials with the assumption that if individuals are presented with knowledge and financial tools, they will be better and able to choose the options most likely to achieve their financial goals. However, these financial literacy materials rarely reflect the role of cognition in shaping financial decision making, especially among the poor who are presumed illiterate.

Drawing from the framing theory, Popper (1962) postulates that when human beings are born, their brains have empty space/compact with no information. However, as they grow, they learn and develop frames based on their culture and society. Thus, they use these frames to interpret information available in the environment. Indeed, the cultural-cognitive institution recognizes that internal interpretive processes are shaped by external cultural frames (Scott, 2001).

Consequently, Dacin *et al.* (1999) suggest that typifications, scripts, or conceptions as components of cultural-cognitive properties provide understanding that enables individuals to engage in economic and social action (see also DiMaggio, 1994). Additionally, Scott (2008) also argues that cultural-cognitive element, which is based on deeper shared beliefs that are comprehensible, recognizable, and culturally supported, helps individuals to access resources. This is consistent with Kostova (1999), who suggests that cognitive programs such as schemas, frames, inferential sets, and representations affect the way people notice, categorize, and interpret their environment. Accordingly, Markus and Zajonc (1985) contend that the mind registers incoming financial information and subjects it to a variety of transformations before ordering a response. Procedural (implicit) and declarative (explicit) memories help the poor to recall financial information that is explicitly stored to make meaning and sense about financial products provided by financial institutions.

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While studies such as Xiao and Porto (2017), Cole *et al.* (2010), OECD (2009), Lusardi (2009), Greenspan (2002), Braunstein and Welch (2002), World Bank (2009), Lusardi and Mitchell (2011), Lusardi (2009), Lusardi and Tufano (2008), Stango and Zinman (2009), van Rooij *et al.* (2007), Cohen and Nelson (2011), Atkinson and Messy (2013), Holzmann (2010) provide evidence on the role of financial literacy in promoting financial inclusion in developing countries, they fail to test the interaction effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda. Theoretically, while the connection between household expenditure and financial literacy has been long documented, the relationship between cognitive ability and financial literacy, though not surprising, is less well understood. Furthermore, the level of financial inclusion has remained low in Uganda with the savings to GDP ratio at only 16 percent and the private sector credit standing at 11.8 percent of GDP (Bank of Uganda, 2015). The main purpose of this paper is to test the interaction effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda.

The paper proceeds as follow: Section 2 presents literature review. Section 3 describes the methodology employed in the study. Section 4 is devoted to results. Section 5 contains discussion of results. Lastly, Section 6 highlights the conclusion, policy implications, and research limitations.

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2. Literature review and hypotheses

2.1 Financial literacy and financial inclusion

La Porta *et al.* (1998) observe that many countries around the world have liberalized their financial markets in order to increase access to and use of financial services. However, entry of many financial intermediaries in the market may not be sufficient enough to promote demand and use of financial services. This is because of the sophisticated nature of financial products and services offered by financial institutions.

Existing evidence demonstrates that there is a strong association between financial literacy and household well-being in developed countries. Owing to this, the role of financial literacy has garnered increasing attention in both developed and developing economies. Indeed, OECD (2009) elucidates that financial literacy is relevant for the poor who operate at the margin and are vulnerable to persistent downward financial pressures. Financial literacy empowers and educates the poor so that they are knowledgeable and capable of evaluating different financial products and services in order to make informed decisions, so as to derive maximum utility (Lusardi, 2009; Greenspan, 2002).

Furthermore, Braunstein and Welch (2002) contend that financial literacy can offer the poor a better understanding of mainstream financial services and, thus, encourage them to avoid non-standard financial services. Therefore, financial literacy facilitates the decision-making processes, which improves the saving rates and credit worthiness of the poor by economically and socially empowering them, hence, poverty reduction (World Bank, 2009; OECD, 2009).

Consistent with scholars like Cole *et al.* (2010), financial literacy improves household financial decision making, and ultimately their savings and welfare. Indeed, better financial literacy help individuals to save more and better manage risk by purchasing insurance contracts. Thus, increased demand by households for financial services may improve risk-sharing and intermediation, reduce economic volatility, and speed overall financial development.

Findings by Lusardi and Mitchell (2011) revealed that households with higher levels of financial literacy were more likely to plan for retirement, and consequently, arrive at it with substantially more assets than non-planners. Besides, Bertrand and Morse (2010) found that individuals provided with information on the cost of payday borrowings reduced their likelihood of renewing their payday loans. Therefore, here we hypothesize that:

H1. Financial literacy significantly affects financial inclusion of the poor.

2.2 Cognition and financial inclusion

Financial matters are often not straightforward for most individuals and may depend in part on their ability to invoke several dimensions of cognitive skills (see Horn and McArdle, 2007; McArdle and Woodcock, 1998). According to Scott (2001), cultural cognition is the shared conceptions that constitute the frames through which individuals find meaning. It is characterized by interpretation and conception of meaning by actors in a social setting. The cultural cognition recognizes that internal interpretive processes are shaped by external cultural frames. Hoffman *et al.* (2002) also contend that cultural-cognitive conception stresses the central role played by the socially mediated construction of common frames of meaning through language, meaning systems, and other rules of classifications among individuals.

According to Snow and Benford (1992) and Snow *et al.* (1986), meaning is mediated by the use of varying cognitive frames, such as metaphors, symbols, and cognitive cues that cast issues in a particular light and suggest possible ways to respond to these issues (Campbell, 2005). Consistent with Kostova (1999), cognitive programs such as schemas, frames, inferential sets, and representations affect the way people notice, categorize, and interpret their environment.

Indeed, cognitive theory by Lewin (1951) postulates that the state of an organism, as defined by various motivational and emotional variables, affect their perception, selective attention, and memory, which influence their everyday information processing and problem-solving behaviors. The mind is viewed by many as computer-like apparatus that registered incoming information and subjects it to a variety of transformations before ordering a response (Markus and Zajonc, 1985). The poor's actions are guided by cultural-cognitive frames and cultural assumptions, which enables them to develop habits and skills of sensemaking such as accessing and using financial services provided by financial institutions. Markus and Zajonc (1985) concur that the poor individuals' minds register incoming financial information and subject it to a variety of transformations before ordering a response. Procedural (implicit) and declarative (explicit) memories help the poor to recall and call back financial information that is explicitly stored to make meaning and sense repeatedly. Thus, most poor households depend in part on their ability to invoke several dimensions of their memories and cognitive skills to make better financial decisions (Horn and McArdle, 2007; McArdle and Woodcock, 1998). This corroborates with Christelis *et al.* (2006) who found that cognitive abilities using math, verbal, and recall test strongly correlated with investment in the stock market. Hence, here we hypothesize that:

H2. Cognition significantly affect financial inclusion of the poor.

2.3 Financial literacy and cognition

The cognitive theory by Piaget, which includes four development stages, suggest that cognitive ability becomes more sophisticated in each stage as individuals grow. Thus, in the third stage, use of logic and the ability to follow rules are key capacities for making financially sound decisions that emerge. Indeed, individuals' abilities to plan ahead by considering all possibilities can provide an advantage in financial decision making. Therefore, owing to the step-by-step advancement of cognitive abilities, cognitive theory highlights the importance of stage appropriate financial literacy.

Similarly, the theory of fluid-crystallized intelligence (Horn and Cattell, 1966), which specifies distinct sub-components of intelligence based on individual's general reasoning ability, represents the formal reasoning that is gained through education, experience, and acculturation. Thus, Horn and Cattell (1967) argue that crystallized intelligence is associated with the skills believed to enhance financial literacy.

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Furthermore, the explicit link between childhood experiences and adult financial behavior, which highlights the importance of parents in modeling good financial behavior among their children, is driven by cultural cognition. The parents' unconscious minds can influence the behavior and emotion, including behaviors associated with financial transactions of their children. Conversely, the emotional responses and symbolic meanings based on cognition, influences the likelihood of financial literacy and education, which may change financial behavior of children. Indeed, Charles and Hurst (2003) found that investment behavior transmitted from parents to children explained a substantial fraction of the correlation of wealth across generations.

Thus, it can be argued that financial literacy, which entails acquisition of knowledge and skills to make better financial decisions, ought to be aligned to prior knowledge of poor individuals in order to avoid misunderstanding about financial services provided by financial institutions. A study by Cole *et al.* (2010) found that increase in cognitive ability was associated with increase in financial literacy scores of households in both India and Indonesia. This suggest that cognitive ability plays an important role in determining financial literacy. Therefore, we hypothesize that:

H3. There is a significant and positive relationship between financial literacy and cognition.

2.4 Financial literacy and financial inclusion: cognition as moderator

OECD (2005) defines financial literacy as "the process by which financial consumers/investors improve their understanding of financial products and concepts, and through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being." Indeed, financial literacy helps poor households by providing appropriate clues for alternative course of action and behavior, which determines their financial decisions and choices (OECD, 2009).

Willis (2009) states that increasing experience in financial matters as an individual matures, helps to raise financial knowledge. Cognition, especially fluid intelligence, changes as people age. Therefore, since financial matters are often not straightforward for most individuals, they may depend in part on their ability to invoke several dimensions of cognitive skills. Indeed, a person's level of cognitive ability is a key determinant of financial decisions. Cole and Shastry (2009) contend that financial literacy may not affect financial decisions among individuals but it may affect financial decision making through personality traits based on cognition.

Besides, some scholars (Fox *et al.*, 2000; Shim *et al.*, 2010; Xiao *et al.*, 2007) suggest that financial knowledge and attitudes concerning financial behaviors are transmitted through peers, school, family, and the media, with the family being the primary socializing agent. According to Mandell (2008), children learn financial knowledge through observation of, and participation in financial behaviors, and through their parents' instruction. This can directly and indirectly impact their financial knowledge and disposition. The cultural-cognitive categories put information into a context and establishes frames of reference so that individuals can evaluate information, comprehend meanings, and take action, if appropriate by providing clues (Hallahan, 1999). The framing of information provides access to existing opportunities (Snow and Benford, 1992; Snow *et al.*, 1986).

Consequently, the poor rely on their categories/typifications/schemas that shape their perceptions and interpretations, as guided by culture, to solve problems in daily life by attaining specific objectives such as access to and usage of financial services guided by

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believe, knowledge system, and culture. Cognitive categories structure behaviors and actions of poor households, which determines their financial decisions and choices. This boost financial literacy, which enables poor households to become knowledgeable about finance in a way that is relevant to their lives. Consequently, they use the knowledge to evaluate financial products and make informed financial decisions and choices. Thus, here we hypothesize that:

H4. Financial literacy significantly and positively moderate the relationship between cognition and financial inclusion of the poor.

3. Research methodology

3.1 Research design

The study used a cross-sectional research design combined with quantitative analysis to test the interaction effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda. The data were collected at one point in time to answer hypotheses generated under this study. The poor living in rural Uganda were selected for this study because existing evidence indicates that formal financial institutions are less prominent in rural areas and they serve only 14 percent of the rural population (Financial Sector Deepening Uganda, 2016).

3.2 Population and sample

Previous studies like Johnson and Nino-Zarazua (2009), and Heikkilä *et al.* (2009) have studied financial inclusion in Uganda using data collected from poor households. Thus, for the purpose of this study, a total population of 1,200,000 poor households living in rural Uganda was considered based on Uganda Bureau of Statistics (2014). According to the contextual definition, the poor in Uganda are referred to as individuals who face the situation of poor health, low level of income and consumption, unemployment, illiteracy, low level of production, physical insecurity, disempowerment, and isolation socially and geographically. Therefore, the sample for this study was drawn from poor households living in rural Uganda.

The sample for the study was calculated using formula recommended by Yamane (1973). Thus, a total sample of 400 poor households was selected for this study. The total sample was calculated using the formula: $n = N/1+N\ (e)^2$; where; n is the sample size; N the total population; e the tolerable error (0.05 or 95 percent). Overall, responses were received from a total sample of 400 poor households who participated in this study. This accounted for 100 percent response rate. This was achieved because data were collected through village leaders. Besides, the high response rate was achieved because language barrier was not a problem since the data collectors were recruited from the particular districts in which the study was carried out.

3.3 Sampling design and sampling procedures

According to Creswell (2009), researchers attempting to conduct a survey of any sort should pay ample attention to their sampling, which is derived through careful selection of the sampling design and procedures. The study adopted stratified and simple random sampling methods to select the sample.

Stratified sampling design was used to select 50 villages located in the northern, eastern, central, and western regions of Uganda, and from each village, 8 households were randomly selected to participate in the study. This resulted into a total sample of 400 poor households who were selected for this study. The poor households were identified based on poverty indicators of households' utilities, housing conditions, and household welfare as stipulated by UBOS (2012). Therefore, the above identification

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criteria were repeated until a total sample of 400 poor households was achieved in this study. The unit of analysis were the poor households and the unit of inquiry were the households' heads who resided in the same households.

3.4 Measurement and operationalization of variables

Singleton and Straits (2010) suggest that once the construct definition has been developed, the researcher must translate that theoretical definition into a concrete way of measuring the variable so that numbers can be assigned.

Cognition: the measures for cognition were derived from the works of Scott (2001) and Okello *et al.* (2016) who argue that cognition embedded in cultural frames and cognitive categories or schemas, helps the poor to describe and interpret financial information. Thus, poor households in rural Uganda use their procedural and declarative memories to describe and interpret financial information provided by formal financial institutions. Therefore, for the purpose of this study, procedural and declarative memories were used to measure cognition. The items developed were anchored onto a five-point likert scale as recommended by DeVellis (2003), Johns (2010) and Likert (1932). The items used to measure cognition are indicated in the questionnaire in Appendix 1.

Financial literacy: previously, scholars like Atkinson and Messy (2012), Lusardi and Mitchell (2009), Lusardi and Mitchell (2006), Lusardi (2003) have adopted knowledge and skills to measure financial literacy. However, recently Holzmann (2010) and Kempson (2008) conceptualized financial literacy to include functional components and the move overtime from knowledge to skills to attitudes to behavior. Hence, for the purpose of this study, the constructs of knowledge, skills, attitudes, and behavior were adopted to measure financial literacy. All the items developed were anchored onto a five-point likert scale of 5 (strongly agree), 4 (agree), 3 (not sure), 2 (disagree), and 1 (strongly disagree). The items used to measure financial literacy are indicated in the questionnaire in Appendix 1.

Financial inclusion: according to the World Bank and ACCION, there is no uniform definition of financial inclusion. This is because financial inclusion happens in different context and environment. However, since financial inclusion involves access, usage, quality/relevance, and welfare impact as stipulated by ACCION, most financial inclusion studies have adopted these constructs as measures for financial inclusion. Thus, for the purpose of this study, the constructs of access, usage, quality/relevance, and welfare impact were adopted as measures for financial inclusion as recommended by Bank of Uganda (2004). The items scales in the questionnaire used for the study included: 5 (strongly agree), 4 (agree), 3 (not sure), 2 (disagree), and 1 (strongly disagree). The items used to measure financial inclusion are indicated in the questionnaire in Appendix 1.

3.5 Control for common method Bias

According to Podsakoff *et al.* (2003), method variance refers to variance that is attributable to the measurement method rather than to the construct of interest. The term method refers to the form of measurement at different levels of abstraction such as the content of specific items, scale type, response format, and the general context (Fiske, 1982). At a more abstract level, method effects might be interpreted in terms of response biases such as halo effects, social desirability, acquiescence, leniency effects, or yea- and nay-saying.

Scholars like Fuller *et al.* (1996), Gerstner and Day (1997), Podsakoff *et al.* (2000) have argued that common method bias, if not controlled, can cause type I and II errors that might jeopardize research findings. Spector (2006) also observes that the concern for common methods bias should be considered, especially when cross-sectional research design is used in the study. Therefore, common method bias, which is one of the main sources of measurement errors, was considered in this study so as to avoid bias in validity of conclusions about the relationships between measures (Bagozzi and Yi, 1988; Nunnally, 1978).

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Two methods involving procedural and statistical remedies were performed. The procedural remedy involved keeping the instruments for the final study simple, concise, specific, and easy to understand as stipulated by Tourangeau *et al.* (2000). This was done by eliminating ambiguous, double barrel, and hard questions and keeping the questions in the questionnaire short and simple. Thus, the procedural remedies involved ensuring clarity of the scale items and systematic construction of the questionnaire. First, the questionnaire items were generated from scales developed by previous scholars with few modifications and refinement using items generated from the qualitative data to suit the study context.

Statistically, Harman's single factor test was performed on the endogenous variable (financial inclusion). The results revealed that a total of 10 items with Eigen values greater than 1 emerged converging under four constructs of financial inclusion (Podsakoff *et al.*, 2003; Hair *et al.*, 2010). The first factor accounted for 22.10 percent variance in financial inclusion with Eigen value of 2.21. Thus, this provides evidence that multiple factors emerged as measures under each of the variables used in this study. Hence, the results were good and tenable since no problem of common method bias was present.

3.6 Data collection instrument

The study was purely quantitative and a semi-structured questionnaire was used to elicit responses from the samples selected for the study. The questionnaire was developed based on guidelines stipulated by Churchill and Iacobucci (2004). This involved nine steps, which included: specifying what information will be sought, determining the type of questionnaire and methods of administering, determining the content of individual items, determining the form of responses, determining the wording of each question, determining the sequence of questions, determining the physical lay-out and characteristics of the questionnaire, re-examining steps 1–7, and finally pre-testing the questionnaire.

The items used in the questionnaire were adopted from previous studies published in internationally refereed journals since they were proofed to be reliable and valid. The questionnaire was pre-tested and all the items were subjected to both validity and reliability tests. The results from the pilot revealed that all the constructs had valid items and the α coefficients ranged between 0.743, 0.840 and 0.865 for cognition, financial inclusion and financial literacy, respectively. Data for the main study were collected over a period of four months (March to June, 2014) from a total sample of 400 poor households selected for the study.

3.7 Data analysis and management

Data for the study were collected and analyzed using the Statistical Package for Social Sciences. Baron and Kenny's guidelines were adopted to test for existence of moderating effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda. Besides, ModGraph excel software was used to establish existence and magnitude of moderating effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda. According to Jose (2013), a ModGraph is a excel program that allows one to enter statistical information obtained from multiple regression outputs in order to compute the equations that yield cell means necessary for the graphical display of statistical interactions to create two types of figures (a continuous moderator and a categorical moderator) useful for interpreting the theoretical meaning of the obtained statistical interaction.

Checks for missing values and outliers were performed. Frequency tables were generated to identify existence of missing values in the data. Besides, Box plots were used to test for outliers in the data (Field, 2005). The results indicated that missing values existed in the data and they were missing at less than 5 percent completely at random (MCAR). The missing values were recommended for replacement as stipulated by Field (2005).

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Furthermore, the Box plots results showed that there were no outliers in the data. Therefore, the missing values in the data were replaced using linear interpolation, which is recommended as a better method by Hair *et al.* (2010).

3.8 Tests for assumptions of parametric data

The tests to confirm normality and homogeneity of variances assumptions were carried out. Normality checks were carried out using the histogram, normal p-p plots, and Kolmogorov-Smirnov and Shapiro-Wilk tests. Further, test for assumption of homogeneity of variances was performed by running the Levene's test statistics.

The results from the normality test indicated that the data for all variables were normally distributed as shown by a bell-shaped histogram as indicated in Figure A1. In addition, the normal pp plots also revealed that the observed values (the dots on the chart) fell exactly along the straight line. Besides, Kolmogorov-Smirnov and Shapiro-Wilk tests statistics were insignificant at p-value > 0.5 as stipulated by Field (2005). This implied that the distribution was not different from normal since all items had insignificant p-values. Furthermore, the results for test for assumptions of homogeneity of variances also revealed that the Levene's test was non-significant at $p > 0.05$ for all the variables under study. This implies that the assumption of homogeneity of variances was achieved and tenable, thus, the data were deemed fit for further statistical tests.

3.9 Test for interaction/moderating effect

Baron and Kenny (1986) suggest that including a moderator function of a third variable may result into maximal effectiveness of the predictor variable in regards to a given dependent variable. Therefore, the researcher should measure and test for the differential effect of the independent variable on dependent variable as a function of the moderator variable.

Thus, Baron and Kenny (1986) set three assumptions to be achieved for test to establish existence of interaction/moderation effect to proceed. These include: the moderator and independent variables are categorical variables; the moderator variable is a categorical variable and the independent variable a continuous variable; the moderator variable is a continuous variable and the independent variable is categorical. In essence, the existence of relationships between the variables should be established through correlation and regression analyses (see Cohen and Cohen, 1983; Aiken and West, 1986). Therefore, in order to proceed with the test for moderation, correlation and regression analyses were performed to establish the relationships and effects of moderator and independent variables on dependent variables.

Further, Jose (2008) also recommends that interaction effects can be tested by centering the independent variable 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. Therefore, if the beta coefficient of the interaction term is significant, then there is proof of existence of interaction in the model (Baron and Kenny, 1986; Jose, 2008).

Besides, ModGraph excel program was adopted to explain the magnitude of the moderation effect based on low, medium, and high effects. Jose (2008) argues that the moderating effect of the moderator variable should be plotted on a ModGraph excel program to show the level of moderation. The ModGraph helps us to visualize the moderating relationship of how the independent variable predicts the dependent variable based on the level of moderation. The rule states that the lines on the ModGraph should never meet when drawn. Further, Aiken and West (1991) suggest that the magnitude of the effect should be greater at all levels of the effects.

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4. Study results

4.1 Demographic characteristics

The findings from the study indicated that majority (63.5 percent) of the poor household heads were male and 36.5 percent were female. This means that most poor households sampled for the study were headed by male household heads. This could be supported by the argument that in most, if not all African societies, it is a traditional norm that most families are headed by men.

In addition, the findings also showed that 57.3 percent of the poor households sampled had 6–10 members, while 29.3 percent had five and less members. Furthermore, the findings indicated that 13.5 percent of the poor households had more than ten members. This implies that most poor households surveyed had 6–10 members. This is a characteristic associated with most poor households in rural Uganda where households live with not only biological children but also other relatives.

Further, the findings revealed that most (36.8 percent) poor households were headed by those in 26–33 years age bracket, while 25.5 were headed by household heads in 34–41 years age bracket. Besides, 23 percent of the poor households were headed by household heads in 42–49 years age bracket and 9.5 percent were headed by those who are in 18–25 years age bracket. Only 5 percent of the poor households surveyed were headed by household heads in the 50+ year age bracket. This means that most poor households used in the study were headed by household heads in 26–33 years age bracket. This could be due to delegation of family responsibilities to the young individuals by aging parents among families in rural Uganda.

Besides, the findings showed that most (32.3 percent) poor households used piped water as their main source of drinking water and 28.3 percent used boreholes. In addition, 26.8 percent used public well as their source of water, while 6.5 percent used private wells. Furthermore, the findings showed that 5.8 percent and 0.5 percent of the households used river/stream and spring as their main sources of water, respectively.

4.2 Descriptive statistics

The findings from the study revealed the following mean scores: financial literacy (mean = 3.3852, SD = 0.94022); cognition (mean = 3.1445, SD = 0.90615); and financial inclusion (mean = 3.6161, SD = 0.78089). Therefore, drawing from the law of normal distribution, the distance between the mean and the standard deviation shows a good fit of the observed data since the standard deviation values are small and further from the mean as indicated in Table I (Field, 2005).

4.3 Correlation analysis

The main purpose of this paper is to test the interaction effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda. Baron and Kenny (1986) set three cases for testing existence of interaction/moderation effect. Therefore, the existence of relationships between the variables should be established through correlation and regression analyses (see Cohen and Cohen, 1983; Aiken and West, 1986). Pearson's correlation analysis and hierarchical regression analysis were performed to

Table I. Descriptive statistics

	N	Min.	Max.	Mean	SD
Financial literacy	400	1.00	5.00	3.3852	0.94022
Cognition	400	1.00	5.00	3.1445	0.90615
Financial inclusion	400	1.00	5.00	3.6161	0.78089

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establish the relationships and effects of moderator and independent variables on dependent variables. The results are indicated in Tables II and III.

The findings from Pearson's correlation analysis indicated that there is a significant and positive ($r = 0.138$, $p < 0.1$) relationship between financial literacy and financial inclusion. This means that a change in financial literacy will affect financial inclusion. Besides, the findings showed that financial literacy and cognition are significantly and positively related ($r = 0.293$, $p < 0.1$). This implies that a variation in cognition leads to a change in financial literacy. Furthermore, the findings also revealed that there is a significant and positive relationship between cognition and financial inclusion ($r = 0.232$, $p < 0.1$). This means that a change in cognition will result into a change in financial inclusion of the poor in rural Uganda.

4.4 Regression analysis

Hierarchical regression analysis was also performed to test the impact of the independent variable on the dependent variable. Besides, the variation of dependent variable as a result of interaction between the independent variable and moderator variable was established through the interaction effect in the regression model. The results are indicated in Table III below.

The results from the hierarchical regression analysis in Table III indicated that financial literacy had a significant and positive impact on financial inclusion ($\beta = 0.278$, $p < 0.05$). This is in contention with *H1* of the study, which states that financial literacy significantly affect financial inclusion of the poor in rural Uganda. This means that financial literacy influences the level of financial inclusion among the poor. Indeed, scholars like Cole *et al.* (2010) argue that financial literacy improves household financial decision making, and ultimately savings and welfare.

In addition, the regression results also showed that cognition significantly and positively ($\beta = 0.208$, $p < 0.01$) affect financial inclusion of the poor in rural Uganda, therefore, confirming *H2* of the study. Cognition among the poor determines their financial inclusiveness through access and use of financial services provided by formal financial institutions. Hall and Soskice (2001) argue that cognition helps the poor to access and use financial services based on shared understandings and common meanings through use of common language guided by culture.

	1	2	3
Financial literacy (1)	1.000		
Cognition (2)	0.293**	1.000	
Financial inclusion (3)	0.138**	0.232**	1.000

Notes: $N = 400$. **Significant at 0.01 level (two-tailed)

Table II. Pearson's correlation analysis

	Financial inclusion			
Variables	Model 1	Model 2	Model 3	VIF
Constant	3.616	3.616	3.643	
Main effect				
Financial literacy	0.278*	0.135**	0.159**	1.103
Moderator effect				
Cognition		0.208**	0.181**	1.104
Interaction terms		0.191**	2.531	
Durbin Watson	1.418			

Notes: $N = 400$. $^*p < 0.05$; $^{**}p < 0.01$

Table III. Hierarchical regression analysis

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4.5 Testing for interaction effect

The findings indicated that there was interaction effect of cognition in the relationship between financial literacy and financial inclusion. This confirms *H4* of the study, which states that cognition significantly mediate the relationship between financial literacy and financial inclusion. The magnitude of the interaction effect was significant and positive ($\beta = 0.191$, $p < 0.01$). This finding is in contention with Jose (2008) who argues that interaction effects can be tested by centering the independent variable 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. Additionally, Jose suggests that if the beta coefficient of the interaction terms is significant, then there is proof of existence of interaction in the model.

Furthermore, the ModGraph results also revealed that cognition moderate the relationship between financial literacy and financial inclusion. The results indicated that the lines on the ModGraph are not parallel and the magnitude of the effect is greater at all levels as stipulated by Aiken and West (1991). The existence of parallel lines help to confirm that there is interaction effect between the independent, moderator, and dependent variables in the model based on high, moderate, and low effects as indicated in Figure 1. Thus, the magnitude of an effect should be greater at one level of a variable than at another, therefore, justifying that a significant interaction has occurred as stipulated by Aiken and West (1991). Holden (2010) observes that financial decisions are compelled and constrained by non-financial factors. These include personality characteristics of individuals such as cognitive abilities and the social environment in which decisions are made.

5. Discussion of results

The results from the study revealed that financial literacy had a significant and positive impact on financial inclusion. This lends support to *H1* of the study, which suggests that financial literacy significantly affect financial inclusion of the poor in rural Uganda. Indeed, financial literacy helps the poor to make wise financial decisions and choices before consuming complex financial services and products provided by formal financial institutions. OECD (2009) elucidates that financial literacy is relevant for the poor who operates at the margin and are vulnerable to persistent downward financial pressures. Financial literacy

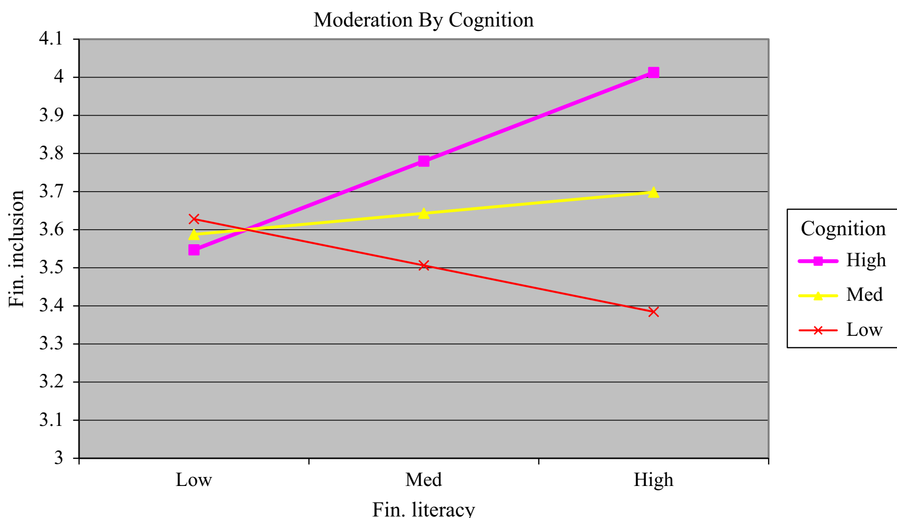

Figure 1.
Cognition as moderator between financial literacy and financial inclusion

helps by empowering and educating the poor so that they are knowledgeable and capable of evaluating different financial products and services in order to make informed decisions, so as to derive maximum utility (Lusardi, 2009; Greenspan, 2002). Cole *et al.* (2010) contend that financial literacy improves household financial decision making, and ultimately savings and welfare. Indeed, better financial literacy help individuals to save more and better manage risk by purchasing insurance contracts. Findings by Lusardi and Mitchell (2011) revealed that households with higher levels of financial literacy were more likely to plan and arrive at retirement with substantially more assets than non-planners.

More so, the results also showed that cognition significantly and positively impact financial inclusion of the poor in rural Uganda. Indeed, financial matters are not often straightforward for most individuals, and therefore, they may depend in part on their abilities to invoke several dimensions of cognitive skills (see Horn and McArdle, 2007; McArdle and Woodcock, 1998). According to Scott (2001), the cultural cognition is the shared conception that constitutes the frames through which meaning is made by individuals. The poor's actions are guided by cultural-cognitive frames and cultural assumptions, which enable them to develop habits and skills of sensemaking such as accessing and using financial services provided by financial institutions. Markus and Zajonc (1985) concur that the poor individuals' minds register incoming financial information and subjects it to a variety of transformations before ordering a response. Procedural (implicit) and declarative (explicit) memories help the poor to recall and call back financial information that is explicitly stored to make meaning and sense repeatedly. Thus, most poor households depend in part on their abilities to invoke several dimensions of their memories and cognitive skills to make better financial decisions (Horn and McArdle, 2007; McArdle and Woodcock, 1998). This corroborates with Christelis *et al.* (2006) who found that cognitive abilities using math, verbal, and recall test strongly correlated with investment in the stock market.

Besides, the results indicated that financial literacy and cognition are significantly and positively related. Cognitive theory by Piaget, which includes four development stages suggest that cognitive ability becomes more sophisticated in each stage as individuals grow. Thus, in the third stage, use of logic and ability to follow rules, key capacities for making financially sound decisions emerge. Furthermore, the theory of fluid-crystallized intelligence (Horn and Cattell, 1966) that specifies distinct sub-components of intelligence based on individual's general reasoning ability represents the formal reasoning that is gained through education, experience, and acculturation. Thus, Horn and Cattell (1967) argue that crystallized intelligence is associated with the skills believed to enhance financial literacy. More so, the explicit link between childhood experiences and adult financial behavior, which highlights the importance of parents in modeling good financial behavior in their children, is driven by cultural cognition. The parents' unconscious minds can influence the behavior and emotion, including behaviors associated with financial transactions of their children. Thus, financial literacy, which entails acquisition of knowledge and skills to make better financial decisions, ought to be aligned to prior knowledge of poor individuals in order to avoid misunderstanding about financial services provided by financial institutions. A study by Cole *et al.* (2010) found that increase in cognitive ability was associated with increase in financial literacy scores in both India and Indonesia. This suggest that cognitive ability plays an important role in determining financial literacy.

Overall, the results revealed that there was interaction effect of cognition in the relationship between financial literacy and financial inclusion. This confirms *H4* of the study, which states that cognition significantly mediate the relationship between financial literacy and financial inclusion. Cognition enables the poor in rural Uganda to make wise financial decisions and choices based on their abilities to remember and recall financial information before consuming financial products and services provided by banks. Willis (2009) states that increasing

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experience in financial matters as an individual matures help to raise financial knowledge. Cognition, especially fluid intelligence changes as people age. Therefore, since financial matters are often not straightforward for most individuals, they may depend in part on their ability to invoke several dimensions of cognitive skills. Indeed, a person's level of cognitive ability is a key determinant of financial decisions. Cole and Shastry (2009) contend that financial literacy may not affect financial decisions among individuals but it may affect financial decision making through personality traits based on cognition. The cultural-cognitive categories put information into a context and establishes frames of reference so that individuals can evaluate information, comprehend meanings, and take action, if appropriate by providing clues (Hallahan, 1999). The framing of information provides access to existing opportunities (Snow and Benford, 1992; Snow *et al.*, 1986). Thus, the poor rely on their categories/typifications/schemas that shape their perceptions and interpretations guided by culture to solve problems in daily life by attaining specific objectives such as access to and usage of financial services guided by believe, knowledge system, and culture. Cognitive categories structure behaviors and actions of poor households, which determines their financial decisions and choices. This boost financial literacy, which enables poor households to become knowledgeable about finance in a way that is relevant to their lives. Thus, they use the knowledge to evaluate financial products and make informed financial decisions and choices.

6. Conclusion and summary of findings

The main purpose of this study is to test the interaction effect of cognition in the relationship between financial literacy and financial inclusion of the poor in rural Uganda.

The results indicated that financial literacy had a significant and positive impact on financial inclusion. This lends support to *H1* of the study, which suggests that financial literacy significantly affect financial inclusion of the poor in rural Uganda.

Furthermore, the results also showed that cognition significantly and positively impact on financial inclusion of the poor in rural Uganda, therefore, confirming *H2* of the study. Cognition among the poor determines their financial inclusiveness through access and use of financial services provided by formal financial institutions.

Besides, the study found that financial literacy and cognition are significantly and positively related. Cognitive ability leads to increase in financial literacy, thus, suggesting that cognitive ability plays an important role in determining financial literacy. This is in line with *H3* derived under this study.

Finally, the study indicated that there is a significant interaction effect of cognition in the relationship between financial literacy and financial inclusion. This confirms *H4* of the study, which states that cognition significantly mediate the relationship between financial literacy and financial inclusion. Indeed, cognitive categories structure behaviors and actions of poor households, which enhances better financial decisions and choices among the poor.

7. Implications for policy

The findings from the study enlightens policy-makers, managers of financial institutions, and financial inclusion advocates on the importance of cognition in enhancing financial literacy among the poor, especially in rural Uganda. Cognition combined with financial literacy helps the poor to make wise financial decisions and choices toward consuming financial services and products provided by formal financial institutions. This leads to increased scope of financial inclusion of the poor in rural Uganda. Therefore, advocates of financial literacy should assess community cultural cognition and utilize them to design and fashion effective financial literacy interventions that promotes financial inclusion.

Further, policy-makers and financial literacy advocates should consider that individuals' behaviors are determined by social systems that drive meanings, which they attach to their

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actions guided by cultural cognition. Rolling out financial literacy interventions alone may not necessarily promote financial inclusion among the poor. Policy-makers should be aware of existing cognitive frames that structures the way how the poor think toward using financial products provided by financial institutions.

8. Limitations and short comings

The study adopted cross-sectional research design and data were collected by use of only questionnaires. Future studies through longitudinal research design may be adopted. Additional studies may also adopt interviews. Furthermore, this study collected data from only tier 3 financial institutions, thus, ignoring the other financial institutions. Future studies could focus on financial institutions under the other tiers.

References

Aiken, L.S. and West, S.G. (1986), "Use and interpretation of regression analysis models containing interactions and power polynomials", unpublished manuscript, Arizona State University, Tempe, AZ.

Aiken, L.S. and West, S.G. (1991), *Testing and Interpreting Interactions*, Sage, Newbury Park, CA.

Atkinson, A. and 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, available at: http://dx.doi.org/10.1787/5k9csfs90fr4-en

Atkinson, A. and Messy, F. (2013), "Promoting financial inclusion through financial education: OECD/INFE evidence, policies and practice", OECD Working Paper No. 34, Finance, Insurance and Private Pensions, OECD Publishing, Paris, available at: http://dx.doi.org/10.1787/5k3xz6m88smp-en (accessed September, 2016).

Bagozzi, R. and Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science*, Vol. 16 No. 1, pp. 74-94.

Bank of Uganda (2004), "The state of financial inclusion in Uganda", Annual Supervisory report, Statistics Department, Bank of Uganda, Kampala.

Bank of Uganda (2015), "Annual supervision report", Statistics Department, Bank of Uganda, Kampala.

Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182.

Bertrand, M. and Morse, A. (2010), "Information disclosure, cognitive biases and payday borrowing", working paper, University of Chicago Booth School of Business, Chicago, IL.

Braunstein, S. and Welch, C. (2002), "Financial literacy: an overview of practice, research, and policy", Federal Reserve Bulletin.

Campbell, J.L. (2005), "Where do we stand? Common mechanisms in organizations and social movements research", in Davis, G.F., McAdam, D., Scott, W.R. and Zald, M.N. (Eds), *Social Movements and Organization Theory*, Cambridge University Press, New York, NY, pp. 41-68.

Charles, K.K. and Hurst, E. (2003), "The correlation of wealth across generations", *Journal of Political Economy*, Vol. 111 No. 2, pp. 1155-1182.

Christelis, D., Jappelli, T. and Padula, M. (2006), "Cognitive abilities and portfolio choice", Discussion Paper No. 5735, CEPR, London.

Churchill, G.A. and Iacobucci, D. (2004), *Marketing Research: Methodological Foundations*, 9th ed., Thomson South-Western, OH.

Cohen, J. and Cohen, P. (1983), *Applied Multiple Regress/Correlation for the Behavioral Sciences*, 2nd ed., Lawrence Erlbaum Associates, Hillsdale, NJ.

Downloaded by INSEAD At 17:50 27 June 2018 (PT)

Downloaded by INSEAD At 17:50 27 June 2018 (PT)

Cohen, M. and Nelson, C. (2011), "Financial literacy: a step for clients towards financial inclusion", working paper, World Bank, Washington, DC.

Cole, S. and Shastry, K. (2009), "Smart money: the effect of education, cognitive ability, and financial literacy on financial market participation", Working Paper No. 09-071, Harvard Business School, Boston, MA.

Cole, S., Sampson, T. and Zia, B. (2010), "Financial literacy, financial decisions, and the demand for financial services: evidence from India and Indonesia", Working Paper No. 09-117, Harvard Business School, Cambridge, MA.

Creswell, J.W. (2009), *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 3rd ed., Sage Publications, Inc., Los Angeles, CA.

Dacin, M.T., Ventresca, M.J. and Beal, B.D. (1999), "The embeddedness of organizations: dialogue & directions", *Journal of Management*, Vol. 25 No. 3, pp. 317-356.

De Vellis, R.F. (2003), *Scale Development: Theory and Applications*, 2nd ed., Sage, Thousand Oaks, CA.

DiMaggio, P. (1994), "Culture and economy", in Smelser, N. and Swedberg, R. (Eds), *The Handbook of Economic Sociology*, Princeton University Press, Princeton, NJ.

Field, A.P. (2005), *Discovering Statistics Using SPSS*, Sage, London.

Financial Sector Deepening Uganda (2016), "Financial inclusion Brief", FSDU and DFID Quarterly Brief, Kampala.

Fin Scope (2013), "Unlocking barriers to financial inclusion", Uganda Fin Scope Survey III Key Findings.

Fox, J.J., Bartholomae, S. and Gutter, M.S. (2000), "What do we know about financial socialization?", *Consumer Interests Annual*, Vol. 46, p. 217.

Fuller, J.B., Patterson, C.E.P., Hester, K. and Stringer, S.Y. (1996), "A quantitative review of research on charismatic leadership", *Psychological Reports*, Vol. 78, pp. 271-287.

Gerstner, C.R. and Day, D.V. (1997), "Meta-analytic review of leader– member exchange theory: correlates and construct issues", *Journal of Applied Psychology*, Vol. 82 No. 6, pp. 827-844.

Greenspan, A. (2002), "Financial literacy: a tool for economic progress", *The Futurist*, Vol. 36 No. 4, pp. 37-41.

Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (2010), *Multivariate Data Analysis*, 7th ed., Prentice Hall, Englewood Cliffs, NJ.

Hall, P. and Soskice, D. (2001), "An introduction to varieties of capitalism", in Hall, P.A. and Soskice, D. (Eds), *Varieties of Capitalism: Institutional Foundations of Comparative Advantage*, Oxford University Press, Oxford, pp. 1-68.

Hallahan, K. (1999), "Seven models of framing: implications for public relations", *Journal of Public Relations Research*, Vol. 11 No. 3, pp. 205-242.

Heikkilä, A., Kalmi, P. and Ruuskanen, O.P. (2009), *Social Capital and Access to Credit: Evidence from Uganda*, Department of Economics, Helsinki School of Economics and HECER, Helsinki.

Hoffman, A.J., Riley, H.C., Troast, J.G. Jr and Bazerman, M.H. (2002), "Cognitive and institutional barriers to new forms of cooperation on environmental protection: insight from project XL and habitat conservation plans", *American Behavioral Scientist*, Vol. 45 No. 5, pp. 820-845.

Hogarth, J.M and O'Donnell, K.H. (1999), "Banking relationship of lower-income families and the government trend toward electronic payment", *Federal Reserve Bulletin*, Vol. 85, pp. 459-473.

Holden, K. (2010), "The emotions and cognitions behind financial decisions: the implications of theory for practice", Working Paper No. 10-4, Center for Financial Security, University of Wisconsin-Madison.

Holzmann, R. (2010), *Bringing Financial Literacy and Education to Low and Middle Income Countries: The Need to Review, Adjust, and Extend Current Wisdom*, SP Discussion Paper No. 1007, The World Bank, IZA and CES, Washington, DC, available at: http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/9897 (accessed June 2012).

Horn, J.L. and Cattell, R.B. (1966), "Refinement and test of the theory of fluid and crystallized intelligence", *Journal of Educational Psychology*, Vol. 57, pp. 252-270.

Horn, J.L. and Cattell, R.B. (1967), "Age differences in fluid and crystallized intelligence", *Acta Psychologia*, Vol. 26, pp. 107-129.

Horn, J.L. and McArdle, J.J. (2007), "Understanding human intelligence since Spearman", in Cudeck, R. and MacCallum, R.C. (Eds), *Factor Analysis at 100: Historical Developments and Future Directions*, Erlbaum, Mahwah, NJ, pp. 205-247.

Johns, R. (2010), "Likert items scales", available at: www.surveynet.ac.uk/sqb/datacollection/likertfactsheet.pdf (accessed November 12, 2016).

Johnson, S. and Nino-Zarazua, M. (2009), "Financial access and exclusion in Kenya and Uganda", Working Paper No. 1, Bath Papers in International Development, Centre for Development Studies, University of Bath, London, February.

Jose, E.P. (2008), "Welcome to the Moderation/Mediation Help centre: Version 2.0", School of Psychology, Victoria University of Wellington, Wellington.

Jose, E.P. (2013), "Welcome to the Moderation/Mediation Help Centre, Version 3.0", School of Psychology, Victoria University of Wellington, Wellington.

Kempson, E. (2008), "Financial education fund: monitoring and evaluation policy and procedures", Financial Education Inception Report, Mimeo, November.

Kostova, T. (1999), "Transnational transfer of strategic organizational practices: a contextual perspective", *Academy of Management Review*, Vol. 24 No. 2, pp. 308-324.

la Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (1998), "Law and finance", *Journal of Political Economy*, Vol. 106 No. 6, pp. 1113-1155.

Lewin, K. (1951), "Problems of research in social psychology", in Cartwright, D. *et al.* (Eds), *Field Theory in Social Science*, Harper & Brothers, New York, NY.

Likert, R. (1932), "A technique for the measurement of attitudes", *Archives of Psychology,* Vol. 140 No. 1, pp. 44-53.

Lusardi, A. (2003), "Planning and saving for retirement", working paper, Dartmouth College, Hanover, NH, available at: www.dartmouth.edu/~alusardi/Papers/Lusardi_pdf.pdf

Lusardi, A. (2009), "US household savings behavior: the role of financial literacy, information and financial education programs", in Foote, C., Goette, L. and Meier, S. (Eds), *Policymaking Insights from Behavioural Economics*, Federal Reserve Bank of Boston, Boston, MA, pp. 109-149.

Lusardi, A. and Mitchell, O. (2006), "Financial literacy and planning: implications for retirement wellbeing", Pension Research Council Working Paper No. 1, The Wharton School, University of Pennsylvania, Philadelphia, PA.

Lusardi, A. and Mitchell, O. (2007), "Financial literacy and retirement preparedness: evidence and implications for financial education", *Business Economics*, Vol. 42 No. 1, pp. 35-44.

Lusardi, A. and Mitchell, O. (2009), "How ordinary consumers make complex economic decisions: financial literacy and retirement readiness", Working Paper No. 15350, NBER, Cambridge, MA.

Lusardi, A. and Mitchell, S.O. (2011), "Financial literacy around the world: an overview", *Journal of Pension Economics and Finance*, Vol. 10 No. 4, pp. 497-508.

Lusardi, A. and Tufano, P. (2008), "Debt literacy, financial experience and over-indebtedness", Harvard School Working Paper, Boston, MA.

Lusardi, A. and Tufano, P. (2009), "Debt literacy, financial experience and over indebtedness", National Bureau of Economic Research Working Paper No. 14808, Cambridge, MA.

McArdle, J.J. and Woodcock, R.W. (1998), *Human Abilities in Theory and Practice*, Erlbaum, Mahwah, NJ.

Mandell, L. (2008), "Financial knowledge of high school seniors", in Xiao, J.J. (Ed.), *Advances in Consumer Finance Research*, Springer Publishing, New York, NY, pp. 170-171.

Downloaded by INSEAD At 17:50 27 June 2018 (PT)

Markus, H. and Zajonc, R.B. (1985), "The cognitive perspective in social psychology", in Lindzey, G. and Aronson, E. (Eds), *Handbook of Social Psychology*, 2nd ed., Random House, New York, NY, pp. 137-230.

Nunnally, J.C. (1978), *Psychometric Theory*, McGraw-Hill, New York, NY.

OECD (2005), "Improving financial literacy", *Analysis of Issues and Policies*, OECD, Paris.

OECD (2009), "Financial literacy and consumer protection: overlooked aspects of the crisis", available at: www.financial-education.org/dataoecd/32/3/43138294.pdf

Okello, G.C.B., Ntayi, J.M. and Munene, J.C. (2016), "Institutional frames for financial inclusion of poor households in Sub-Saharan Africa", *International Journal of Social Economics*, Vol. 43 No. 11, pp. 1096-1114, available at: http://dx.doi.org/10.1108/IJSE-06-2014-0110

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903.

Podsakoff, P.M., MacKenzie, S.B., Paine, J.B. and Bachrach, D.G. (2000), "Organizational citizenship behavior: a critical review of the theoretical and empirical literature and suggestions for future research", *Journal of Management*, Vol. 26 No. 3, pp. 513-563.

Popper, K. (1962), *Conjectures and Refutations: The Growth of Scientific Knowledge*, Routledge and Kegan Paul, London.

Schlein, M. (2017), "ACCION conversation on the future of financial inclusion", *MoneyConf Fintech Conference*, *Madrid*, *July*.

Scott, R.W. (2001), *Institutions and Organizations*, 2nd ed., Sage, Thousand Oaks, CA.

Scott, R.W. (2008), *Institutions and Organizations: Ideas and Interests*, 3rd ed., Sage Publications, Thousand Oaks, CA.

Shim, S., Barber, B.L., Card, N.A., Xiao, J.J. and Serido, J. (2010), "Financial socialization of first-year college students: the roles of parents, work, and education", *Journal of Youth and Adolescence*, Vol. 39 No. 12, pp. 1457-1470.

Singleton, R.A. Jr and Straits, B.C. (2010), *Approaches to Social Research*, 5th ed., Oxford University Press, New York, NY.

Snow, D.A. and Benford, R.D. (1992), "Master frames and cycles of protest", in Morris, A.D. and Mueller, C.M. (Eds), *Frontiers in Social Movement Theory*, Yale University Press, New Haven, CT, pp. 133-155.

Snow, D.A., Burke, R.E. Jr, Worden, S.K. and Benford, R.D. (1986), "Frame alignment processes, micro mobilization and movement participation", *American Sociological Review*, Vol. 51 No. 4, pp. 546-481.

Spector, P.E. (2006), "Method variance in organizational research: truth or urban legend?", *Organizational Research Methods*, Vol. 9 No. 2, pp. 221-232.

Stango, V. and Zinman, J. (2009), "Exponential growth bias and household finance", *Journal of Finance*, Vol. 64 No. 6, pp. 2807-2849.

Tourangeau, R., Rips, L.J. and Rasinski, K. (2000), *The Psychology of Survey Response*, Cambridge University Press, Cambridge.

Uganda Bureau of Statistics (2012), "National Household Survey, Uganda Bureau of Statistics, National Household Statistical Forecast Brief", The Government of Uganda, Kampala.

Uganda Bureau of Statistics (2014), *Uganda National Housing Population Census: Enumeration Maps for National Population Census*, The Government of Uganda, Kampala.

van Rooij, M., Lusardi, A. and Alessie, R. (2007), "Financial literacy and stock market participation", Working Paper No. 13565, National Bureau of Economic Research, Cambridge, MA.

Willis, L.E. (2009), "Evidence and ideology in assessing the effectiveness of financial literacy education", *San Diego Law Review*, Vol. 46 No. 2, pp. 415-458.

Downloaded by INSEAD At 17:50 27 June 2018 (PT)

World Bank Global Financial Development Report on Financial Inclusion (2014), *A Survey On Access to And Use of Financial Services in 152 Countries Around the World", The 2014 Global Financial (Global Findex) Database*, The World Bank, Washington, DC.

World Bank (2009), *The Case for Financial Literacy in Developing Countries. Promoting Access to Finance by Empowering Consumers*, The World Bank, Washington, DC.

Xiao, J.J. and Porto, N. (2017), "Financial education and financial satisfaction: financial literacy, behaviour, and capability as mediators", *International Journal of Bank Marketing*, Vol. 35 No. 5, pp. 805-817, available at: https://doi.org/10.1108/IJBM-01-2016-0009

Xiao, J.J., Shim, S., Barber, B.L. and Lyons, A.C. (2007), "Academic success and well-being of college students: financial behaviours matter", technical report, Take Charge America Institute for Consumer Financial Education and ResearchUniversity of Arizona, Tucson, AZ.

Yamane, T. (1973), *Statistics: An Introductory Analysis*, Harper & Row, New York, NY.

Further reading

Litzky, E.B. and MacLean, L.T. (2007), "Institutional framing", in Kolb, W.B. (Ed.), *Encyclopedia of Business Ethics and Society*, Loyola University, Sage Publications, Inc, Chicago, IL, pp. 427-441.

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Appendix 1. Questionnaire for the study

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: Cognition

Please circle the most appropriate option for each of the questions below;
Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)

Procedural cognition

COGP1 In this household, members can easily make decisions on everyday financial matters
COGP2 In this household, members can easily handle everyday financial problems
COGP3 Members of my household can easily make financial predictions
COGP4 Members of my household can easily determine the benefits of financial products and services
COGP5 In this household, members are always excited in learning new financial matters
COGP6 In this household, members always appreciate their financial decisions
COGP7 In this household, members can easily forecast the outcome of their financial dealings

Declarative cognition

COGD1 In this household, members can easily memorize and remember financial matters
COGD2 In this household, members can easily evaluate content of financial information
COGD3 In this household, members can easily respond to financial issues
COGD4 Members of my household can easily interpret financial information
COGD5 In this household, members can easily elaborate financial issues
COGD6 In this household, members can easily express themselves on financial matters
COGD7 In this household, we can easily make judgments on financial matters
COGD8 In this household, members can easily organize financial information
COGD9 Members in this household can easily recognize financial terms

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Section 3: **Financial literacy**
Please circle the most appropriate option for each of the questions below;
Strongly agree (5), agree (4), not sure (3), disagree (2) strongly agree (1)

Knowledge
KNW1 In this household, members are knowledgeable about financial risks
KNW2 In this household, members are knowledgeable about costs associated with financial products/services
KNW3 In this household, members can easily compute interest rates
KNW4 In this household, members can easily understand simple financial terms
KNW5 In this household, members have knowledge of key features of financial products/services
KNW6 In this household, members can easily make wise financial decisions
KNW7 Members of this household can easily open a bank account
KNW8 Members of this household can easily use a bank account
KNW9 In this household, we can easily handle financial matters
KNW10 In this household, members can easily compare financial products and services
KNW11 Members of this household can easily plan sequences of financial activities
KNW12 In this household, members are knowledgeable about benefits associated with financial products/services

Skills
SK1 Members of my household have the ability to prepare a personal budget
SK2 In this household, members have the ability to decide what financial services to choose
SK3 In this household, members have the ability to accurately determine benefits from financial dealings
SK4 In this household, members have the ability to accurately determine costs from financial dealings
SK5 In this household, members are capable of evaluating the different financial products and services
SK6 Members of my household are capable of wisely using their financial resources
SK7 In this household, members have the ability to plan for their future financial needs
SK8 In this household, members are financially capable of making good use of financial products/services
SK9 In this household, members have the ability to manage their money
SK10 In this household, members have the ability to compute interest rates
SK11 In this household, we are capable of handling our future needs

Attitudes
AT1 Members of this household have good attitude towards saving money
AT2 Members of this household have good attitude towards spending money responsibly
AT3 In this household, members find it easy to save money
AT4 In this household, members enjoy spending money
AT5 Members of this household are always organised in regards to managing money
AT6 Members of this household are always interested in financial matters
AT7 Members of this household always like conversation about financial matters
AT8 In this household, we always get information about financial issues from friends
AT9 Members in this household are always interested in financial news
AT10 In this household, members feel very interested in dealing with financial institutions
AT11 In this household, members have good attitude towards financial matters

Behaviour
BH1 In this household, we always read the terms and conditions on use of financial products/services
BH2 In this household, members always look to saving money
BH3 In this household, members always look to spending money
BH4 Members of this household always keep aside some money for their future use
BH5 Members of this household always choose financial products that suits their needs and conditions
BH6 Members of this household often have better spending behaviour
BH7 In this household, members always repay money they owe on time
BH8 In this household, we always spend by sticking to our budgets
BH9 In this household, we compare prices before making choices on financial products/services
BH10 In this household, members are always willing to pay bills
BH11 We in this household always keep a close watch on our personal financial affairs
BH12 In this household, members always have financial goals and how to achieve them
BH13 In this household, members are always responsible when it comes to money matters
BH14 In this household, we have been actively saving in the past years
BH15 In this household, we always gather information before we chose a financial product
BH16 In this household, we always shop around before making a choice on a financial product
BH17 In this household, we always borrow to fund our expenditures
BH18 In this household, we always track our spending
BH19 In this household, we always save on regular basis
BH20 In this household, we are always in control of our financial situation

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Section 4: Financial inclusion

Please circle the most appropriate option for each of the questions below;
Strongly agree (5), agree (4), not sure (3), disagree (2) strongly disagree (1)

Access

ACC1 There are many financial services delivery channels nearby this household
ACC2 There are many financial institution branches nearby this household
ACC3 The initial account opening fees charged by the financial institution is affordable
ACC4 The account maintenance fees charged by the financial institution is affordable
ACC5 The minimum balance on savings account required by the financial institution is affordable
ACC6 The loan fees charged by the financial institution is affordable
ACC7 The minimum loan amount offered by the financial institution is satisfactory
ACC8 The numbers of documents required by the financial institution to open an account are few
ACC9 The number of days taken by the financial institution to process loan applications is favourable
ACC10 In this household, we are not discriminated by the financial institution in its service provision
ACC11 The location to submit loan application required by the financial institution is favourable
ACC12 The fees charged on payment services offered by the financial institution is affordable

Quality/relevance

QTY1 The savings product provided by the financial institution suits our needs
QTY2 The loan product provided by the financial institution suits our needs
QTY3 The payment services provided by the financial institution suits our needs
QTY4 The savings product provided by the financial institution is safe for us
QTY5 The loan product provided the financial institution is safe for us
QTY6 The payment services provided by the financial institution is safe for us
QTY7 The saving product provided by the financial institution satisfies us
QTY8 The loan product provided by the financial institution satisfies us
QTY9 The payment services provided by the financial institution satisfies us
QTY10 The saving product provided by the financial institution is useful to us
QTY11 The loan products provided by the financial institution is useful to us
QTY12 The payment services provided by the financial institution is useful to us

Usage

USG1 The cost of making a trip to the financial institution is low
USG2 The paper work requirements by the financial institution is favourable
USG3 The fees charged by the financial institution on use of its services are favourable
USG4 The level of service provision by the financial institution is very good
USG5 The financial institution always provide its services on regular basis
USG6 The financial institution always provide its financial services at convenient hours
USG7 Members of this household trust financial products and services offered by the financial institution
USG8 The products and services provided by the financial institution are user friendly
USG9 The process of getting financial services from the financial institution is easy
USG10 It takes us less time to reach the financial institution to get the services
USG11 The interest on deposit services offered by the financial institution is attractive for us
USG12 The terms set by the financial institutions on use of its products and services are favourable to us
USG13 The financial institution used by this household member is conveniently located
USG14 The terms of repayment of loans provided by the financial institution is favourable to us

Welfare

WEL1 The products/services provided by the financial institution has improved our standard of living
WEL2 The products/services provided by the financial institution has increased our income
WEL3 The products/services provided by the financial institution has enabled us acquire more assets
WEL4 The products/services provided by the financial institution has led to improved literacy in this household
WEL5 The products/services provided by the financial institution has led to increased consumption in this household
WEL6 The products/services offered by the financial institution has provided self-employment to this household members
WEL7 The products/services provided by the financial institution has improved our access to health services
WEL8 The products/services provided by the financial institution has improved our housing condition
WEL9 The products/services provided by the financial institution has improved our access to amenities
WEL10 The products/services provided by the financial institution has improved our access to utilities

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Appendix 2

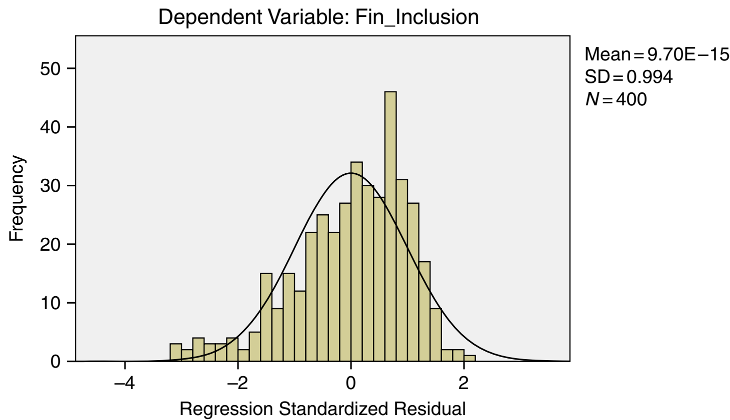

Figure A1. Histogram

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