Institutional framing and financial inclusion

Testing the mediating effect of financial literacy using SEM bootstrap approach

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Abstract

Purpose – The purpose of this paper is to establish the mediating effect of financial literacy in the relationship between institutional framing and financial inclusion among poor households in Uganda with a specific focus on Mokono district.

Design/methodology/approach – The study adopted a cross-sectional design. Data were analyzed using structural equation modeling (SEM), which adopted Analysis of Moment Structures to test for mediating effect of financial literacy in the relationship between institutional framing and financial inclusion.

Findings – The results revealed that financial literacy had a partial mediating effect in the relationship between institutional framing and financial inclusion. Furthermore, the results indicated that while institutional framing has a direct effect on financial inclusion, it also exerts an indirect effect through financial literacy. This supports the argument that institutional framing that structure the way how poor households interpret, evaluate, comprehend and make sound financial decisions and choices, is enhanced by knowledge and skills acquired through financial literacy by poor households.

Research limitations/implications – This study has been limited by adopting only cross-sectional design and quantitative research approach, therefore ignoring longitudinal design and qualitative research approach. Besides, the study uses SEM bootstrap approach and ignores MedGraph method, which is also recommended for testing mediation.

Practical implications – Since the results suggest that institutional framing of poor households are partially enhanced by financial literacy to increase financial inclusion, policy makers, practitioners and managers of financial institutions should ensure extending financial literacy programs closer to the poor in order to expand the scope of financial inclusion beyond the current sphere. Indeed, financial literacy programs will boost cognitive abilities of poor households resulting into better financial decisions and choices and, hence increase in demand and consumption of financial services.

Originality/value – The study significantly generates empirical evidence by testing the mediating role of financial literacy in the relationship between institutional framing and financial inclusion using SEM bootstrap approach. The study portrays the influential partial effect of financial literacy in enhancing institutional frames of poor households in order to cause improvement in financial inclusion. Indeed, financial literacy programs that entail acquisition of financial knowledge and skills boost cognitive abilities of poor households to easily interpret, evaluate, comprehend meanings, and take correct decisions and actions on financial matters. The mediating effect of financial literacy in the relationship between institutional framing and financial inclusion seems to be lacking in literature and theory. Thus, the paper is the first to relate the influential partial effect of financial literacy in the relationship between institutional framing and financial inclusion among poor households, especially in a developing country context.

Keywords Microfinance, Uganda, Structural equation modeling, Financial literacy, Financial inclusion, Institutional framing, Rural poor households

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Background

There is growing consensus among financial inclusion scholars and advocates that entry of new financial services' providers into the financial markets with complex products has resulted into the dire need for financial literacy, especially among poor households who are considered illiterate (World Bank, 2009). This lends support to the argument that there is increased need for the poor to be financially literate in order to scale-up the low rate of financial inclusion rampant among poor households in developing countries (DFID, 2009). Organization for Economic Co-operation and Development (OECD) (2005, p. 26) 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."

According to Atkinson and Messy (2013), financial literacy empowers and educates the poor so that they are knowledgeable about finance in a way that is relevant to their lives, thereby enabling them to easily evaluate financial products and make informed financial decisions and choices. World Bank (2009) further observes that greater financial knowledge and skills reduces the likelihood of poor financial decisions and choices, especially among the poor in developing countries. Indeed, financial literacy increases financial understanding of poor households by providing knowledge and skills necessary for evaluating and comparing complex financial products and services offered by financial institutions (OECD, 2005).

Proponents of financial literacy have argued that financial literacy programs can have a positive direct impact on access to and use of financial services both in developed and emerging markets. A study by Lusardi and Tufano (2008) in Guatemala revealed that a financial literacy drive among poor households improved their repayment rate, borrowings and savings (see also Lusardi and Mitchell, 2009; Kempson, 2009; Lusardi, 2008; OECD, 2009a, b, c; OECD, 2013a, b).

Drawing from theoretical underpinnings, institutional frames are "cognitive categories or schemas that poor households use to describe, interpret, sort events, issues, and entities in order to understand and predict the environment". Framing puts information into a context and establishes frames of reference so that poor households can evaluate financial information, comprehend meanings, and take action, if appropriate by providing clues (Hallahan, 1999, p. 224). Institutional frames structure the way how poor households think about financial choices and alternative courses of actions in order to attain their desired financial goals so as to move out of poverty. In addition, the social learning theory (Bandura, 1986) also posits that the cognitive components of financial literacy involve poor households being knowledgeable and informed about basic concepts underlying money management.

Therefore, financial literacy, which is directly linked to cognitive categories or schemas of poor households, enhances their cognitive abilities to make wise financial decisions and choices. Financial literacy provides the poor with greater control over their financial future, more effective use of financial products and services, and reduces their vulnerability to overzealous financial services providers.

However, a critical review of existing extant literature isolates the mediating role of financial literacy in enhancing the relationship between institutional framing and financial inclusion. Yet evidence indicates that financial literacy can enhance cognitive abilities of poor households to make wise financial decisions and choices in order to achieve their financial goals.

Therefore, the purpose of this study is to establish the mediating effect of financial literacy in the relationship between institutional framing and financial inclusion among poor households in Uganda with a special focus on Mukono district.

This is justified by current data, which indicates that about 49 percent of the population in Mukono district lives below poverty line compared to national poverty figure of 19.3 percent (Uganda Bureau of Statistics, 2014).

Literature review

Institutional framing and financial inclusion

According to North (1990, p. 3), institutions devise and influence the ways in which economic actors get things done in context involving human interaction. They are made up of the formal constraints (rules, laws, constitutions) and informal constraints (norms of behaviors, conventions, self-imposed codes of conduct) and their enforcement characteristics (North, 1991, p. 4) that determines human actions. Institutions structure incentives in human exchange (economic) by defining and limiting sets of choices and actions for individuals. Thus, institutional frames structures the way poor households think about financial choices and alternative courses of actions that they might use to attain desired financial goals.

Furthermore, Scott (2001, p. 49) argues that the regulative, normative, and cultural-cognitive pillars are central building blocks of institutional structures (frames), which provide elastic fibers that guide behavior and actions of poor households who live in social settings. Therefore, this means that poor households' behaviors and actions largely depend on institutional frames that either promote or limits their financial choices.

North (1990) describes the regulative institutions as "prescriptions and proscriptions which are written and unwritten rules of the game" and the state as rule maker, referee, and enforcer." The regulatory processes involve the capacity to establish rules, inspect conformity to them and as necessary manipulate sanctions, rewards and punishments in an attempt to influence future behavior and actions of poor households (Scott, 2001, p. 52). This is supported by Kostova (1997, p. 180), who suggests that the regulative component of a country's institutional characteristics are those existing laws and rules in a particular national environment that promote certain types of behaviors and restrict others.

According to World Bank (2001), financial markets work well if they have rules, which influence future behavior and actions of participants. Therefore, within the financial markets, there exist a regulatory framework, which affects poor households' behavior and actions. The regulative institutional frames of poor households are defined to consist of their confidence in the financial institution within the financial market. Therefore, existing regulations must create the right "rules of the game" within the financial market that reinforces responsible practices and behaviors of financial institutions so that poor people can trust them in order to choose their financial services (CGAP, 2013). The existing rules must promote confidence among poor households and provide assurance of safety in case of collapse of such financial institutions. Unfortunately, lack of assurance and confidence in financial institutions in a developing country like Uganda may pose a major challenge to financial inclusion of poor households.

Besides, the normative institutional frames, which consist of informal rules, facilitate, motivate, and govern joint action of members of close-knit groups (North, 1990; Scott, 2001). They arise from problem-solving activity of individuals as rule-of-thumb guidelines of expected behavior within a given social setting. Poor households' choices in life are determined by norms, which guide their behaviors and actions (North, 1990). Thus, the informal constraints (norms) shape choice set of poor individuals in various contexts. According to Scott (1995), normative components of institutions define what is appropriate and right for a society's members. As such, when an institution promotes the correct way of behavior, even in the absence of legal or other sanctions, that institution influences poor individuals' actions by normative processes. Therefore, the normative aspects of institutions most pronounced in kinship groups, social classes, religious belief systems, and voluntary associations where common beliefs and values are more likely to

exist, impose constraints on social behavior as well as empower and enable social action among the poor.

Scholars such as Acemoglu *et al.* (2001) observes that since poor households are not detached from social settings where norms are the order of the day, their financial behavior and actions, which determines their financial decisions and choices towards being financially included is derived from their normative institutional frames. This is consistent with World Bank (2001) argument that normative institutions play a primary role in determining financial choices of poor households.

More so, the cultural-cognitive institutional frames, which are based on shared conceptions, affect the way how poor households notice, categorize, and interpret financial information in the financial markets (Kostova, 1999, p. 314). Cultural-cognition constitutes the frames through which meaning is derived by poor households from exiting financial information based on cognitive programs such as schemas, inferential sets and representations (Scott, 2001, pp. 48-58). The activity specific cognitive frames of poor households derived from existing financial information and knowledge helps them in perceiving behavior, formulating financial inclusion goals and theorizing means to implement it. Thus, poor households condition the way they think and act on financial information based upon their cultural-cognitive frames.

Markus and Zajonc (1985, p. 141) further suggest that the poor individual's mind registers incoming financial information and then subject it to a variety of transformations before ordering a response inform of financial decision and choice to be financially included. The procedural (implicit) and declarative (explicit) memories helps poor households to make sound financial decisions and choices by recalling and calling back financial information that is explicitly stored to make meaning and sense repeatedly, which determine their financial inclusion. Poor households use their cognitive cues to screen and discriminate financial information on the basis of association with existing frames in their memories. Therefore, all information about financial inclusion that does not fit an identified schematic pattern in the mind is either ignored or dropped, thus determining its scope.

Thus, institutional framing through its regulative, normative and cultural-cognitive pillars, structures the behavior and actions of the poor towards financial inclusion. Indeed, institutional frames constraint and promote certain behavior and actions of the poor, thereby determining their financial decisions, choices and alternative courses of actions in access and use of financial services provided by financial institutions. Thus, here we hypothesize that:

H1. Institutional framing is significantly related to financial inclusion.

Financial literacy and financial inclusion

World Bank (2008) observes that financial literacy helps to improve efficiency and quality of financial services in financial markets. According to UNESCO (2014), the ability to make well-informed financial decisions plays an important role for poor individuals to manage their financial affairs. Indeed, financial literacy is relevant for the poor who operate at the margin and are vulnerable to persistent downward financial pressures. Financial literacy helps in empowering and educating the poor so that they are knowledgeable about finance in a way that is relevant to their lives and enables them to use this knowledge to evaluate products and make informed decisions (OECD, 2009a, b, c).

Poor households with good level of financial literacy are likely to be better placed than their colleagues without financial skills and knowledge. OECD (2013a, b) contends that financial literacy facilitates access and where appropriate, encourages widening use of relevant financial products and services, especially among poor households. Besides, Braunstein and Welch (2002) argue that financial literacy can offer a better understanding of mainstream financial services and thus, encourages the unbanked to avoid non-standard financial services.

Furthermore, OECD (2005) also Suggests that poor households who are financially literate are more likely to make use of financial products and services. In addition, Cohen and Nelson (2011) also continue to state 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. This is supported by World Bank (2009) argument that financial literacy facilitates decision making processes, savings rates and credit worthiness of potential poor borrowers, thereby economically and socially empowering them, hence poverty reduction.

Research by Carpena *et al.* (2011) revealed a significant improvement on poor households' basic awareness of financial products and services available to them, as well as their familiarity about details of such products and services as a result of financial literacy drive. From the foregoing, we hypothesize that:

H2. Financial literacy and financial inclusion are significantly related.

Institutional framing and financial literacy

Kostova (1999, p. 314) suggests that cognitive program such as schemas (frames) changes as people age and acquire knowledge. The schemas, frames, inferential sets, and representations affect the way people notice, categorize, and interpret financial information. Drawing from the social learning theory (Bandura, 1986), the cognitive components of financial literacy involves being knowledgeable and informed about the basic concepts underlying management of money. Psychologists have argued that schemas can be modified over time through acquisition of knowledge and skills as people grow (see Kelly, 1958).

Horn and McArdle (2007) observe that most poor households may depend in part on their financial knowledge, skill and ability to invoke several dimensions of their memories and cognitive skills to make better financial decisions and choices. Financial literacy increases financial understanding of poor households by providing knowledge and skills necessary for evaluating and comparing complex financial products and services offered by financial institutions (OECD, 2005).

Scholars like Horn and McArdle (2007); McArdle and Woodcock (1998) suggest that poor households' levels of cognitive abilities are key determinant of their financial decisions. Indeed, poor households acquire knowledge and skills through financial literacy, which are directly, linked to their existing (cognitive categories) schemas to make wise financial decisions and choices in order to achieve their desired financial goals. Thus, financial literacy helps the poor to acquire knowledge and skills to easily evaluate information, comprehend meanings, and take actions on financial matters by providing clues based on their existing frames. Poor households with high cognitive abilities tend to participate more in the financial market than those with low cognitive abilities. Thus, we derive the hypothesis:

H3. Institutional framing and financial literacy are significantly related.

Institutional framing, financial literacy and financial inclusion

World Bank (2002) suggests that a complex blend of institutions (formal & informal) promotes and limits market activities by setting mechanisms, which guide behaviors and actions of players. Additionally, OECD (2009a, b, c) argues that in countries with diverse social and economic profiles, financial literacy is relevant for the poor who operate at the margin and are vulnerable to persistent downward financial pressures.

According to Hallahan (1999, p. 224), frames are cognitive categories or schemas used by the poor to evaluate financial information, comprehend meanings and take action. Therefore, financial literacy helps in empowering and educating poor households so that

they are knowledgeable about finance in a way that is relevant to their lives and enables them to use this knowledge to evaluate products and make informed decisions (World Bank, 2009).

Financial literacy programs enhances and promotes market activities by enabling the poor to make wise financial decision and choices based on their existing schemas and frames. Thus, institutional frames combined with financial literacy empowers poor households to understand the importance of saving and borrowing and to take action in that respect.

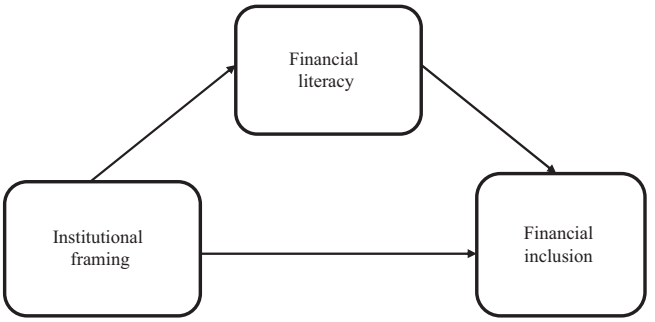
Therefore extending financial literacy to poor households over time may modify their schemas towards financial products and services, thus, promoting financial inclusion. A study by Atkinson and Messy (2013) revealed that cognitive components of financial literacy that involves being knowledgeable and skillful about basic financial issues by the poor is relevant to their lives (Figure 1). Therefore, here we develop the hypothesis that:

H4. Financial literacy mediates the relationship between institutional framing and financial inclusion.

Study design and methodology

A total population comprising of 17,464 poor households located in Mukono district was selected for the study. To arrive at a sample for this study, Krejcie and Morgan (1970) table for determining sample size was used and a total sample of 375 poor households was selected for this study. Stratified sampling method was used to select the villages from each of the sub-counties and simple random sampling technique was applied to choose the required number of poor households. Prior to the main study, a pilot survey involving 100 questionnaires was carried out on samples not used in the main study. After pre-testing the questionnaire, all ambiguous, negatively worded and difficult questions were deleted in order to have a refined questionnaire for the major field study. The unit of analysis was poor households with household heads as the main unit of inquiry. The results from the study indicated that 53 percent response rate was achieved and 175 questionnaires received back from the field were not usable since they were incomplete.

The results revealed that 64 percent of the poor households were headed by male, while 36 percent by female household heads. Besides, the results also indicated that 37 percent of the respondents were in the 26-33 age bracket and 26 percent were in the 34-41 age bracket. Further analysis of the results revealed that 23 percent were in the 42-49 age bracket while 9 percent were in 18-25 age bracket and only 5 percent in 50+ age bracket. The results further indicated that 47 percent of the households used paraffin lanterns and 27 percent used small kerosene lamp as source of lighting. More so, the results further



Source: Theoretical and literature review

Figure 1.
Showing conceptual model

showed that 25 percent used others sources of lighting such as electricity and solar, while only 0.8 percent used firewood. On the aspect of being able to read and write, the results revealed that 60 percent of households' heads were able to read and write, while 40 percent were not able to read and write.

The means generated from latent variables represented a summary of the observed data and the standard deviations indicated how well our means represented the data. The results indicated that the mean score of latent variables ranged from 3.54 to 3.79 anchored on a five-point Likert scale, and the standard deviation ranged from 0.489 to 0.556.

The results revealed that the standard deviation values were small indicating that they were closer to the mean. This implies that the statistical mean indicates a good-fit of the observed data. In addition, the standard error figures were also small indicating that most sample means were similar to the population from which they were chosen for this study. Thus, this confirms the fact that samples selected for this study can be generalized to the population from which they were drawn.

Statistical modeling

To test for mediating role of financial literacy in the relationship between institutional framing and financial inclusion, we used structural equation modeling (SEM) through bootstrap approach as recommended by Preacher and Hayes (2010). Use of SEM approach was adopted because of not only its ability to test different regression equations simultaneously, but also due to the information it provides on degree of "fit" for the entire model after controlling for measurement errors (see e.g. Holmbeck, 1997; MacKinnon *et al.*, 2002; Peyrot, 1996). Besides, Hair *et al.* (2010) also argues that when SEM is applied, the researcher can assess the contribution of each indicator variable in representing its associated construct and measure, and how well the combined set of indicator variables represents the construct (reliability and validity). Furthermore, when SEM method is applied, the researcher can assess both measurement properties and test key theoretical relationships in one technique.

Additionally, Preacher and Hayes (2010) observe that SEM through bootstrapping makes it possible to test more complex path models involving a larger number of variables. SEM programs provide bootstrapped confidence intervals (CI) and associated statistical significance tests for indirect paths. Indeed, the bootstrapped CI is regarded as the best method for statistical significance testing for indirect effects, particularly when assumptions of normality may be violated. More so, bootstrapping enables researchers to use smaller samples than would be necessary to satisfy the distributional assumptions of other methods, although the sample should not be too small.

Scholars like MacCallum and Austin (2000) have used SEM through bootstrap to test hypothesized patterns of directional and non-directional relationships among a set of observed and unobserved variables. Through this, use of SEM helps us understand patterns of correlations and covariance between the predictor, mediator and outcome variables (see Kline, 2011).

Therefore, in order to assess the mediating role of financial literacy in the relationship between institutional framing and financial inclusion using SEM, a two-step approach was applied based on guidelines stipulated by Anderson and Gerbing (1988). First, the measurement model was estimated. Secondly, the structural model was estimated. The estimation was performed using Analysis of Moment Structures (AMOS/20) software to construct the measurement and SEM model (Arbuckle, 2009). The results of the constructed measurement model indicated a good model fit to our observed data as indicated in the Appendix.

Several goodness-fit-indices were used to show that the structural model fit well to the observed data. The χ^2 (CMIN-minimum value/DF-degree of freedom), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Relative Fit Index (RFI), Incremental Fit Index (IFI),

Normed Fit Index (NFI) and Root Mean Square Error of Approximation (RMSEA) were used in this study, although Schreiber *et al.* (2006) recommends use of TLI, CFI & RMSEA as most preferable in social science research. According to Schreiber *et al.* (2006), CFI should be $\geqslant 0.90$, while the TLI is set at $\geqslant 0.95$ and IFI at $\geqslant 0.95$, with RMSEA set at $\leqslant 0.08$ to 0.08 for a good model fit. The NFI is set at $\geqslant 0.90$, as the recommended cut-off point.

Furthermore, descriptive statistics and correlations between the predictor, mediator and outcome variables were also generated and the results are indicated in Table I. The results of total, direct and indirect effects of predictor and mediator variables based on SEM bootstrap approach are also indicated in Table II.

By adopting use of covariance matrix, a CFA model was generated in order to determine discriminant and convergent validity of manifest and latent for each of the variables under study. The results indicated a high convergent validity between the items under each variable as revealed by goodness-fit indices. The results indicated excellent model fit for institutional framing with $\chi^2 = 4.528$, degrees of freedom $= 14$ and probability level $= 0.991$; CFI $= 1.000$;

	Direct effect model	Mediated model
Fin. literacy ← Inst. Framing	not estimated	0.443***
Fin. inclusion ← Inst. framing	0.285***	0.343***
Fin. inclusion ← Fin. Literacy	0.132*	0.132*
CMIN	89.429	84.978
Degrees of freedom (df)	68	67
Probability (P)	0.042	0.068
Incremental fit index (IFI)	0.990	0.992
Tucker-Lewis index (TLI)	0.987	0.989
Comparative fit index (CFI)	0.990	0.992
Normed fit index (NFI)	0.961	0.963
Root mean square error of approximation (RMSEA)	0.040	0.037
Squared multiple correlations		
Fin. inclusion	0.170	0.196
Fin. literacy	0.000	0.132
Achieved fit indices		
Direct effects model: $\chi^2 = 89.429$; IFI = 0.990; TLI = 0.987; CFI = 0.990; NFI = 0.961; RMSEA = 0.040		
Mediated model: $\chi^2 = 84.978$; IFI = 0.992; TLI = 0.989; CFI = 0.992; NFI = 0.963; RMSEA = 0.037		

Notes: Fin. inclusion, financial inclusion; inst. framing, institutional framing; fin. literacy, financial literacy

Table I.
Showing comparison of competing models

Standardized total effects	Inst. frames	Financial literacy			
Financial literacy	0.443***	0.000			
Financial inclusion	0.343***	0.132*			
Standardized direct effects	Inst. frames	Financial literacy			
Financial literacy	0.443***	0.000			
Financial inclusion	0.285***	0.132*			
Standardized indirect effects	Inst. frames	Financial literacy			
Financial literacy	0.000	0.000			
Financial inclusion	0.058***	0.000			
Bootstrap mediation results	Point estimates	SE	Lower bounds	Upper bounds	P
Institutional framing ← FI	0.263	0.068	−0.006	0.134	0.001
Financial literacy ← FI	0.100	0.056	−0.020	0.284	0.005

Notes: FI, financial inclusion; P, probability

Table II.
Showing total, direct and indirect effects in a structural equation mediated model

TLI = 1.148; IFI = 1.067; and RMSEA = 0.000, and for financial literacy, the goodness-fit indices were $\chi^2 = 30.111$, degrees of freedom = 29 and probability level = 0.408; CFI = 0.989; TLI = 0.984; IFI = 0.991; and RMSEA = 0.014, while for financial inclusion, the $\chi^2 = 27.741$, degrees of freedom = 29 and probability level = 0.532; CFI = 1.000; TLI = 1.011; IFI = 1.006; and RMSEA = 0.000 as indicated in the Appendix. Thus, the results confirm that the measurement model fit perfectly, indicating that there was sufficient covariance and correlation between the manifest with latent variables, which is a necessary condition for structural equation modeling as stipulated by Preacher and Hayes (2010) and Hair *et al.* (2010).

Testing for mediation

Mediation exists when a predictor variable exert an indirect effect on the outcome variable through a second variable (mediator). Therefore, to establish existence of mediation effect, certain conditions must be met as stipulated by Baron and Kenny (1986).

First, we need to establish whether there is: a significant relationship between the predictor variable and outcome variable; second, a significant relationship between predictor variable and mediator variable; third, a significant relationship between mediator variable and outcome variable; and finally, whether the predictor (independent) variable reduces and become insignificant when the mediator variable is entered into the structural model, which results into a condition of full type of mediation. However, under condition 4, some sort of mediation may exist if the predictor variable reduces and remains significant. Furthermore, if both the predictor and mediator variables remain significant, both will have an effect on the outcome variable. Under this circumstance, there will be both direct and indirect effect of the predictor variable on the outcome variable. The indirect effect means some impact of the predictor variable onto the outcome variable passes through the mediator variable.

The results from the study revealed existence of partial mediation of financial literacy in the relationship between institutional framing and financial inclusion. Thus, to understand how mediation works, a structural equation model combing predictor, mediator and outcome variables was constructed as indicated in Figure 2.

Referring to the previous section, SEM was adopted to test for mediation effect because of several advantages highlighted by scholars such as (Hair *et al.*, 2010; Preacher and Hayes, 2010; Holmbeck, 1997; MacKinnon *et al.*, 2002; Peyrot, 1996). A SEM model combining predictor, mediator and outcome variables was constructed with direct paths from predictor to mediator and outcome variables as indicated in Figure 2. Total, direct and indirect effect of institutional framing on financial inclusion was determined as indicated in Table II. Two models with direct path and indirect path through financial literacy to financial inclusion were generated to enable us test the hypothesis that financial literacy mediates the relationship between institutional framing and financial inclusion. This resulted into

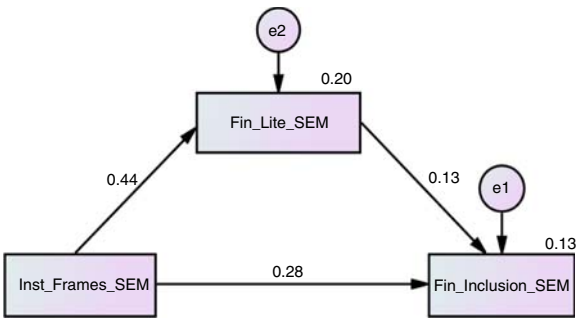


Figure 2.
Showing SEM mediated model

construction of two models referred to as competing models as indicated in Figure 2. The results of both direct and mediated effects are indicated in Table I.

Thus, to test for mediation, two SEM models were generated under our study as recommended by Preacher and Hayes (2010) and Hair *et al.* (2006). The first SEM model was based on theoretical underpinning, which suggested that financial literacy did not mediate the relationship between institutional framing and financial inclusion (*H1*). SEM model 2 indicated a situation of indirect effect of institutional framing on financial inclusion through financial literacy (*H3*). In SEM model 3, the mediation effect was tested (*H4*). Hence, the direct effect on the endogenous variable was isolated for the exogenous variables. Under this study, we first fitted only direct models for both institutional framing and financial literacy for comparison purposes.

The direct model estimated the direct relationship from the exogenous variable (institutional framing) to financial inclusion, with no existing path leading to or from financial literacy (mediator) although financial literacy remains as a latent variable in the SEM model. When a direct path was drawn from institutional framing through financial literacy to establish the indirect effect of institutional framing on financial inclusion, the results revealed good-fit-indices. However, when the indirect path was added into the SEM model, the results revealed improved and perfect good-fit-indices as indicated in Table I.

Therefore, the results revealed that institutional framing (exogenous variable) had both significant direct and indirect effect with financial inclusion. Besides, financial literacy also had an effect on financial inclusion (*H2*).

Overall, the above results portrayed the critical role of financial literacy (mediator variable) in the relationship between institutional framing and financial inclusion. Based on the model, institutional framing ($r = 0.285$, $p < 0.001$) had a significant relationship with financial inclusion, thus, confirming a partial nature of mediating effects. Besides, the SEM model in Figure 2 above also revealed that institutional framing and financial literacy as exogenous variables predicted 13 percent of variation in endogenous variable of financial inclusion.

The model for no direct effects estimated paths from exogenous variable (institutional framing) to financial inclusion and from financial literacy to financial inclusion, but had no direct effects from the exogenous variable to financial inclusion. This model revealed good-fit indices. Based on this model, the exogenous variable was significantly related with financial literacy and financial literacy with financial inclusion. Thus, there was evidence for existence of mediation for the intervening effects.

Based on Morgan and Hunt (1994), four different criteria were examined in SEM model comparison. These include: overall model fit as measured by CFI, percentage of hypothesized significant paths, amount of variance explained as measured by squared multiple correlations and parsimony (model simplicity) assessed by NFI.

The comparison of results based on direct and mediated models revealed that although both direct and the mediated models had fairly excellent CFI, TLI, IFI, RMSEA, and NFI fit indices, the mediated model had better representation of model fit based on the above good-fit-indices and squared multiple correlations as indicated in Table I.

Results

The main purpose of this study was to establish the mediating role of financial literacy in the relationship between institutional framing and financial inclusion using SEM bootstrap approach. Different goodness-fit-indices were used to test whether the hypotheses were supported or rejected.

Correlations results in Table I indicated that institutional framing was positively correlated with financial inclusion in the direct model ($\beta = 0.285$, $p < 0.05$). This implies that when institutional framing value increase by 1 standard deviation, an impact of 0.285 is

created on standard deviation of financial inclusion, therefore lending support to our *H1* of the study.

Besides, the results also revealed that institutional framing explained 44.3 percent of the variance in financial literacy. Overall, the total effect of 44.3 percent was direct. Thus, lending support to our *H3* of the study, which stated that institutional framing, is positively and significantly related to financial literacy in predicting financial inclusion.

Furthermore, the results also revealed that financial literacy explained 13.2 percent of the variation in financial inclusion. This finding lends support to our *H2* of the study, which stated that financial literacy is positively and significantly related to financial inclusion ($\beta = 0.132$, $p < 0.05$). This means that when financial literacy increase by 1 standard deviation, financial inclusion goes up by 0.132 standard deviation.

In addition, the results further indicated that institutional framing was positively correlated with financial inclusion in the mediated model ($\beta = 0.343$, $p < 0.5$). This implied that when institutional framing value increase by 1 standard deviation, an impact of 0.343 is created on standard deviation of financial inclusion, thus, lending support to our *H1* of the study, which stated that there is a positive and significant relationship between institutional framing and financial inclusion.

Furthermore, we hypothesized (*H4*) that financial literacy significantly mediates the relationship between institutional framing and financial inclusion. Considering the direct and indirect models, which included both institutional framing and financial literacy, both direct and indirect models were fitted by adding a path from institutional framing to financial inclusion and through financial literacy to financial inclusion. The goodness-fit indices results indicated improved and perfect model fit as indicated in Table I. Further, the standardized indirect effect termed as index of mediation for the indirect effect of institutional framing through financial literacy was 0.058 at 95 percent confidence interval with lower bound of −0.006 and upper bound of 0.134. Thus, this indicates that institutional framing can cause both direct and indirect variation in financial inclusion.

Additionally, as indicated in Table I, there was a significant correlation between institutional framing and financial inclusion. However, when financial literacy is included into the model, the correlation between institutional framing and financial inclusion increases and remain significant ($r = 0.343$, $p < 0.01$). This means that the direct effect of institutional framing is still significant, although the indirect effect is also significant.

Conclusively, the results from the models showed that institutional framing had a direct effect on financial literacy; financial literacy had a positive and significant relationship with financial inclusion, although the direct effect of institutional framing to financial inclusion did not change and remained significant. From the first significant effect of 0.132 and the newly generated significant effect 0.132, the result is in line with the hypothesis of existence of partial mediation effect. This lends support to *H4* of the study that financial literacy mediates in the relationship between institutional framing and financial inclusion.

Discussion, conclusion and recommendation

Based on hypotheses generated under this study, the results revealed that institutional framing had a significant effect on financial inclusion. This lends support to *H1* of the study. This finding links well with North (1990, p. 3) who suggests that institutions devise and influence the ways in which economic actors such as the poor, get things done in context involving human interaction. Indeed, institutions structure incentives in human exchange (economic) by defining and limiting sets of choices and actions for poor individuals (North, 1990, p. 4). Scott (2001, p. 49) also observes that the regulative, normative, and cultural-cognitive pillars are central building blocks of institutional structures, which provide elastic fibers that guide behavior and actions of actors such as the poor, who live in social settings. Therefore, this means that poor households' behaviors and actions largely

depend on institutional frames that either promote or limits their financial choices. Thus, institutional framing structures the way poor households think about financial choices and alternative courses of actions that they might use to attain desired financial goals. This finding is supported by World Bank (2002) argument that a complex blend of institutions (formal, informal and cognition) promotes and limits market activities by setting mechanisms, which guide behaviors and actions of players for efficient exchange.

The results also showed that financial literacy is a significant mediator in the relationship between institutional framing and financial inclusion. This implies that institutional framing has an indirect effect on financial inclusion through financial literacy. This supports our *H4* of the study. Hallahan (1999, p. 224) argues that frames are cognitive categories or schemas used by the poor to evaluate financial information, comprehend meanings and take action. Therefore, financial literacy helps in empowering and educating poor households so that they are knowledgeable about finance in a way that is relevant to their lives and enables them to use this knowledge to evaluate products and make informed decisions (World Bank, 2009). Financial literacy programs enhances and promotes market activities by enabling the poor to make wise financial decision and choices based on their existing schemas and frames. Thus, institutional frames combined with financial literacy empower poor households to understand the importance of saving and borrowing and to take action in that respect. This is supported by Horn and McArdle (2007), who suggest that since financial matters are often not straightforward for most poor individuals, they may depend in part on their ability to invoke several dimensions of cognitive skills. Financial literacy becomes the conduit through which frames can be transferred to cause financial inclusion.

Furthermore, the results also revealed that institutional framing and financial literacy are significantly related, thus lending support to *H3* of the study. Drawing from theoretical underpinning that frames are cognitive categories or schema used by the poor to evaluate information, comprehend meanings, and take action, if appropriate by providing clues (Hallahan, 1999, p. 224), financial literacy is supplementary to cognitive categories (schemas). Kostova (1999, p. 314) observes that cognitive program such as schemas (frames) changes as people age and acquire knowledge. The schemas, frames, inferential sets, and representations affect the way people notice, categorize, and interpret financial information. Psychologists have argued that schemas can be modified over time through acquisition of knowledge and skills (see Kelly, 1958). Horn and McArdle (2007) observed that most poor households may depend in part on their financial knowledge, skill and ability to invoke several dimensions of their memories and cognitive skills to make better financial decisions and choices. Financial literacy increases financial understanding of poor households by providing knowledge and skills necessary for evaluating and comparing complex financial products and services offered by financial institutions (OECD, 2005).

Finally, the results also indicated that financial literacy and financial inclusion were significantly related, therefore offering support for *H2* of the study. Consistent with earlier studies that have advocated for relevancy of financial literacy, UNESCO (2014) observes that ability to make well-informed financial decisions play an important part for poor individuals to manage their financial affairs. Poor households with good level of financial literacy are likely to be better placed than their colleagues without financial skills and knowledge. OECD (2013a, b) contends that financial literacy facilitates access and where appropriate, encourages widening use of relevant financial products and services, especially among poor households. Besides, Braunstein and Welch (2002) observes that financial literacy can offer a better understanding of mainstream financial services and, thus, encourages the unbanked to avoid non-standard financial services. Furthermore, OECD (2005) also argues that poor households who are financially literate are more likely to make use of financial products and services. In addition, Cohen and Nelson (2011) also continue

to state 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. This is supported by World Bank (2009) argument that financial literacy facilitates decision making processes, savings rates and credit worthiness of potential poor borrowers, thereby economically and socially empowering them, hence poverty reduction.

Conclusion and recommendations

Conclusively, this study adds to the existing literature by revealing that financial literacy positively and significantly mediates the relationship between institutional framing and financial inclusion, especially among poor households. Financial literacy provides financial knowledge and skills, which supplement on poor individual's frames to enable them to, easily evaluate financial information, comprehend meanings, and take corrective actions regarding financial decisions and choices. Therefore, policy makers, managers and practitioners should be aware of the importance of financial literacy, which boost the perceptions of poor households towards access and use of financial services. Financial literacy programs should be a yardstick in provision of financial services by financial institutions.

Besides, the study indicated that institutional framing is a significant predictor of financial inclusion among poor households in Uganda. The poor households' behavior and actions largely depend on institutional frames that either promote or limit their financial decisions and choices. Thus, managers of financial institutions should know that demand and consumption of financial products and services are already predetermined by schemas of poor households. Therefore, efforts should be directed towards product redesign and creation of awareness in order to change the predetermined poor households' mindsets and attitudes towards consumption of financial products and services offered.

Furthermore, the results also showed that institutional framing and financial literacy were significantly related. Financial literacy helps supplement on poor individual's frames to enable them to evaluate information, comprehend meanings, and take action regarding financial choices. Financial literacy programs should aim towards positive transformation of the thinking of poor households so that they can make better financial decisions and choices based on their existing frames without distortion.

Finally, there was a significant relationship between financial literacy and financial inclusion. Indeed, financial literacy provides the poor with knowledge and skills, which enable them to, make informed financial decisions and choices, in order to realize their daily financial goals. Policy makers should ensure that financial literacy programs are part of core curriculum development within the existing education system, especially in developing countries.

Research limitation and future research

This study has been limited by adopting only cross-sectional study design combined with quantitative. Thus, further investigation involving longitudinal study, which adopts use of both qualitative and qualitative approaches, may be applicable in future studies.

Besides, the study uses SEM bootstrap approach and ignores MedGraph method for testing mediation effects. Thus, future studies may use the MedGraph method recommended by Jose (2008).

Furthermore, the study focused only on poor households residing in rural Uganda, thus limiting the results to the poor. Therefore, studies involving other vulnerable groups are relevant in future.

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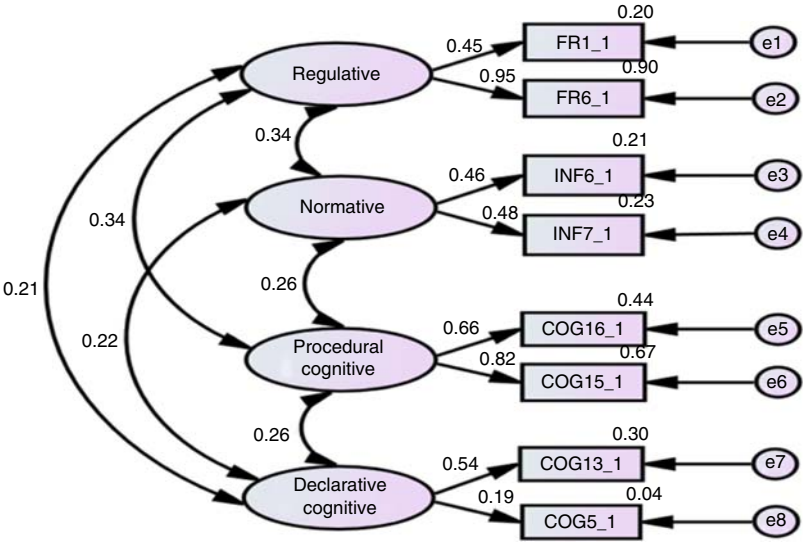
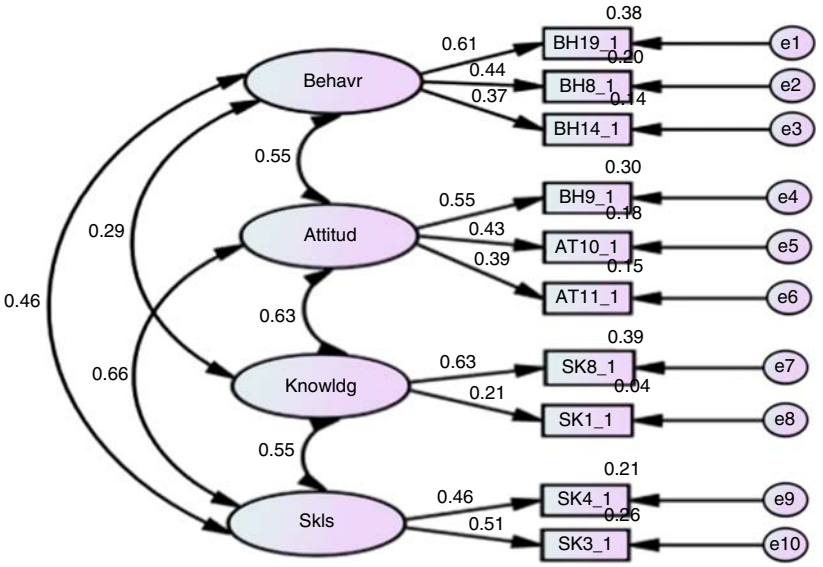
Appendix. Measurement model



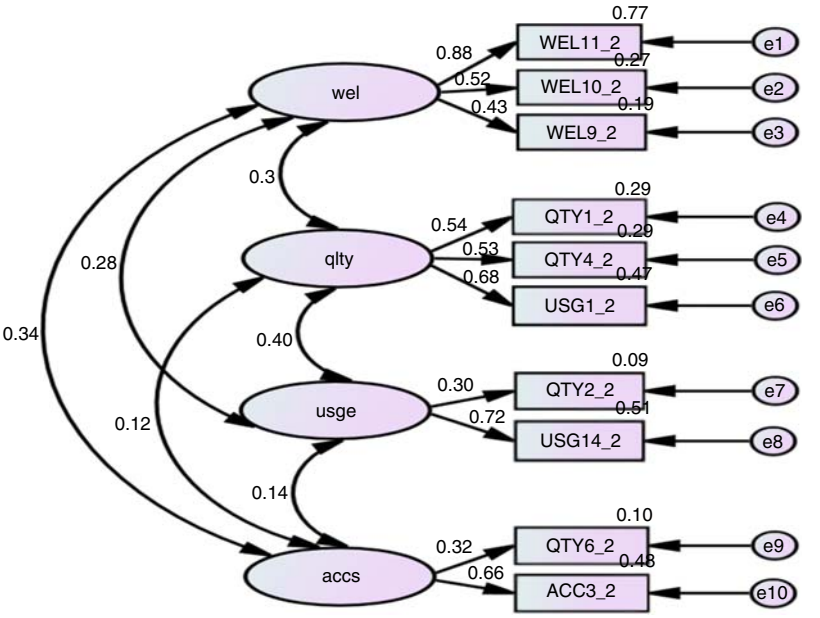
Notes: $\chi^2 = 4.528$; degrees of freedom (DF) = 14; probability; (P) = 0.991; incremental fit index (IFI) = 1.067; Tucker Lewis index (TLI) = 1.148; compartive fit index (CFI) = 1.000; root mean square error of approximation (RMSEA) = 0.000

Figure A1.
Institutional framing



Notes: $\chi^2 = 30.111$; degrees of freedom (Df) = 29; probability (P) = 0.408; incremental fit index (IFI) = 0.991; Tucker Lewis index (TLI) = 0.984; comparative fit index (CFI) = 0.989; root means square error of approximation (RMSEA) = 0.014

Figure A2.
Financial literacy



Notes: χ^2=27.741; degrees of freedom (DF)=29; probability (P)=0.532; incremental fit index (IFI)=1.006; Tucker Lewis index (TLI)=1.011; comparative fit index (CFI)=1.000; root mean square error of approximation (RMSEA)=0.000

Figure A3.
Financial inclusion

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