

# **Evaluation of determinants of financial inclusion in Uganda**

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## **Abstract**

This study examines how financial literacy and financial innovation can improve financial inclusion among households in Uganda. Large sections of the population in rural and urban areas in Uganda still remain out of the coverage of formal financial systems. The study uses a cross sectional survey research design. The study population comprised of the adult population in both rural and urban settings in Uganda. Empirical data was analyzed using correlation and regression analyses. Findings indicate that financial literacy and financial innovation are better determinants of financial inclusion among households. Therefore, financially literate households have a higher potential to make informed decisions on new innovations of financial products and services. This paper is the first of its kind to examine the importance of the determinants of financial inclusion as advocated for by the Central Bank of Uganda.

**JEL classification numbers:** D14, G20

**Keywords:** Financial Literacy, Financial Innovation, Financial Inclusion

## **1 Introduction**

Financial inclusion has been broadly recognized as critical in reducing poverty and achieving economic growth. When people participate in the financial system, they are better able to start and expand businesses, invest in education, manage risk, and absorb financial shocks (The Global Findex, 2014). Well-functioning financial systems serve a vital purpose by offering savings which helps households manage cash flows, finance micro businesses and this enables owners invest in assets and grow their businesses, making day to day transactions including money transfer, mitigating shocks and

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managing expenses related to unexpected events such as natural disasters. Allowing broad access to financial services, without price or non-price barriers to their use is likely to benefit poor people and other disadvantaged groups through better access to credit which enables them to pull themselves out of poverty (Asli and Klapper, 2012, Consultative Group to Assist the Poor report, 2015).

Sarma and Paise (2008) argue that inclusive financial system can help in reducing the growth of informal sources of credit such as moneylenders, which are often found to be exploitative. Similarly there is a link between financial inclusion and micro economic stability through capitalization and growth of new non-financial firms. This notion is further supported by Wurgler (2000) who argues that financial development is associated with more efficient allocation of capital. Klapper, Laeven and Rajan (2006) also show that the entry rate of new firms and their growth are also positively associated with financial development.

The financial inclusion agenda in Uganda has been under discussion since 2012 when the central bank of Uganda launched the financial inclusion project whose overall objective is to increase access to financial services and empower the users of financial services to make rational decisions in their personal finances so as to contribute to economic growth. The project is built upon four pillars namely; financial literacy, financial consumer protection, financial innovations and financial services data and measurement (Bank of Uganda report, 2013). The increased attention to financial inclusion reflects a growing recognition of its role in reducing poverty and boosting shared prosperity (Cihak and Singh, 2013).

In spite of the high regard given to financial inclusion as an integral part of the development agenda in the world, the level of financial inclusion still remains low with about two billion people worldwide having no bank accounts (The global finindex database, 2014). Similarly, according to the Bank of Uganda financial inclusion Strategy Paper (2013), Uganda has made improvements over the years in terms of financial services delivery outlets/channels offered by both the formal and informal financial institutions. Despite that, the level of Ugandans aged 18 years and above who are excluded from financial services remains significant. Similarly although the comparison between the FinScope Uganda survey 2006 and 2009 showed improvement on the number of the financially excluded adult population, this was largely a graduation from exclusion to the informal financial institutions while the formal financial institutions showed only one percentage point improvement in financial services access from 28% to 29%. Furthermore, in the 2013 FinScope survey, the proportion of Ugandans using formal financial services (excluding mobile money) was essentially unchanged from 2009 when the previous FinScope survey was conducted, despite growth in the number of commercial banks and branches. The share of adults that accessed credit only through formal bank institutions remained almost unchanged, 5% in 2009 to 6% in 2013. Adults who save through only formal channels remained unchanged from 2009 to 2013 at about 25%, and only 2% use formal insurance products.

Scholars still baffle with the question of which factors mainly determine financial inclusion; due to the fact that the nature and extent of financial inclusion are influenced by several factors. Kumar (2011) assessed the behavior and determinants of financial

inclusion in India and found that the employee base are considered as the significant variables indicating that income and employment generating schemes lead the public to be more active, aware, interested with regard to banking activities, which contributes towards financial inclusion. Triki and Faye (2013) assert that innovation is needed to ensure that appropriate financial services and instruments are put in place for the benefit of the poor and other vulnerable groups in order to sustain the extension of financial services to the groups still unreached. UNDP (2012) acknowledged the fact that the rapid invasion of technology across the world has brought eminence to the role of technology in financial inclusion, highlighting the need to include technological interventions in financial inclusion drives. Triki and Faye (2013) also documented the association between poverty or rather income level and financial inclusion and found that on average, adults in the highest income quartile were almost four times as likely to have a formal account as those in the lowest income quartile. According to Cull, Asli and Morduch (2012), lack of knowledge about the macro-level effects of financial inclusion stems, in part, from the challenges associated with measuring it on a consistent basis both across countries and over time based on surveys of users and potential users of those services. As a result of the faint knowledge, people, particularly, those living on low incomes, cannot access mainstream financial products such as bank accounts, credit, remittances and payment services, financial advisory services and insurance facilities (Christabell and Vimal, 2012).

Thus, the inability of individuals, households or groups to access and use necessary financial services in an appropriate form can stem from problems with access, prices, marketing, financial literacy, or from self-exclusion in response to negative experiences or perceptions (European Social Watch Report, 2010). Lack of access to necessary financial services leads to individuals being at risk of losses because of no insurance, relying on expensive or illegal lenders because they cannot access credit facilities and may find it hard to acquire assets or investments (Simon and Esther, 2008). Lack of a bank account can make liquidity management and payments difficult, which could result in high fees associated with the use of money orders or check-cashing services (Lusardi, 2010). In Uganda, a large section of the population in rural and urban areas still remains outside the coverage of formal financial system where they don't have access to basic financial services like savings account, credit, remittance and insurance. This is reflected in the Fin Scope survey (2013) where the share of adults that accessed credit only through formal bank institutions remained at 6%, adults who save through only formal channels is at about 25%, and only 2% use formal insurance products. Previous studies in Mexico, Peru, Argentina and India have tried to explore factors that affect financial inclusion but came up with different findings and these were mainly in the developed countries and it is against this background that the study seeks to evaluate determinants of financial inclusion in Uganda.

The study is a cross sectional survey of adult households in Uganda. Both urban and rural households were surveyed. This provides a good enrichment to the study since geographically, the proportion of adults excluded from financial services ranges from 3% in Kampala to 24% in Northern Uganda (FinScope survey, 2013). The study covered the demand side determinants of financial inclusion with specific focus on how financial

inclusion is affected by financial literacy, financial innovations and we controlled for demographic factors such as age, gender, income and education level. Information relating to financial inclusion was restricted to savings, credit, remittances/payments and insurance products offered by formal institutions which include commercial banks regulated by the central bank of Uganda, Savings and credit cooperative organizations (SACCOs), microfinance institutions (MFIs) and insurance companies. Financial innovation was limited to mobile money and mobile banking and agency banking products.

## **2 Overview of Financial Inclusion**

The term financial inclusion has taken on a multitude of meanings. A review of literature reveals that there is no universally accepted definition of financial inclusion. The definitional emphasis of financial inclusion varies across countries, depending on the level of social, economic and financial development of that place and priorities of social concerns. Broadly, financial inclusion means access to finance and financial services for all in a fair, transparent and equitable manner at an affordable cost (Thingalaya et al, 2010). Deepali (2011) defines financial inclusion as the process of ensuring access to appropriate financial products and services needed by vulnerable groups such as weaker sections and low income groups at an affordable cost in a fair and transparent manner by mainstream Institutional players. The centre for financial inclusion publication (2015) describes full financial inclusion as 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 clients. Financial services are delivered by a range of providers, in a stable, competitive market and reach everyone who can use them. Central bank of Brazil, annual report on financial inclusion (2010) explains it as the process of effective access and use of financial services that are appropriate to their needs, contributing to their quality of life.

It is evident from most of the definitions that availability and accessibility are two important dimensions of financial inclusion/exclusion. However, an inclusive financial system does not only imply availability and accessibility. It should also take into account the usage of the services available and accessible. Sarma (2008) also emphasizes these three aspects of financial inclusion. According to her, financial inclusion is a process that ensures the ease of access, availability and usage of the formal financial system for all members of an economy.

Financial inclusion has been linked to economic growth of a country and several countries across the globe now look at financial inclusion as the means of a more comprehensive growth. In recognising the importance of financial inclusion, the United Nations (UN) established the United Nations advisory group on financial inclusion in 2006. This group advises the UN and member states on issues relating to the advancement of the financial inclusion agenda on a global scale. Since its establishment, many successes have been achieved and these include increasing the public awareness

on the importance of financial inclusion, assisting governments in the design of regulatory systems that facilitate the creation of financial services for the poor, encouraging the use of holistic measures to gauge the progress of financial inclusion, collecting and disseminating best practices, collaborating with the private sector to leverage on the talent and technology to further advance financial inclusion and to promote research that will galvanise new initiatives.

When people participate in the financial system, they are able to access credit which helps them start and expand businesses, invest in education, manage risks and this will reduce poverty and boost shared prosperity (Global Findex 2014, Cihak and Singh, 2013). Access to savings help households manage cash flow spikes and smooth consumption, as well as build working capital. Vulnerability to risk and the lack of instruments to cope with external shocks adequately make it difficult for poor people to escape poverty (CGAP, 2014).

UNDP (2012) highlights the importance of financial inclusion to all segments of the market i.e. the often neglected poor also require a range of financial services, such as opportunities to earn, safeguard the hard earned income, or credit to support them in maintaining at least bare minimum levels of sustenance through the year, risk mitigating services like insurance and transferring their earnings to their near and dear who may be staying at other places. According to the centre for financial inclusion publication (2015), full financial inclusion is a state in which all people can use financial services and as illustrated above, financial services imply access to savings, micro loans, insurance products and electronic payments and remittances. However, for households to understand and use these financial services there is need for financial literacy and this can be improved through financial education.

The nature and forms of financial inclusion are varied and so are the factors responsible for it. Therefore, no single factor explains the phenomenon. The nature and extent of financial inclusion are influenced by several factors which can be classified broadly into supply and demand side factors. For purposes of this study, we shall only look at the demand side factors.

Kumar (2011) assessed the behavior and determinants of financial inclusion in India and found that the factory proportion and employee base are considered as the significant variables indicating that income and employment generating schemes lead the public to be more active, aware, interested with regard to banking activities, which contributes towards financial inclusion.

Financial literacy and awareness are important factors which determine the extent of access and usage of available financial products/services. Exclusion occurs when clients are not aware about the products and services available, their use/relevance in meeting needs and their contribution to risk management strategies. Financial literacy of the poor is also very critical to building a vibrant and competitive low income financial services sector that facilitates affordable and need based access to financial services rather than mere access alone (Arunachalam, 2008; Sinha and Subramanian, 2007).

Chithra and Selvan (2013) in their attempt to analyze the determinants of financial inclusion revealed that Income, Literacy and Population as well as deposit and credit penetration were found to have significant association with the level of financial

inclusion whereas credit-deposit ratio and investment ratio did not have significant association with financial inclusion. Singh and Kodan (2012) also identified factors associated with financial inclusion and found that per capita net state domestic product and urbanization were significant explorers of financial inclusion.

## **2.1 The Relationship between Financial Literacy and Financial Inclusion**

Financial literacy means different things to different people and this is reflected most clearly in the many definitions used in the literature. Financial literacy is the process by which financial consumers or investors improve their understanding of financial products, concepts and risks, 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 (OECD PISA report, 2012). Hung, Parker and Yoong (2009) define financial literacy as the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being. Financial literacy refers to a person's ability to understand and make use of financial concepts (Servon and Kaestner 2008).

Financial literacy is the first step towards achieving financial inclusion. It is increasingly important for households to decide on how to invest wealth and how much to borrow in financial markets. People who are less financially literate are more likely to have problems with debt, less likely to save, more likely to engage in high cost credit and are less likely to plan for the future (Ramakrishnan, 2012). Financial literacy facilitates the decision making processes such as payment of bills on time, improve the credit worthiness of potential borrowers to support livelihoods, economic growth, sound financial systems, and poverty reduction. Having financially literate consumers create competitive pressures on financial institutions to offer more appropriately priced and transparent services, by comparing options, asking the right questions, and negotiating more effectively. Consumers on their part are able to evaluate and compare financial products, such as bank accounts, saving products, credit and loan options, payment instruments, investments, insurance coverage, so as to make optimal decisions (Isaac, 2012). Literacy is a prerequisite for creating investment awareness and hence intuitively it seems to be a key tool for financial inclusion but also literacy alone cannot guarantee high level financial inclusion in a state (Santanu and Pinky, 2011). Cole (2010) in his paper presents compelling new evidence that financial literacy is an important predictor of financial behavior in emerging market countries. The study is however limited to the areas of India and Indonesia.

Ramkumar (2007) mentions that the barriers that make financial inclusion through extension of bank branches included high costs of operations, limited banking hours and non-availability of alternate channels in rural centers. Among other barriers to financial inclusion, illiteracy was pointed out as being one of the barriers. This implies that the efforts to enhance financial inclusion need to address financial literacy among other barriers. This argument is supported by Triki and Faye (2013) who affirmed that the enhancement of financial inclusion requires particular attention to specific portions

of the population that have been historically excluded from the formal financial sector and the reasons why they have been excluded, financial literacy being among them.

Triki and Faye (2013) also report that while it has been argued that financial literacy is one of the key demand-side elements that foster financial inclusion, little was known about its influence on financial inclusion in Africa. In their study, they revealed the long suspected influence of financial literacy on financial inclusion when they found that adults with a tertiary education were particularly likely to report having an account at a formal financial institution. However, the use of education level rather than financial literacy level faults the results because education is different from financial literacy.

Financial literacy goes beyond formal education. Organization for Economic Development Program for International Student Assessment report (2012) presents evidence of varying levels of comprehension of different financial principles among groups of students. Odera (2013) postulates that the benefits that can be derived from Financial Education highlight the contribution that can be anticipated on national development; these benefits occur at the level of the individual, the firm and at the national level.

Willis (2008) asserted that, while the vision of consumers becoming responsible and empowered market players as a direct result of financial literacy training, it is hard to support empirically. She also asserts that consumers cannot and should not be expected to take full responsibility for their financial situation given the complexity of the modern marketplace.

## **2.2 The Impact of Financial Innovation on Financial Inclusion**

According to Luc, Ross and Stelios (2012), financial innovation refers broadly to any change in the financial system that improves product (that is, a physical good or service), process or a new marketing method. The increasing development of the financial services sector has allowed many people to have access to financial services, especially those without prior access to these services. The main driver of this change has been mainly new technologies such as mobile phones and ATM machines which have facilitated access to these services.

In their report on innovative financial inclusion from the access through innovation, the subgroup of the G20 financial experts group describe innovative financial inclusion as a means of improving access to financial services for poor people through the safe and sound spread of new approaches. They describe innovative financial inclusion as the delivery of financial services outside conventional branches of financial institutions by using information and communication technologies and non-bank retail agents and other new institutional arrangements to reach those who are financial excluded. They contend that for financial innovation that enhances inclusion to be successful, it needs to follow nine principles including leadership, diversity in approaches that promote competition and provide market-based incentives for delivery of sustainable financial access and usage of a broad range of affordable services such as savings, credit, payments and transfers, insurance as well as a diversity of service providers. Other principles to be followed include innovation, protection, development of financial literacy and financial capability, cooperation, knowledge that utilizes

improved data to make evidence-based policy, measured progress, “test and learn” approach by both regulators and service providers, proportionality and a regulatory framework that reflects international standards, national circumstances and support for a competitive landscape.

Regarding the role of innovation in financial inclusion, mobile money particularly stands out in the recent past. For example, Klapper (2012) reported that the recent success of mobile money in Sub-Saharan Africa shows that innovations can bring about dramatic changes in how people engage in financial transactions. Mobile money applications are typically small pieces of software embedded on a SIM card or available over a mobile network. A customer can use an inexpensive mobile to send value to someone else. To change this digital value into cash, a user simply visits a retail agent who verifies the user’s identity and makes the switch. In this way, money can cross enormous distances at the speed of a text message (Kevin, 2012).

Triki and Faye (2013) assert that innovation and thinking is needed to ensure that appropriate financial services and instruments are put in place for the benefit of the poor and other vulnerable groups in order to sustain the extension of financial services to the groups still unreached. UNDP (2012) acknowledged the fact that the rapid invasion of technology across the world has brought eminence to the role of ICT in financial inclusion, highlighting the need to include technological interventions in financial inclusion drives.

The pace of technological advancement has also resulted into unprecedented increase of financial innovations. Despite these developments, the rural areas in Uganda and many Sub-Saharan African countries remain without access to financial services and products. Limited financial services are provided in the rural areas and mainly by the informal sector in a fragmented, unsafe environment with limited linkages. Financial exclusion also frustrates the government’s poverty alleviation program that aims to ultimately reduce poverty levels and inequality as it impedes the development of individuals, businesses and Uganda’s economy as a whole (BOU, 2012).

The current mobile money model is SIM Card dependent because even as providers moved away from the Sim Tool Kit (STK) to the Unstructured Supplementary Service Data (USSD) model, a subscriber can only use the mobile money service of the SIM card’s provider. According to Sitbon and Almazán (2014), this situation is expected to change with the increase in adoption of smart phones; the shift is based on the prediction that de-linking the SIM card from the mobile money service, smart phones can lower barriers to entry for a greater diversity of players to capitalize on the mobile money opportunity, disrupting existing models. Web based or app based interfaces can also provide better user experiences. These observations and predictions indicate that the prospects of innovation and re-innovation of mobile money are still vivid and viable.

The hope for the smart phones to inspire the new wave of financial inclusion based on innovation derive evidence from emerging services like pesaDroid and M-ledger available to M-pesa users in Kenya to track mobile money transactions and provide monthly statements. According to Sitbon and Almazán (2014), “greater smart phone penetration may lead to an accelerated pace of new product development on the mobile money rails. New products can range from money management apps for existing



mobile money accounts to more sophisticated mobile financial products. While this can be a vertically integrated process led by in-house product development teams within mobile money providers, we are likely to witness a move towards disaggregated value chains with third parties offering software to layer new products on existing platforms. It remains to be justified however whether such promised smart apps and better user experience will create simplicity or rather introduce complexity to further exclude the computer illiterate individuals who seemed to be coping with the relatively simpler SIM based mobile money services.

According to Kevin (2012), mobile financial services are among the most promising mobile applications in the developing world. At the most basic level, mobile money is the provision of financial services through a mobile device. This broad definition encompasses a range of services, including payments (such as peer-to-peer transfers), finance (such as insurance products), and banking (such as account balance inquiries).

Mobile money is often successful because it is considerably cheaper than other alternatives to cash. In an international comparison of 26 banks, McKay and Pickens (2010) found that branchless banking (including mobile money) was 19percent cheaper on average than alternative services. However, mobile transfer services do not capture the full potential of mobile money to enhance financial inclusion. Early studies of South African mobile money found that while it had the potential to advance financial inclusion, it had not increased access to banking (Porteous, 2007).

Extant literature reveals that the level of financial inclusion in the world is still low and it is worse with developing countries. Factors attributed to this are not specific as they vary from country to country. Studies have been carried out in a number of countries and factors that affect one country may be insignificant in another country for instance; Kumar (2011) assessed the behavior and determinants of financial inclusion in India and found that income and employment generating schemes lead the public to be more active, aware, interested with regard to banking activities, which contributes towards financial inclusion. Arunachalam, (2008), Sinha and Subramanian, (2007) concluded that financial literacy and awareness are important factors which determine the extent of access and usage of available financial products/services.

Singh and Kodan (2012) also identified factors associated with financial inclusion with the help of Regression Analysis and found that per capita Net State Domestic Product and urbanization were significant explorers of financial inclusion while the literacy, employment and sex-ratio were not statistically significant explorers/predictors of the financial inclusion.

Uganda seemed not to have registered any study on determinants of financial inclusion, the reason that probably explains why despite the increase in the number of banks; the change in the level of financial inclusion is not proportionate.

### **3 Study Design and Methodology**

The study uses a cross-sectional survey. The adult members of the households are considered for this study because to effectively measure financial inclusion, one should consider members legally eligible to open and operate an account according to the financial institution's act 2004. A sample of respondents was selected from both Urban and rural areas of Uganda (Sekaran and Bougie, 2013). The respondents were selected using stratified and simple random sampling. This is supported by Zikmund (2003) who argues that these sampling procedures allows for large amounts of completed questionnaires to be obtained quickly and at a low cost. The data collection instruments included a self-administered semi-structured questionnaire. A questionnaire developed following the research objectives was used to obtain responses. The self-administered questionnaire was preferred due to its flexibility, high response rate and accuracy of results because it is administered by the researcher or appointed and trained research assistants. Data analysis is done using SPSS generated quantitative report for correlation and multiple regression tests. The regression equation used in this research is as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon, \text{ where;}$$

Y = Financial Inclusion

$\beta_0$  = Constant

$X_1$  = Financial literacy

$X_2$  = Financial innovations

$X_3$  = Age in years

$X_4$  = Income

$X_5$  = Education

$X_6$  = Gender

$\varepsilon$  = Probabilistic error term

## 4 Main Results

### 4.1 Descriptive Statistics of Financial Inclusion.

Table 4.1: Level of financial inclusion

Descriptive Statistics		
	Mean	Standard Deviation
Ease of access to operate an account at a formal financial institution	4.0101	1.16337
Ownership of an account at a formal financial institution	4.2250	1.01959
Usage of account for savings	3.7940	1.06019
Ease to access loans	3.2908	1.19061
Currently servicing a loan at a financial institution	2.7475	1.42383
Having an insurance Policy	2.8232	1.38302
Frequent usage of account for transactions	3.7716	1.16654

Source: Primary Data

Results in table 4.1 above indicate that the mean value of the ease of access to operate an account at a formal financial institution was 4.0101 with a standard deviation of 1.16337. The average reflects good access to formal financial institutions. Therefore most of the respondents have access to formal financial institutions. Ownership of an account at a formal financial institution had a mean value of 4.2250 and a standard deviation of 1.01959. On average this reflected the fact that most respondents have accounts at a formal financial institution. The average value of using the account for savings was 3.7940 with a standard deviation of 1.06019. This indicates that the respondents use the account for savings. Access to loans and servicing current loans had average values of 3.2908 and 2.7475 respectively. Servicing loans from a formal financial institution has the least average which implies that most of the respondents do not have loans at a financial institution despite the fact that they have access to them. Most respondents are afraid to obtain loans for fear of losing their assets whereas others do not have the securities required to obtain the loans. Having an insurance policy was the second least average of 2.8232 and a standard deviation of 1.38302. Most of the respondents are not insured in any way. This supports the findings of the FinScope 2013 survey that indicate that loans and insurance are the least sought for financial products. Most of the respondents frequently use their accounts for carrying out various transactions. This is indicated by the average value of 3.7716.

#### **4.2 Correlation Analysis**

Correlation analysis was used to find out the relationship between the variables. Pearson correlation was used to test the interrelationship between financial literacy, financial innovation and financial inclusion.

Table 4.2: below shows the relationship between the variables at various levels of significance

Correlations							
	Financial Inclusion	Financial Literacy	Financial Innovation	Income Level	Age	Education	Gender
Financial Inclusion							
Financial Literacy	.575** (.000)						
Financial Innovation	.474** (.000)	.568** (.000)					
Income level	.251** (.001)	.002 (.983)	.177* (.015)				
Age	.339** (.000)	.153* (.038)	.124 (.088)	.127 (.076)			
Education	.107 (.145)	.090 (.225)	.198** (.006)	.468** (.000)	.167* (.020)		
Gender	.060 (.411)	.022 (.767)	.085 (.243)	.135 (.058)	.067 (.352)	.214** (.002)	
**. Correlation is significant at the 0.01 level (2-tailed)							
*. Correlation is significant at the 0.05 level (2-tailed)							

Source: Primary Data

The preliminary findings indicate that financial inclusion and financial literacy have a strong positive relationship and was significant at 1% level of significance ( $r=0.575$  P value 0.000). This implies that consumers should be financially literate so that they are able to evaluate and compare financial products, such as bank accounts, saving products, credit and loan options, payment instruments, investments, insurance coverage, so as to make optimal decisions. Similarly financial inclusion and financial innovation had a positive relationship and is significant at 1% level of significance ( $r=0.474$  P value 0.000). These findings indicate that both financial literacy and financial innovation are predictors of financial inclusion.

### 4.3 Regression Analysis

Table 4.3: Multiple Regression Test Results on All Factors and Financial Inclusion

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon$$

	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	Beta	Std Error	Beta		
(Constant)	2.739	2.224	2.334	1.232	0.220
Financial Literacy(x <sub>1</sub> )	0.361	0.058	0.446	6.221	0.000
Financial Innovation(x <sub>2</sub> )	0.118	0.058	0.149	2.020	0.045
Age(x <sub>3</sub> )	0.252	0.284	0.260	4.410	0.000
Income level(x <sub>4</sub> )	0.906	0.270	0.226	3.358	0.001
Education(x <sub>5</sub> )	0.346	0.342	0.070	1.012	0.313
Gender(x <sub>6</sub> )	0.047	0.665	0.004	0.070	0.944
Dependent Variable: Financial Inclusion (Y)					
Adjusted R <sup>2</sup>	0.447	F statistics	23.480	Prob.(F statistic)	0.000

Source: Primary data

#### Financial Literacy and Financial Inclusion

The findings in Table 4.3 show that financial literate households embrace financial inclusion more ( $r = 0.446$  P value 0.000). These results confirm the finding in table 4.2. These findings concur with Ramakrishnan (2012) who noted that it is important for households to decide on how to invest wealth and know how much to borrow in financial markets and that people who are less financially literate are more likely to have problems with debt, less likely to save, more likely to engage in high cost credit and are less likely to plan for the future. Isaac (2012) also asserts that having financially literate consumers create competitive pressures on financial institutions to offer more appropriately priced and transparent services, by comparing options, asking the right questions, and negotiating more effectively. Consumers on their part are able to evaluate and compare financial products, such as bank accounts, saving products, credit and loan options, payment instruments, investments, insurance coverage, so as to make optimal decisions. Also in agreement is Arunachalam (2008), Sinha and Subramanian (2007) who concluded that financial literacy is very critical to building a vibrant and competitive low income financial services sector that facilitates affordable and need based access to financial services rather than mere access alone. Similarly Triki and Faye (2013) revealed the long suspected influence of financial literacy on financial inclusion and found that adults with a tertiary education were particularly likely to report having an account at a formal financial institution.

### **Financial innovation and financial inclusion**

The findings in table 4.3 also indicate financial innovation is positively related with financial inclusion ( $r = 0.149$  p value 0.045). These findings confirm the results in table 4.2. These findings are consistent with Klapper (2012) who reported that the recent success of mobile money in Sub-Saharan Africa shows that innovations brought about dramatic changes in how people engage in financial transactions. UNDP (2012) acknowledged the fact that the rapid invasion of technology across the world has brought eminence to the role of ICT in financial inclusion, highlighting the need to include technological interventions in financial inclusion drives.

### **Relationship of Income level, Age, Education and Gender with financial inclusion**

Income level and financial inclusion had a positive relationship and this was significant at 1% level of significance ( $r=0.251$  P value 0.001). This is in agreement with Triki and Faye (2013) who documented the association between poverty or rather income level and financial inclusion and found that on average, adults in the highest income quartile were almost four times as likely to have a formal account as those in the lowest income quartile. Cyn-Young and Rogelio (2015) also tested the significance of per capita income and argued that higher per capita income increases financial inclusion. According to Sinha and Subramanian (2007), the leading reason for financial exclusion is the lack of a steady, substantial income, which means people have little incentive to open a savings account and are not likely to qualify for a loan.

Age and financial inclusion was positive ( $r=0.339$  P value 0.000). This concurs with Modigliani's life cycle theory that people tend to consume less as they get older, so they accumulate savings during their adult life and de-accumulate in old age. This theory would mean that the level of financial inclusion is greater among people who are middle aged (Carmen, Ximena and David, 2013). Financial inclusion also reduces as a larger segment of the population are either too young or above the retirement age which impedes their access to financial services as they do not earn income (Cyn-Young and Rogelio 2015).

The finding on the relationship between Education and financial inclusion also reveals that the two are not significantly related. This disagrees with Mitton (2008), Demirguc-Kunt and Klapper (2012). Cyn-Young and Rogelio (2015) who show that both at global level and in Mexico, a higher educational level increases financial inclusion and that education is a variable that is frequently used for analyzing financial decisions, due to its association with financial knowledge, and as it is a proxy for financial literacy. However, education cannot be related to financial literacy since not all who are educated are financially literate.

Gender is not significantly related to financial inclusion. These findings disagree with Data from the World Bank's Global Financial Inclusion database which highlights the existence of significant gender gaps in ownership of accounts and usage of savings and credit products. It also disagrees with RBI (2008) who argues that financial inclusion also varies among gender.

## **5 Conclusion**

Financial literacy had a strong positive relationship with financial inclusion. This implies that the more people are aware of the financial services at the financial institutions, the more they are able to access and use them. This further implies that financial institutions should always have Medias of communicating to the public on their various products and services and this way their client base would increase because the customers will be aware of what suits their needs

Financial innovation had a positive relationship with financial inclusion. This implies that financial institutions should take advantage of new technologies to increase access to financial services, while at the same time protecting consumers.

To the financial institutions, the study recommends that for financial inclusion in Uganda to be enhanced, financial literacy should be at the forefront since it is directly related to financial inclusion. One of the most important roles of financial institutions is to ensure consumers make informed financial and economic decisions that ultimately drive economic growth. In this regard, there's need to spearhead the development and implementation of a Strategy for Financial Literacy in Uganda. The rationale behind the Strategy is to provide the use of simple, clear and compelling messages to the public concerning financial aspects.

To the telecommunication companies, the survey has provided evidence which shows that new products like mobile money can improve the access and use of financial services in Uganda. However, the use of mobile phone technology is still limited to only money transfer services. Therefore, there is need to adopt and extend this technology to the provision of other products and services like savings as well as credit extension through mobile money banking, agent banking and micro banking. This will enable the services to reach the population not only in urban areas but also in rural and hard-to-reach areas. The use of technology also calls for well-coordinated institutional arrangement among the key stakeholders in the financial sector when refining the existing laws and regulations.

The government should strengthen its policies as regards to support offered to the unemployed to have sources of income by providing loans to engage in businesses that will make their incomes increase since findings show that income is also important for financial inclusion to improve.

To regulatory authorities and industry players, the study clearly states the factors that affect financial inclusion. The study has demonstrated that financial literacy and financial innovation should be given priority in order to improve financial inclusion. Therefore industry players like banks, insurance companies should devise ways of fostering these factors.

To researchers, the study has made significant contribution about the relationship between the various factors that affect financial inclusion. It has also provided insights on new areas for future researchers to focus on.

To the public, the study has enlightened us on the importance of being financially included. The study has also provided knowledge on what factors affect the level of financial inclusion and how we can improve on these factors

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